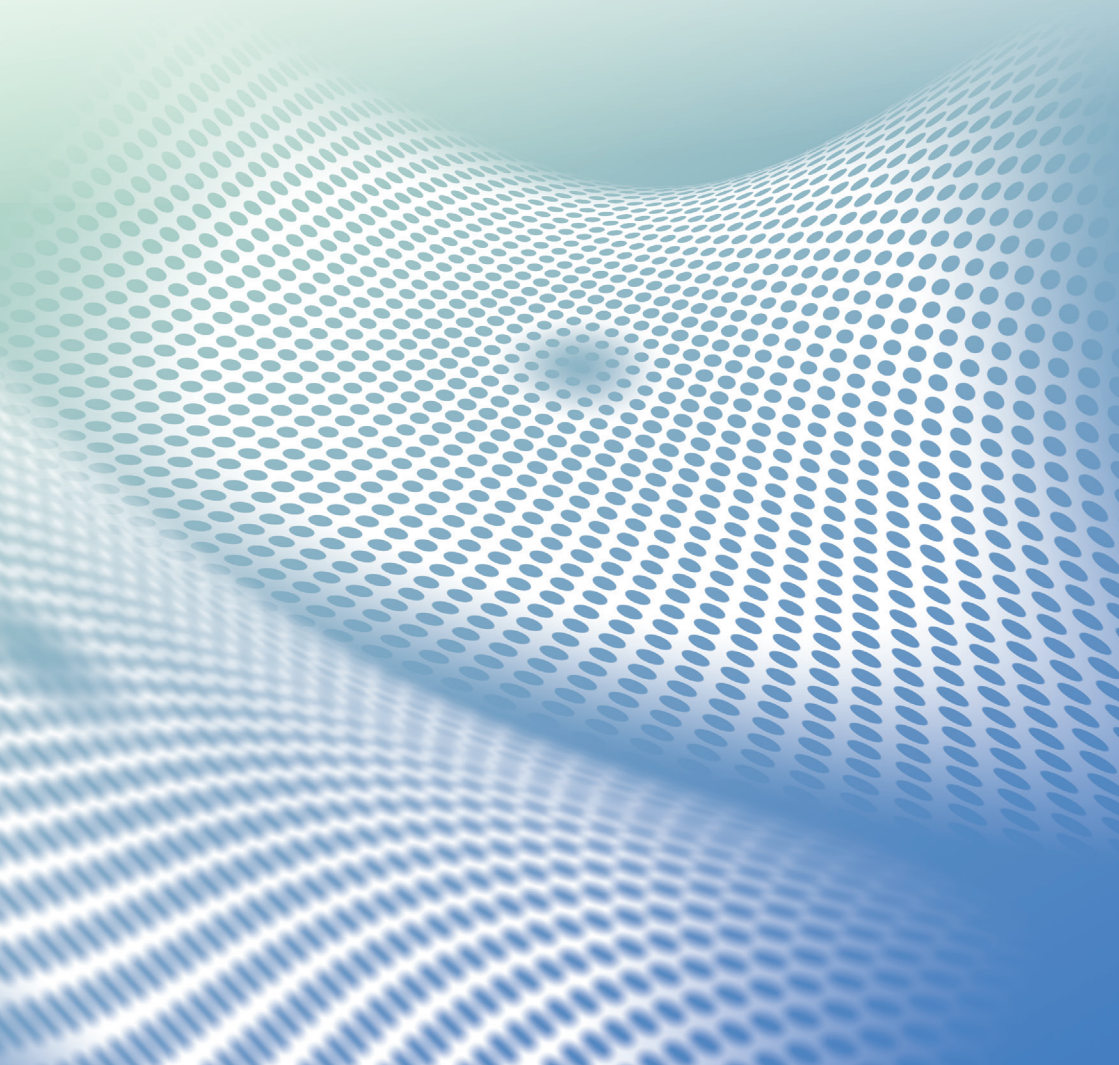




TOSHIBA

Selection Guide 2024

Discrete Device Package Lineups



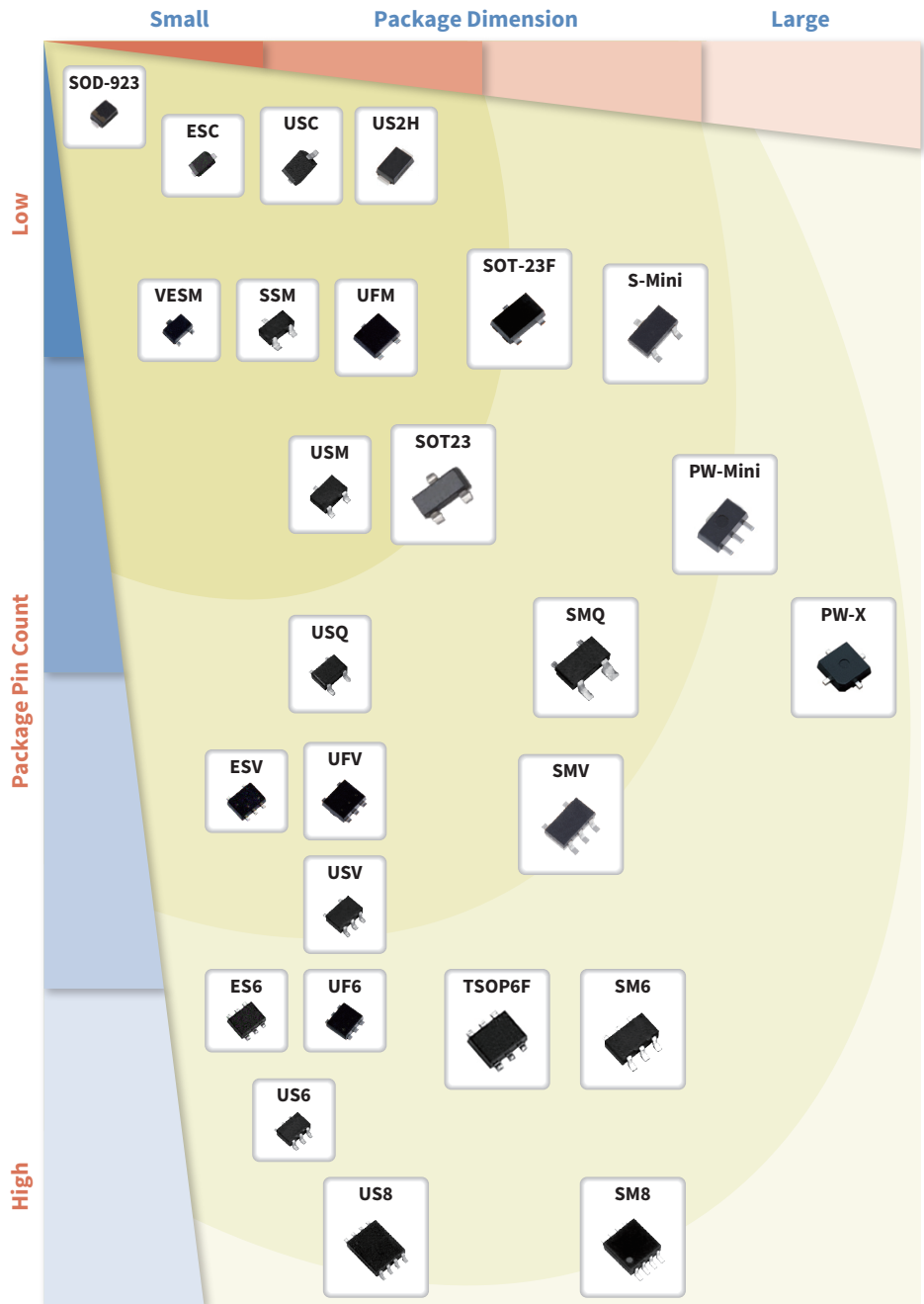
Contents

1. Small Signal Devices	4-19
■ Package Lineups	
■ Dimensional Outline	
2. Logic ICs	20-26
■ Package Lineups	
■ Dimensional Outline	
3. Power MOSFETs	28-35
■ Package Lineups	
■ Dimensional Outline	
4. Power Discrete Devices	36-42
■ Package Lineups	
■ Dimensional Outline	
5. Isolators and Solid State Relays	44-56
■ Package Lineups	
■ Dimensional Outline	

1. Small Signal Devices

Package Lineups

Surface Mount Type (Lead Type)

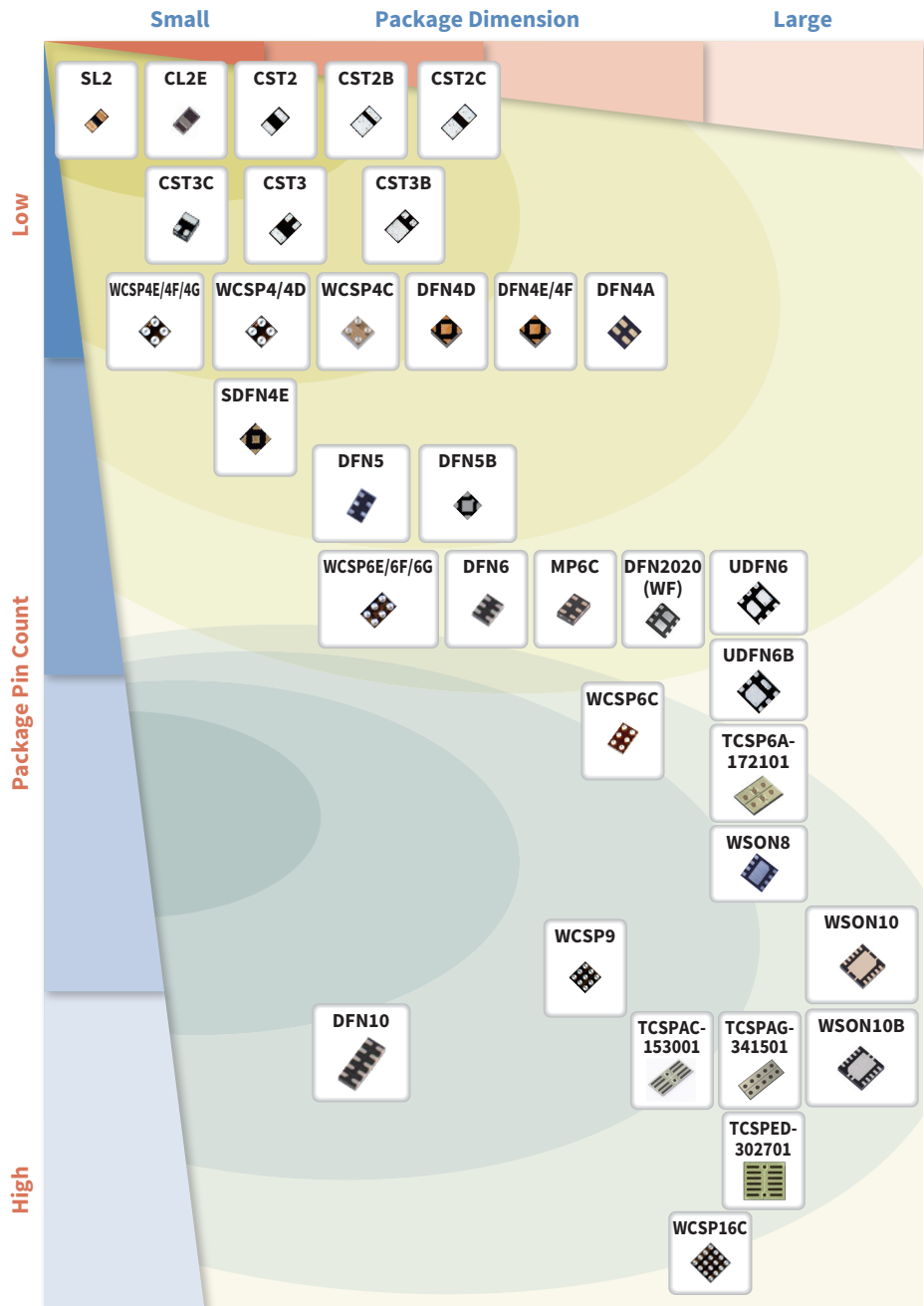


Surface Mount Type (Lead Type)

Package	Pin Count	Dimension W x L (mm)	Products									Page
			MOSFETs	Diodes	Power Management ICs				Linear ICs, Sensors	Transistors	RF Devices (Radio-Frequency Devices)	
					LDO Regulators	Load Switch ICs	eFuse ICs	MOSFET Gate Driver ICs				
SOD-923	2	1.0 x 0.6		✓							✓	8
ESC (SOD-523)	2	1.6 x 0.8		✓							✓	8
USC (SOD-323)	2	2.5 x 1.25		✓							✓	8
US2H (SOD-323HE)	2	2.5 x 1.4		✓								8
VESM (SOT-723)	3	1.2 x 1.2	✓	✓						✓	✓	8
SSM (SOT-416)	3	1.6 x 1.6	✓	✓						✓	✓	8
UFM (SOT-323F)	3	2.0 x 2.1	✓							✓	✓	9
USM (SOT-323)	3	2.0 x 2.1	✓	✓						✓	✓	9
SOT23 (SOT-23)	3	2.9 x 2.4	✓	✓						✓		9
SOT-23F	3	2.9 x 2.4	✓						✓	✓	✓	9
S-Mini (SOT-346)	3	2.9 x 2.5	✓	✓						✓	✓	9
PW-Mini	3	4.6 x 4.2									✓	9
USQ (SOT-343)	4	2.0 x 2.1		✓							✓	10
SMQ (SOT-24)	4	2.9 x 2.9		✓							✓	10
PW-X	4	6.1 x 6.3									✓	10
ESV (SOT-553)	5	1.6 x 1.6	✓	✓	✓				✓	✓		10
UFV (SOT-353F)	5	2.0 x 2.1	✓	✓	✓				✓			10
USV (SOT-353)	5	2.0 x 2.1	✓	✓					✓	✓		10
SMV (SOT-25)	5	2.9 x 2.8		✓	✓	✓			✓	✓		11
ES6 (SOT-563)	6	1.6 x 1.6	✓	✓						✓		11
UF6 (SOT-363F)	6	2.0 x 2.1	✓									11
US6 (SOT-363)	6	2.0 x 2.1	✓	✓						✓		11
SM6 (SOT-26)	6	2.9 x 2.8		✓						✓		11
TSOP6F	6	2.9 x 2.8	✓									11
US8 (SOT-765)	8	2.0 x 3.1							✓			12
SM8 (SOT-505)	8	2.9 x 4.0							✓			12

Note
Linear ICs, Sensors: Operational Amplifiers and Comparators , Magnetic Sensors , Thermoflagger™ (Over Temperature Detection IC)
“Thermoflagger™” is a trademark of Toshiba Electronic Devices & Storage Corporation.

Surface Mount Type (Leadless Type)



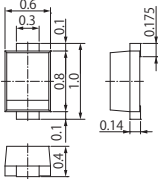
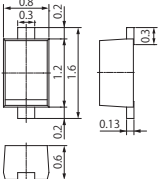
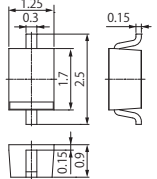
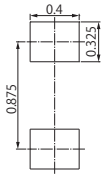
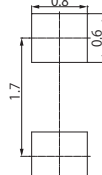
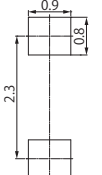
Surface Mount Type (Leadless Type)

Package	Pin Count	Dimension W x L (mm)	Products									Page
			MOSFETs	Diodes	Power Management ICs				Linear ICs, Sensors	Transistors	RF Devices (Radio-Frequency Devices)	
					LDO Regulators	Load Switch ICs	eFuse ICs	MOSFET Gate Driver ICs				
SL2 (SOD-962)	2	0.62 x 0.32		✓							✓	13
CL2E	2	1.0 x 0.6		✓								13
CST2 (SOD-882)	2	1.0 x 0.6		✓							✓	13
CST2B	2	1.2 x 0.8		✓								13
CST2C (SOD-963)	2	1.6 x 0.8		✓								13
CST3C	3	0.8 x 0.6	✓									13
CST3 (SOT-883)	3	1.0 x 0.6	✓	✓						✓		14
CST3B	3	1.2 x 0.8	✓									14
WCSP4E	4	0.645 x 0.645			✓							14
WCSP4F	4	0.645 x 0.645			✓							14
WCSP4G	4	0.645 x 0.645				✓						14
WCSP4	4	0.79 x 0.79			✓							14
WCSP4D	4	0.79 x 0.79				✓						15
SDFN4E	4	0.8 x 0.8			✓							15
WCSP4C	4	0.9 x 0.9				✓						15
DFN4D	4	1.0 x 1.0			✓							15
DFN4E	4	1.0 x 1.0			✓							15
DFN4F	4	1.0 x 1.0			✓							15
DFN4A	4	1.2 x 1.2				✓						16
DFN5B	5	1.2 x 1.2			✓							16
DFN5	5	1.3 x 0.8		✓								16
WCSP6E	6	1.2 x 0.8				✓		✓				16
WCSP6F	6	1.2 x 0.8			✓							16
WCSP6G	6	1.2 x 0.8						✓				16
DFN6	6	1.25 x 1.0		✓								17
MP6C	6	1.45 x 1.0							✓			17
WCSP6C	6	1.5 x 1.0	✓			✓						17
DFN2020(WF)	6	2.0 x 2.0	✓									17
UDFN6 (SOT-1118)	6	2.0 x 2.0	✓									17
UDFN6B (SOT-1220)	6	2.0 x 2.0	✓	✓								17
TCSP6A-172101	6	2.14 x 1.67	✓									18
WSO8	8	2.0 x 2.0					✓					18
WCSP9	9	1.5 x 1.5				✓						18
DFN10	10	2.5 x 1.0		✓								18
TCSPAC-153001	10	2.98 x 1.49	✓									18
TCSPAG-341501	10	3.37 x 1.47	✓									18
WSO10	10	3.0 x 3.0						✓				19
WSO10B	10	3.0 x 3.0						✓				19
TCSPED-302701	14	3.0 x 2.74	✓									19
WCSP16C	16	1.9 x 1.9				✓						19

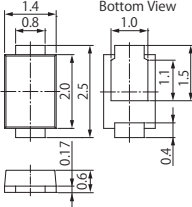
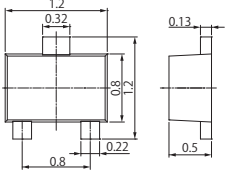
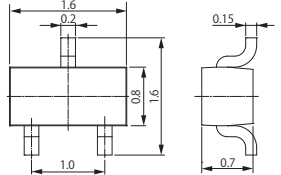
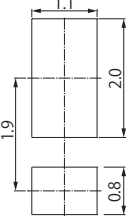
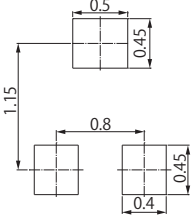
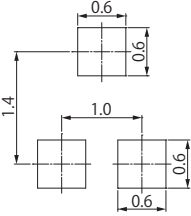
Note
 Linear ICs, Sensors: Operational Amplifiers and Comparators , Magnetic Sensors , Thermoflagger™ (Over Temperature Detection IC)
 *Thermoflagger™ is a trademark of Toshiba Electronic Devices & Storage Corporation.

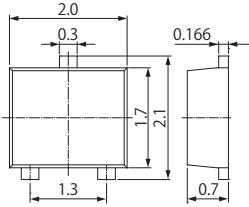
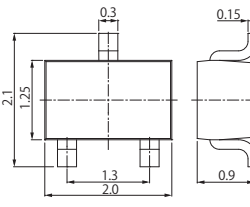
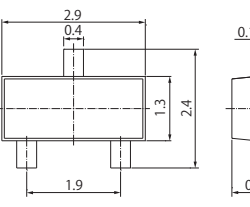
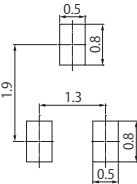
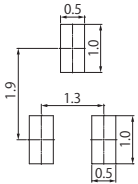
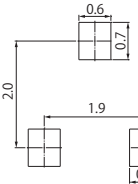
■ Dimensional Outline

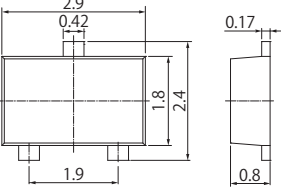
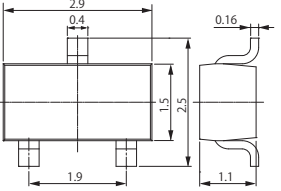
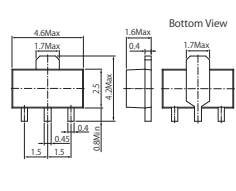
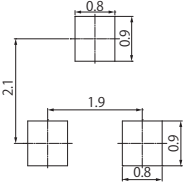
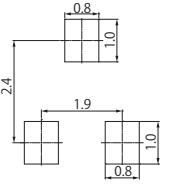
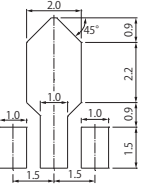
Surface Mount Type (Lead Type)

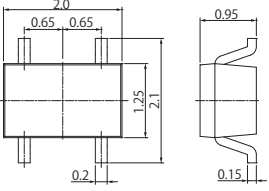
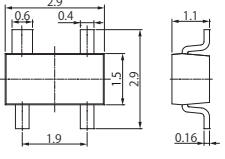
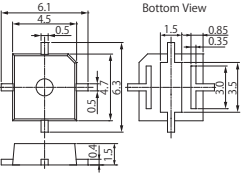
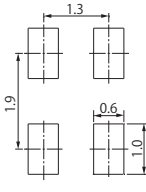
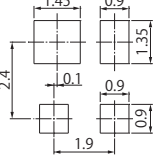
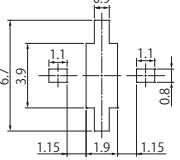
SOD-923 (1.0 x 0.6)			ESC (SOD-523) (1.6 x 0.8)			USC (SOD-323) (2.5 x 1.25)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
2	0.55 mg	10,000 p/reel	2	1.4 mg	- *	2	4.5 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

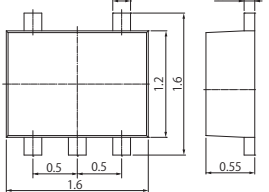
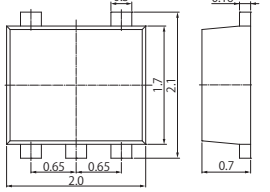
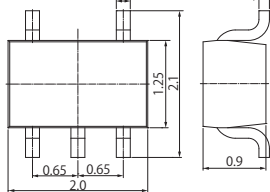
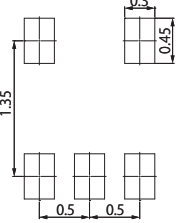
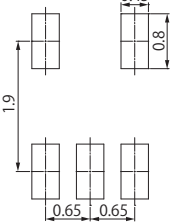
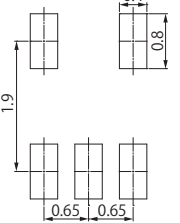
* TPL3 8,000p/reel, TPH3 4,000p/reel

US2H (SOD-323HE) (2.5 x 1.4)			VESM (SOT-723) (1.2 x 1.2)			SSM (SOT-416) (1.6 x 1.6)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
2	5.4 mg	3,000 p/reel	3	1.5 mg	8,000 p/reel	3	2.4 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

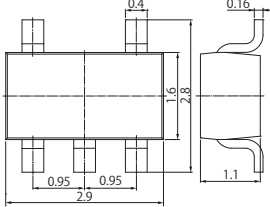
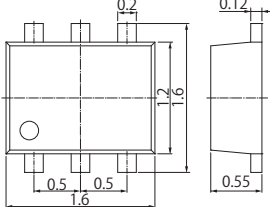
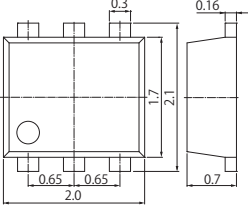
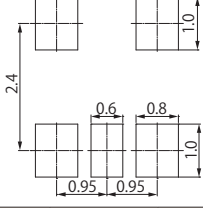
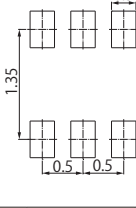
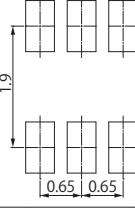
UFM (SOT-323F) (2.0 x 2.1)			USM (SOT-323) (2.0 x 2.1)			SOT23 (SOT-23) (2.9 x 2.4)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	6.6 mg	3,000 p/reel	3	6 mg	3,000 p/reel	3	9 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

SOT-23F (2.9 x 2.4)			S-Mini (SOT-346) (2.9 x 2.5)			PW-Mini (4.6 x 4.2)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	11 mg	3,000 p/reel	3	12 mg	3,000 p/reel	3	50 mg	1,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	13 mm	12 mm

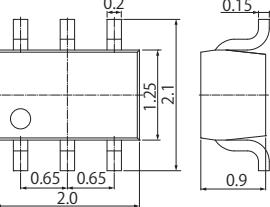
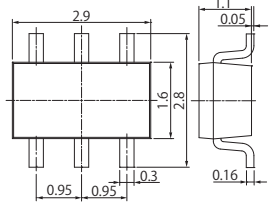
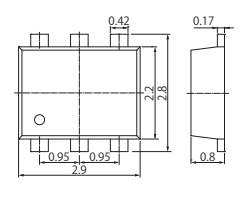
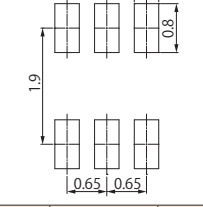
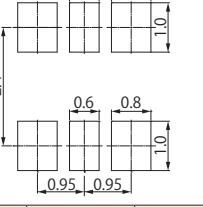
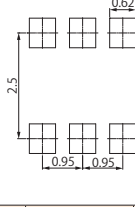
USQ (SOT-343) (2.0 x 2.1)			SMQ (SOT-24) (2.9 x 2.9)			PW-X (6.1 x 6.3)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	6 mg	3,000 p/reel	4	13 mg	3,000 p/reel	4	80 mg	1,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	13 mm	12 mm

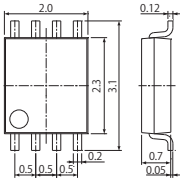
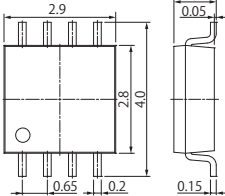
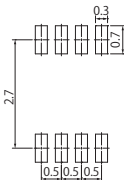
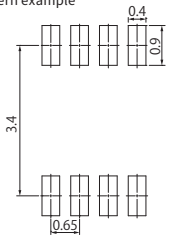
ESV (SOT-553) (1.6 x 1.6)			UFV (SOT-353F) (2.0 x 2.1)			USV (SOT-353) (2.0 x 2.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
5	3 mg	- *	5	7 mg	3,000 p/reel	5	6 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

* TPL3 8,000p/reel, TE85L 4,000p/reel

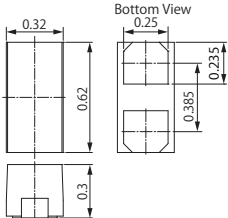
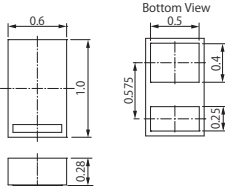
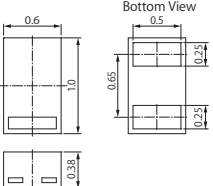
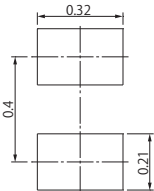
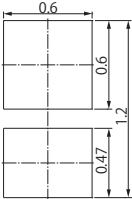
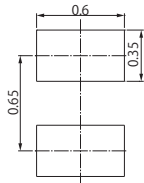
SMV (SOT-25) (2.9 x 2.8)			ES6 (SOT-563) (1.6 x 1.6)			UF6 (SOT-363F) (2.0 x 2.1)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
5	14 mg	3,000 p/reel	6	3 mg	- *	6	7 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

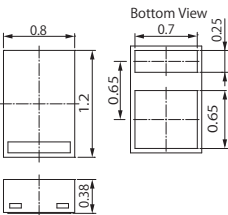
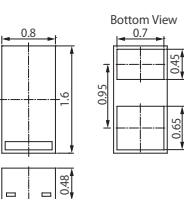
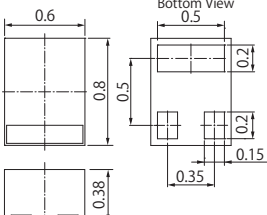
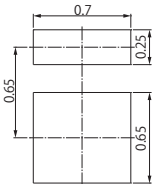
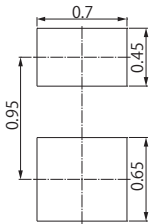
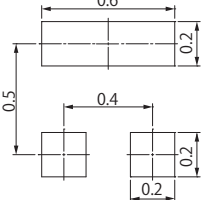
* TPL3 8,000p/reel, TE85L 4,000p/reel

US6 (SOT-363) (2.0 x 2.1)			SM6 (SOT-26) (2.9 x 2.8)			TSOP6F (2.9 x 2.8)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	6.8 mg	3,000 p/reel	6	15 mg	3,000 p/reel	6	16 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

US8 (SOT-765) (2.0 x 3.1)			SM8 (SOT-505) (2.9 x 4.0)		
Package dimension		unit : mm	Package dimension		unit : mm
					
Land pattern example		unit : mm	Land pattern example		unit : mm
					
Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	8.8 mg	3,000 p/reel	8	21 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	13 mm	12 mm

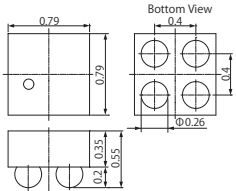
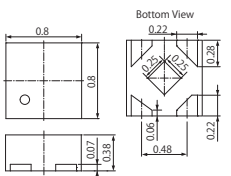
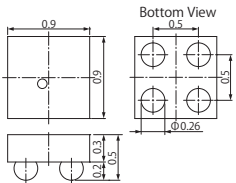
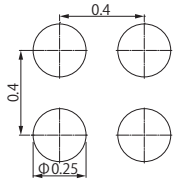
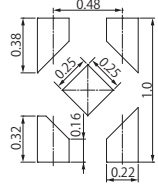
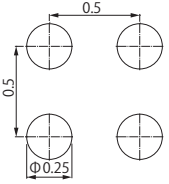
Surface Mount Type (Leadless Type)

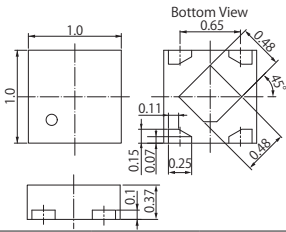
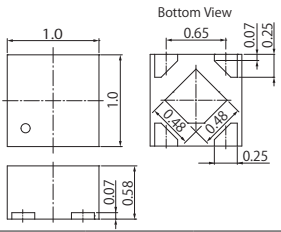
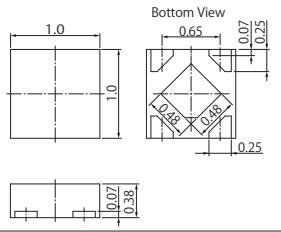
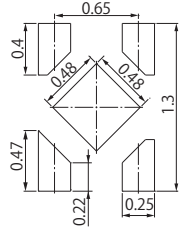
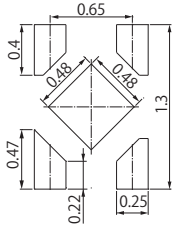
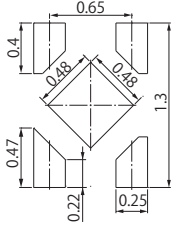
SL2 (SOD-962) (0.62 x 0.32)			CL2E (1.0 x 0.6)			CST2 (SOD-882) (1.0 x 0.6)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
2	0.2 mg	10,000 p/reel	2	0.39 mg	10,000 p/reel	2	0.7 mg	10,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

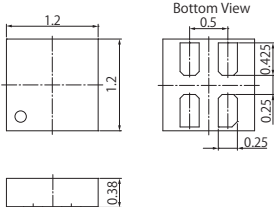
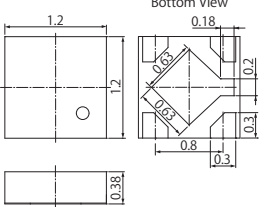
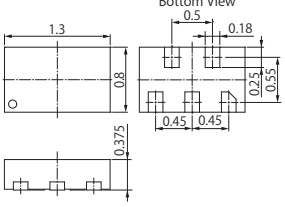
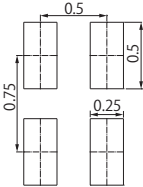
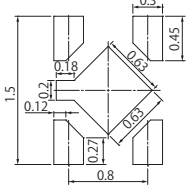
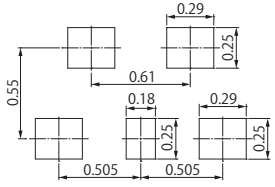
CST2B (1.2 x 0.8)			CST2C (SOD-963) (1.6 x 0.8)			CST3C (0.8 x 0.6)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
2	0.7 mg	10,000 p/reel	2	1.5 mg	10,000 p/reel	3	0.63 mg	10,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

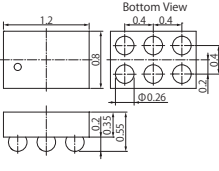
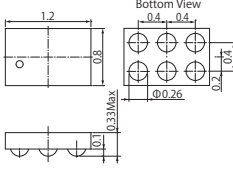
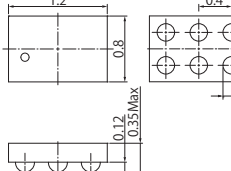
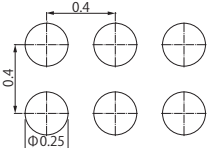
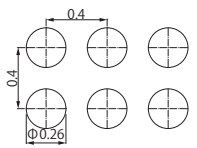
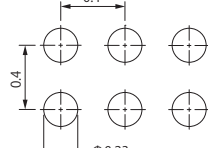
CST3 (SOT-883) (1.0 x 0.6)			CST3B (1.2 x 0.8)			WCSP4E (0.645 x 0.645)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	0.75 mg	10,000 p/reel	3	1.5 mg	10,000 p/reel	4	0.34 mg	5,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

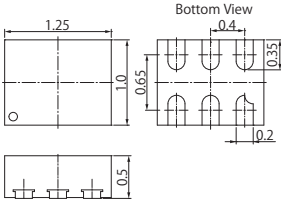
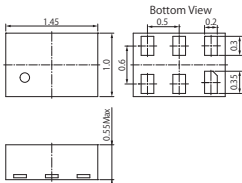
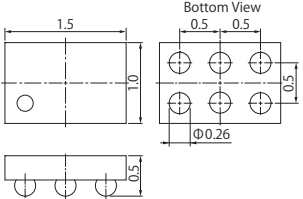
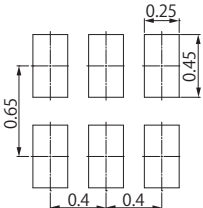
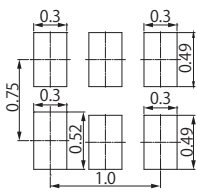
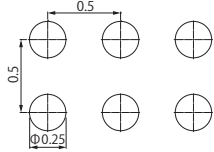
WCSP4F (0.645 x 0.645)			WCSP4G (0.645 x 0.645)			WCSP4 (0.79 x 0.79)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	0.26 mg	5,000 p/reel	4	0.38 mg	5,000 p/reel	4	0.7 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

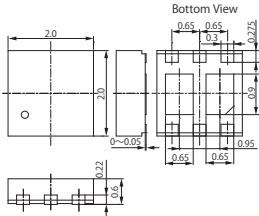
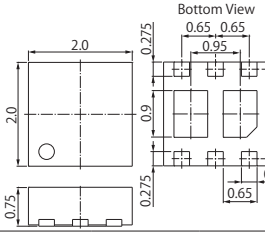
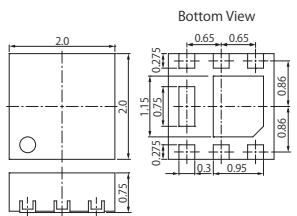
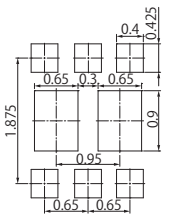
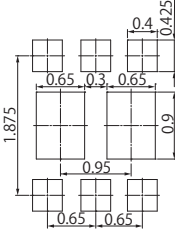
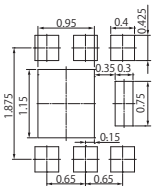
WCSP4D (0.79 x 0.79)			SDFN4E (0.8 x 0.8)			WCSP4C (0.9 x 0.9)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	0.79 mg	5,000 p/reel	4	0.6 mg	10,000 p/reel	4	0.9 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

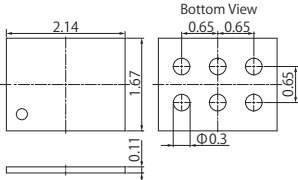
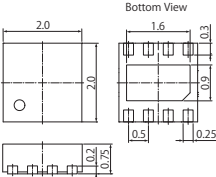
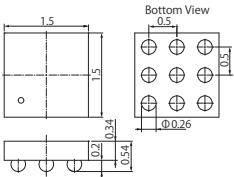
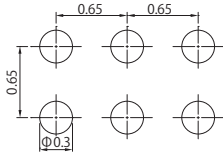
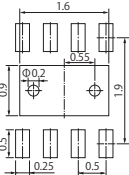
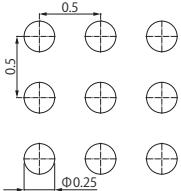
DFN4D (1.0 x 1.0)			DFN4E (1.0 x 1.0)			DFN4F (1.0 x 1.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	1.1 mg	10,000 p/reel	4	1.3 mg	10,000 p/reel	4	0.93 mg	10,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

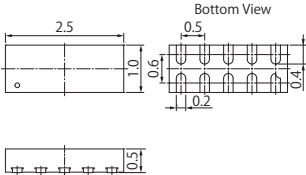
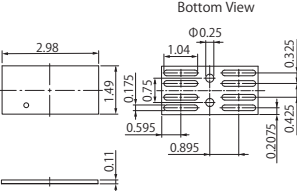
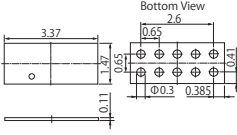
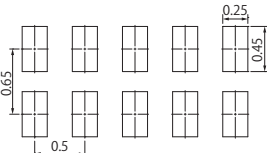
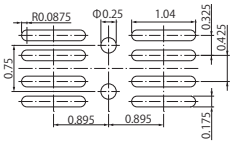
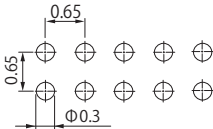
DFN4A (1.2 x 1.2)			DFN5B (1.2 x 1.2)			DFN5 (1.3 x 0.8)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	1.45 mg	5,000 p/reel	5	1.4 mg	5,000 p/reel	5	1 mg	5,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

WCSP6E (1.2 x 0.8)			WCSP6F (1.2 x 0.8)			WCSP6G (1.2 x 0.8)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	1 mg	5,000 p/reel	6	0.61 mg	5,000 p/reel	6	0.61 mg	5,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

DFN6 (1.25 x 1.0)			MP6C (1.45 x 1.0)			WCSP6C (1.5 x 1.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	0.7 mg	3,000 p/reel	6	2.4 mg	5,000 p/reel	6	1.4 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9.5 mm	8 mm	179 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

DFN2020(WF) (2.0 x 2.0)			UDFN6 (SOT-1118) (2.0 x 2.0)			UDFN6B (SOT-1220) (2.0 x 2.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6			6	8.5 mg	3,000 p/reel	6	8.5 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
			180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

TCSP6A-172101 (2.14 x 1.67)			WS0N8 (2.0 x 2.0)			WCSP9 (1.5 x 1.5)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	1.251 mg	10,000 p/reel	8			9	3.5 mg	5,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm				180 mmΦ	9 mm	8 mm

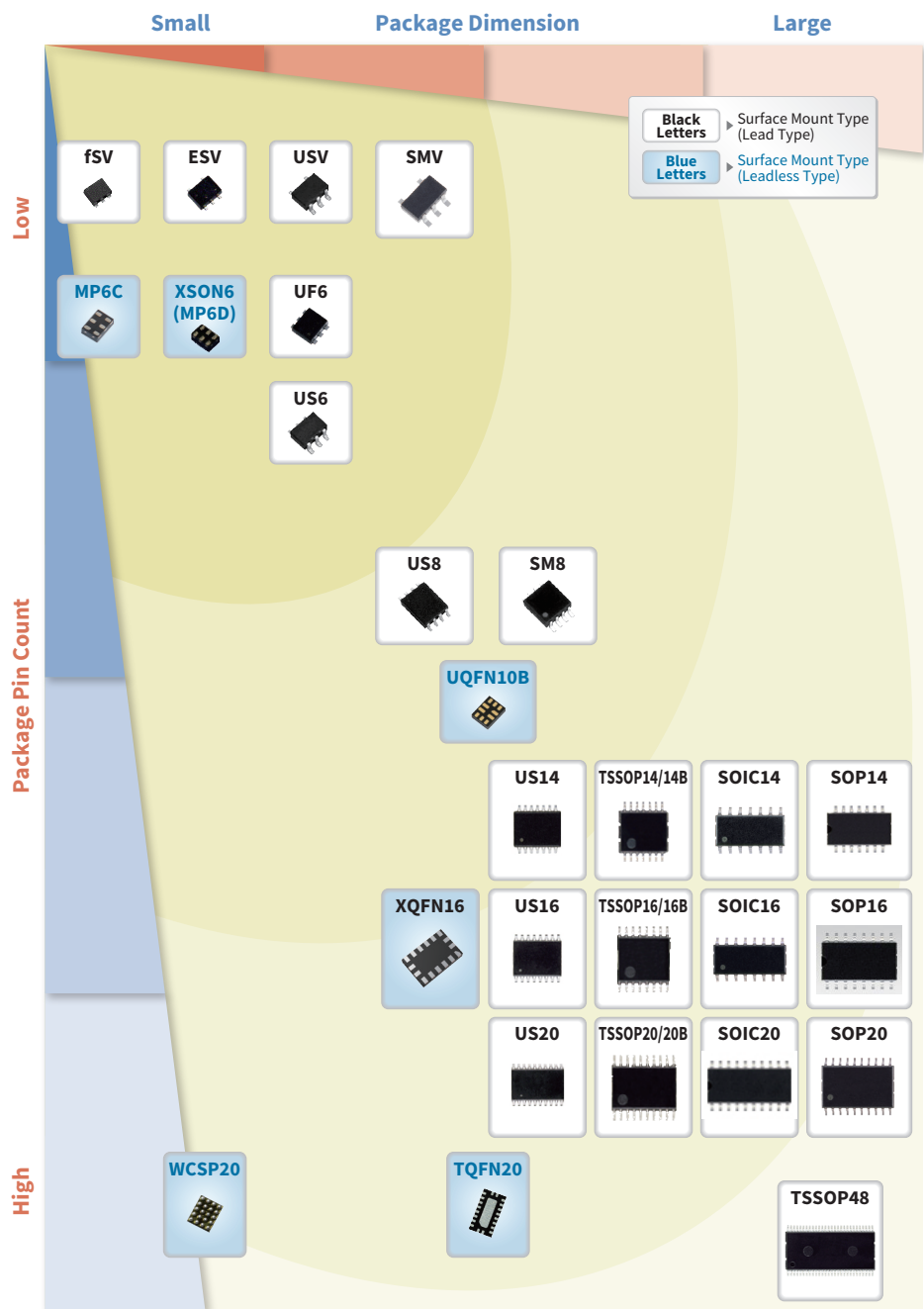
DFN10 (2.5 x 1.0)			TCSPAC-153001 (2.98 x 1.49)			TCSPAG-341501 (3.37 x 1.47)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
10	3.2 mg	3,000 p/reel	10	1.499 mg		10	1.69 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9.5 mm	8 mm						

WSON10 (3.0 x 3.0)			WSON10B (3.0 x 3.0)			TCSPED-302701 (3.0 x 2.74)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
10	19.7 mg	4,000 p/reel	10	19.3 mg	4,000 p/reel	14	4.05 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm			

WCSP16C (1.9 x 1.9)		
Package dimension unit : mm 		
Land pattern example unit : mm 		
Pin count	Weight	MOQ
16	3.9 mg	5,000 p/reel
Reel dimension		Tape width
Diameter	Width	
180 mmΦ	9 mm	8 mm

2. Logic ICs

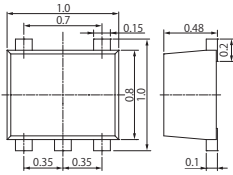
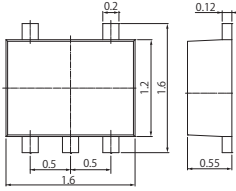
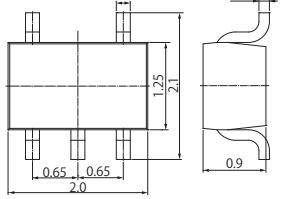
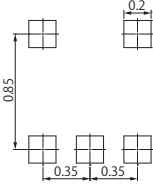
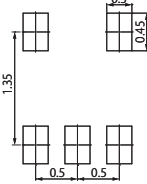
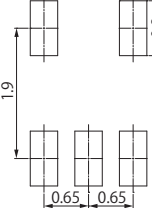
■ Package Lineups



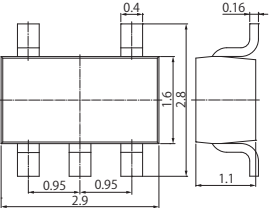
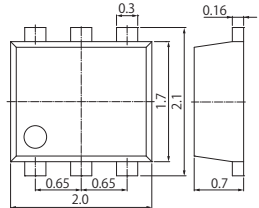
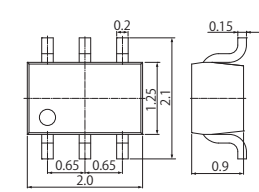
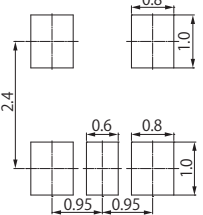
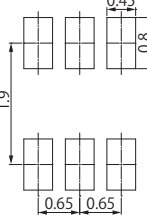
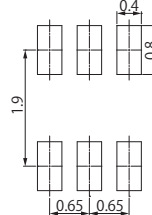
Package		Pin Count	Dimension W x L (mm)	Products				Page
				One-Gate Logic ICs	CMOS Logic ICs	Bus Switches	Level Shifters	
Surface Mount Type (Lead Type)	fSV (SOT-953)	5	1.0 x 1.0	✓			✓	22
	ESV (SOT-553)	5	1.6 x 1.6	✓				22
	USV (SOT-353)	5	2.0 x 2.1	✓		✓	✓	22
	SMV (SOT-25)	5	2.9 x 2.8	✓				22
	UF6 (SOT-363F)	6	2.0 x 2.1				✓	22
	US6 (SOT-363)	6	2.0 x 2.1	✓		✓		22
	US8 (SOT-765)	8	2.0 x 3.1	✓		✓	✓	23
	SM8 (SOT-505)	8	2.9 x 4.0	✓				23
	US14	14	4.0 x 4.0		✓	✓	✓	23
	TSSOP14	14	5.0 x 6.4		✓	✓	✓	23
	TSSOP14B	14	5.0 x 6.4		✓			23
	SOIC14	14	8.65 x 6.0		✓			23
	SOP14	14	10.3 x 7.8		✓			24
	US16	16	4.0 x 4.0		✓	✓	✓	24
	TSSOP16	16	5.0 x 6.4		✓	✓	✓	24
	TSSOP16B	16	5.0 x 6.4		✓		✓	24
	SOIC16	16	9.9 x 6.0		✓			24
	SOP16	16	10.3 x 7.8		✓			24
	US20	20	5.0 x 4.0		✓	✓	✓	25
	TSSOP20	20	6.5 x 6.4		✓	✓	✓	25
	TSSOP20B	20	6.5 x 6.4		✓			25
	SOP20	20	12.8 x 7.8		✓			25
	SOIC20	20	12.8 x 10.3		✓			25
	TSSOP48	48	12.5 x 8.1		✓		✓	25
Surface Mount Type (Leadless Type)	MP6C	6	1.45 x 1.0				✓	26
	XSON6(MP6D)	6	1.45 x 1.0	✓		✓		26
	UQFN10B	10	1.4 x 1.8			✓		26
	XQFN16	16	2.4 x 1.6			✓		26
	TQFN20	20	4.5 x 2.5			✓		26
	WCSP20	20	2.0 x 1.6			✓		26

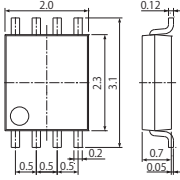
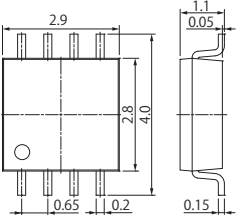
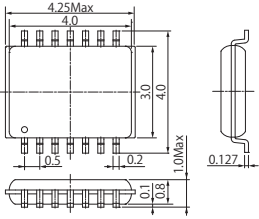
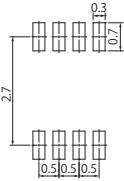
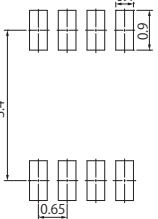
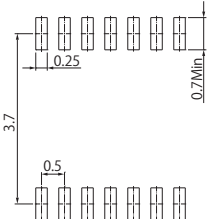
■ Dimensional Outline

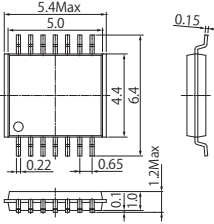
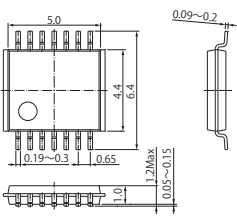
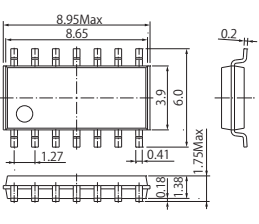
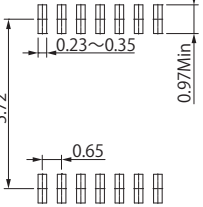
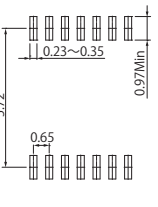
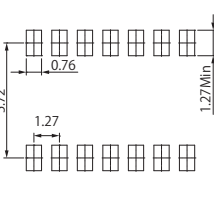
Surface Mount Type (Lead Type)

fSV (SOT-953) (1.0 x 1.0)			ESV (SOT-553) (1.6 x 1.6)			USV (SOT-353) (2.0 x 2.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
5	1 mg	10,000 p/reel	5	3 mg	- *	5	6 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

* TPL3 8,000p/reel, TE85L 4,000p/reel

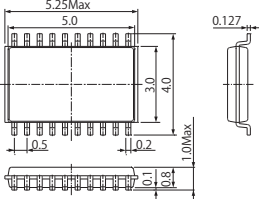
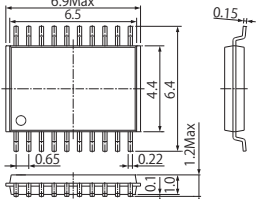
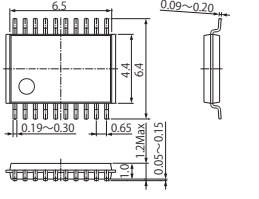
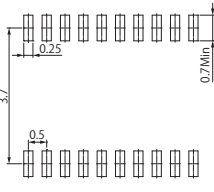
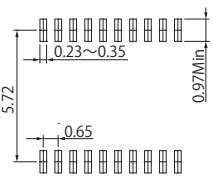
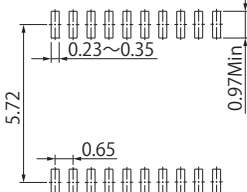
SMV (SOT-25) (2.9 x 2.8)			UF6 (SOT-363F) (2.0 x 2.1)			US6 (SOT-363) (2.0 x 2.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
5	14 mg	3,000 p/reel	6	7 mg	3,000 p/reel	6	6.8 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

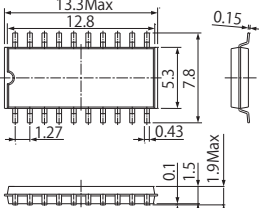
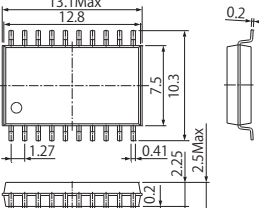
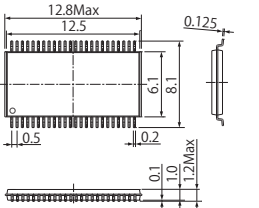
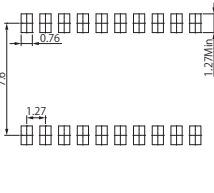
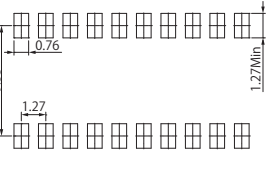
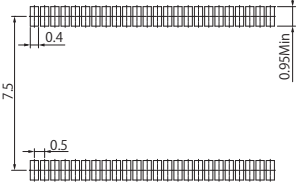
US8 (SOT-765) (2.0 x 3.1)			SM8 (SOT-505) (2.9 x 4.0)			US14 (4.0 x 4.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	8.8 mg	3,000 p/reel	8	21 mg	3,000 p/reel	14	20 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	13 mm	12 mm	254 mmΦ	13 mm	12 mm

TSSOP14 (5.0 x 6.4)			TSSOP14B (5.0 x 6.4)			SOIC14 (8.65 x 6.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
14	60 mg	2,000 p/reel	14	54 mg	2,500 p/reel	14	130 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	330 mmΦ	13 mm	12 mm	330 mmΦ	17.4 mm	16 mm

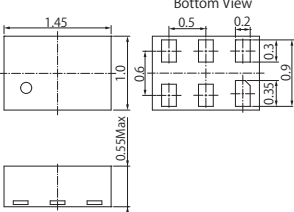
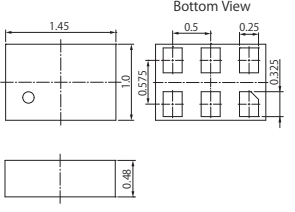
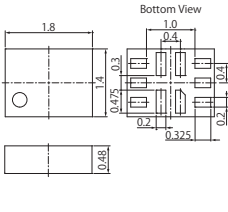
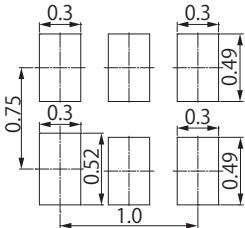
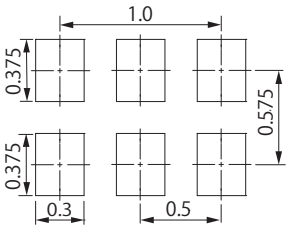
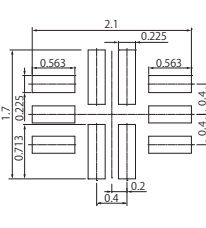
SOP14 (10.3 x 7.8)			US16 (4.0 x 4.0)			TSSOP16 (5.0 x 6.4)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
14	180 mg	2,000 p/reel	16	20 mg	2,500 p/reel	16	60 mg	2,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	254 mmΦ	13 mm	12 mm	330 mmΦ	17.5 mm	16 mm

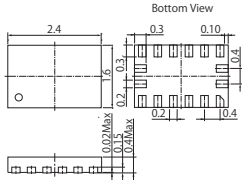
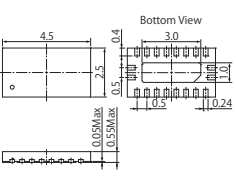
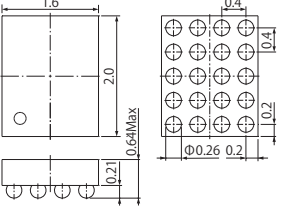
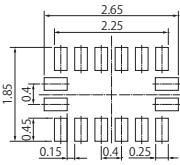
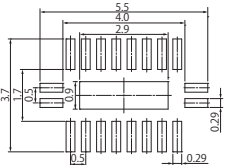
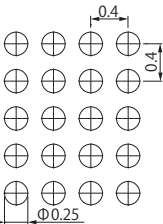
TSSOP16B (5.0 x 6.4)			SOIC16 (9.9 x 6.0)			SOP16 (10.3 x 7.8)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
16	55 mg	2,500 p/reel	16	150 mg	2,500 p/reel	16	180 mg	2,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	13.5 mm	12 mm	330 mmΦ	17.4 mm	16 mm	330 mmΦ	17.5 mm	16 mm

US20 (5.0 x 4.0)			TSSOP20 (6.5 x 6.4)			TSSOP20B (6.5 x 6.4)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
20	30 mg	2,500 p/reel	20	80 mg	2,000 p/reel	20	71 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
254 mmΦ	13 mm	12 mm	220 mmΦ	17.5 mm	16 mm	330 mmΦ	17 mm	16 mm

SOP20 (12.8 x 7.8)			SOIC20 (12.8 x 10.3)			TSSOP48 (12.5 x 8.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
20	220 mg	2,000 p/reel	20	510 mg	2,000 p/reel	48	250 mg	1,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	25.5 mm	24 mm	330 mmΦ	25.4 mm	24 mm	330 mmΦ	25.5 mm	24 mm

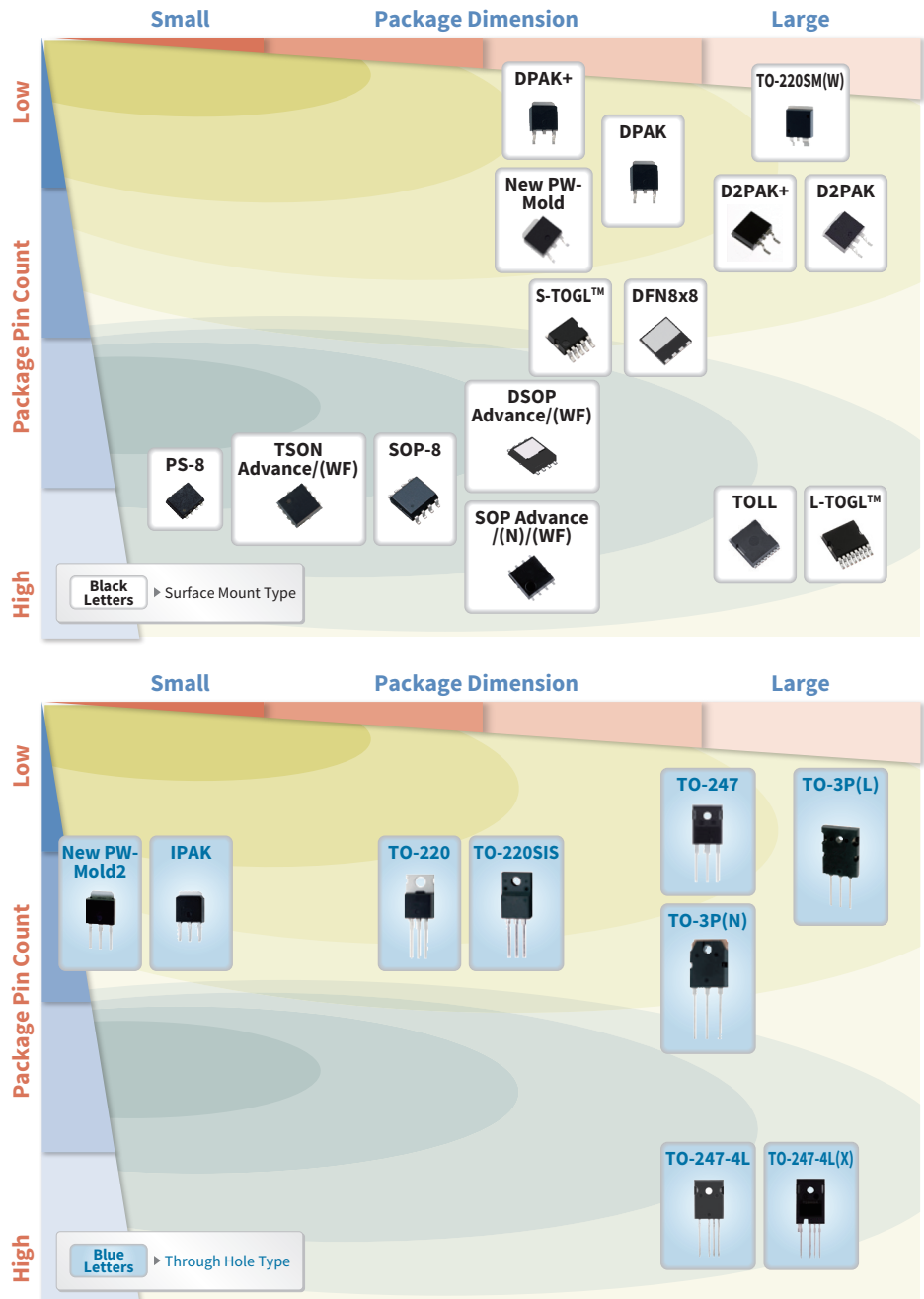
Surface Mount Type (Leadless Type)

MP6C (1.45 x 1.0)			XSON6(MP6D) (1.45 x 1.0)			UQFN10B (1.4 x 1.8)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	2.4 mg	5,000 p/reel	6	2.4 mg	10,000 p/reel	10	3.5 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
179 mmΦ	8.4 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

XQFN16 (2.4 x 1.6)			TQFN20 (4.5 x 2.5)			WCSP20 (2.0 x 1.6)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
16			20	17 mg	5,000 p/reel	20	5 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
			179 mmΦ	13.8 mm	12 mm	180 mmΦ	9 mm	8 mm

3. Power MOSFETs

■ Package Lineups



* S-TOGL™ and L-TOGL™ are trademarks of Toshiba Electronic Devices & Storage Corporation.

Package		Pin Count	Dimension W x L (mm)	Page	
Surface Mount Type	DPAK+	3	6.5 x 9.5	30	
	New PW-Mold	3	6.5 x 9.5	30	
	DPAK(2-7K1S)	3	6.6 x 10.0	30	
	DPAK(2-7N1S)	3	6.54 x 10.14	30	
	TO-220SM(W)	3	10.0 x 13.0	30	
	D2PAK+	3	10.0 x 15.0	30	
	D2PAK	3	10.35 x 15.3	31	
	DFN8x8	5	8.0 x 8.0	31	
	S-TOGL™	6	7.0 x 8.44	31	
	PS-8	8	2.9 x 2.8	31	
	TSOP Advance	8	3.1 x 3.3	31	
	SOP-8(2-5R1S)	8	4.9 x 6.0	31	
	SOP-8(2-6J1S)	8	5.0 x 6.0	32	
	DSOP Advance	8	5.0 x 6.0	32	
	SOP Advance	8	5.0 x 6.0	32	
	SOP Advance(N)	8	4.9 x 6.1	32	
	TOLL	9	9.9 x 11.68	32	
	L-TOGL™	9	9.9 x 11.81	32	
	Wettable Flank Lead Terminal	TSOP Advance(WF)	8	3.1 x 3.6	33
		DSOP Advance(WF)L	8	5.0 x 6.0	33
		DSOP Advance(WF)M	8	5.0 x 6.0	33
		SOP Advance(WF)	8	5.0 x 6.0	33
Through Hole Type		New PW-Mold2	3	6.5 x 5.5	34
		IPAK	3	6.65 x 6.1	34
		TO-220	3	10.16 x 15.1	34
		TO-220SIS	3	10.0 x 15.0	34
		TO-3P(N)	3	15.5 x 20.0	34
		TO-247	3	15.94 x 20.95	34
		TO-3P(L)	3	20.0 x 26.0	35
		TO-247-4L	4	15.94 x 20.95	35
		TO-247-4L(X)	4	15.94 x 23.45	35

* S-TOGL™ and L-TOGL™ are trademarks of Toshiba Electronic Devices & Storage Corporation.

■ Dimensional Outline

Surface Mount Type

DPAK+ (6.5 x 9.5)			New PW-Mold (6.5 x 9.5)			DPAK(2-7K1S) (6.6 x 10.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	360 mg	2,000 p/reel	3	360 mg	2,000 p/reel	3	360 mg	2,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	330 mmΦ	17.5 mm	16 mm	332 mmΦ	16.4 mm	16 mm

DPAK(2-7N1S) (6.54 x 10.14)			TO-220SM(W) (10.0 x 13.0)			D2PAK+ (10.0 x 15.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	389 mg	2,500 p/reel	3	1070 mg	1,000 p/reel	3	992 mg	1,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.2 mm	16 mm	330 mmΦ	25.5 mm	24 mm	330 mmΦ	25.4 mm	24 mm

Surface Mount Type

SOP-8(2-6J1S) (5.0 x 6.0)			DSOP Advance (5.0 x 6.0)			DSOP Advance (5.0 x 6.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	85 mg	3,000 p/reel	8	98 mg	5,000 p/reel	8	69 mg	- *
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	13.4 mm	12 mm	330 mmΦ	13.5 mm	12 mm	330 mmΦ	13.5 mm	12 mm

* 3,000 or 5,000 pcs/reel

SOP Advance(N) (4.9 x 6.1)			TOLL (9.9 x 11.68)			L-TOGL™ (9.9 x 11.81)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	105 mg	5,000 p/reel	9	750 mg	2,000 p/reel	9	745 mg	1,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	13.5 mm	12 mm	330 mmΦ	25.65 mm	24 mm	330 mmΦ	25.4 mm	24 mm

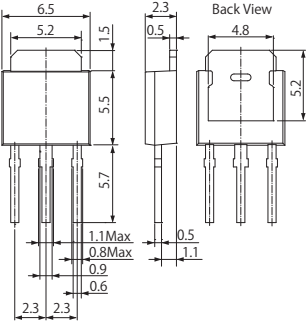
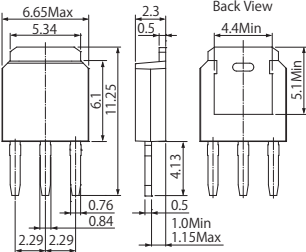
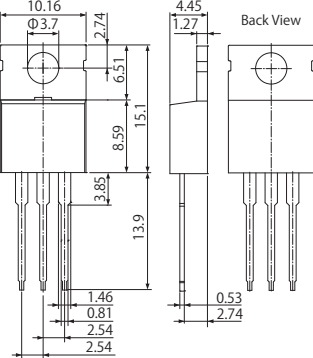
* L-TOGL™ is a trademark of Toshiba Electronic Devices & Storage Corporation.

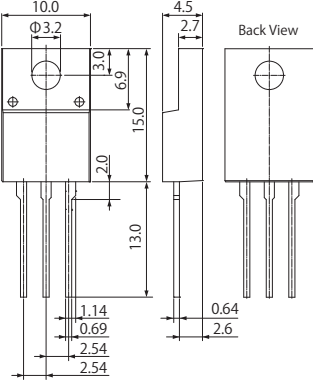
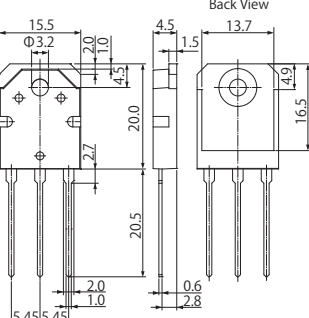
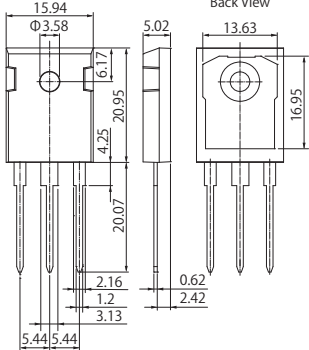
Surface Mount Type (Wettable Flank Lead Terminal)

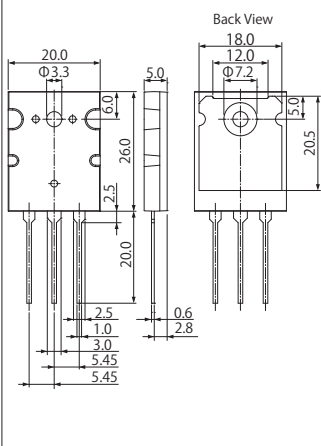
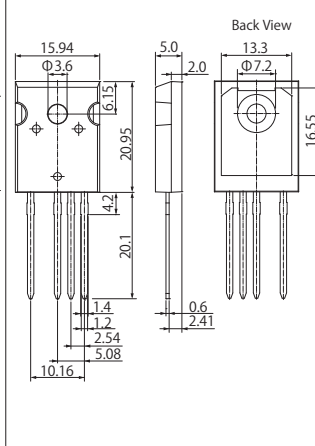
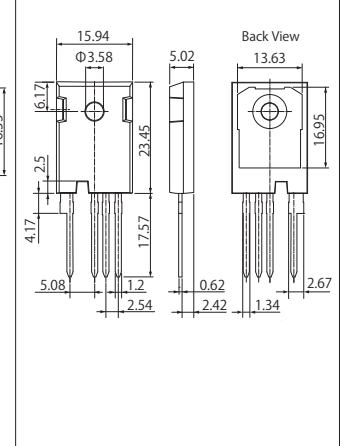
TSON Advance(WF) (3.1 x 3.6)			DSOP Advance(WF)L (5.0 x 6.0)			DSOP Advance(WF)M (5.0 x 6.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	20 mg	5,000 p/reel	8	98 mg	5,000 p/reel	8	98 mg	5,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	13.4 mm	12 mm	330 mmΦ	13.5 mm	12 mm	330 mmΦ	13.5 mm	12 mm

SOP Advance(WF) (5.0 x 6.0)		
Package dimension unit : mm		
Land pattern example unit : mm		
Pin count	Weight	MOQ
8	69 mg	5,000 p/reel
Reel dimension		Tape width
Diameter	Width	
330 mmΦ	13.5 mm	12 mm

Through Hole Type

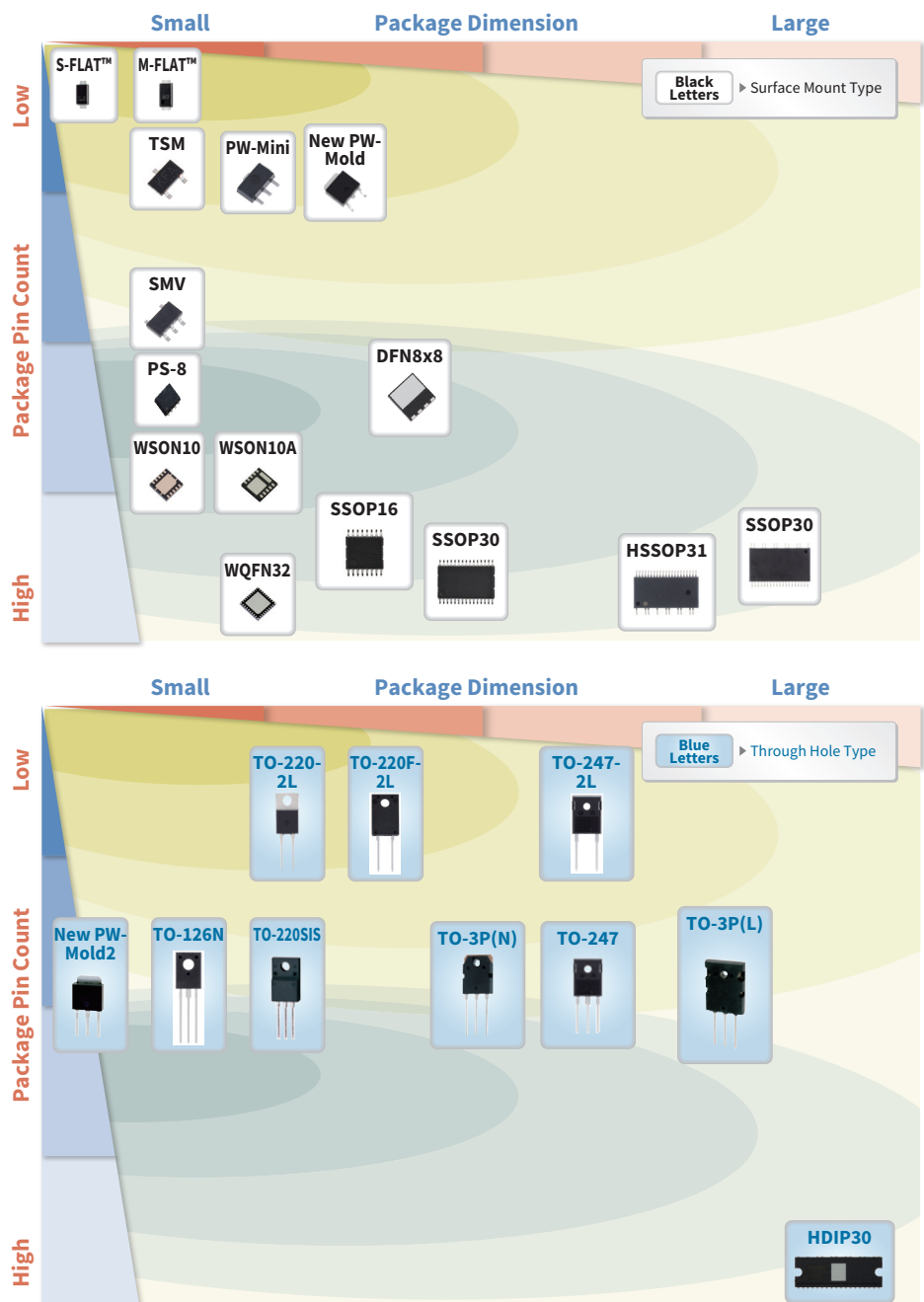
New PW-Mold2 (6.5 x 5.5)			IPAK (6.65 x 6.1)			TO-220 (10.16 x 15.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
3	360 mg	200 p/bag	3	337 mg	75 p/tube	3	1930 mg	50 p/tube
Carton dimension		Bag Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
178 x 80 x 90 mm		15 bag	20 x 4.4 x 508 mm		90 tube	33 x 7.0 x 534.5 mm		20 tube

TO-220SIS (SC-67) (10.0 x 15.0)			TO-3P(N) (SC-65) (15.5 x 20.0)			TO-247 (15.94 x 20.95)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
3	1700 mg	50 p/tube	3	4600 mg	25 p/tube	3	6150 mg	30 p/tube
Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
32.4 x 7.11 x 528.5 mm		30 tube	45 x 7.6 x 433 mm		40 tube	46 x 7.7 x 533.5 mm		8 tube

TO-3P(L) (20.0 x 26.0)			TO-247-4L (15.94 x 20.95)			TO-247-4L(X) (15.94 x 23.45)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
 Technical drawing of TO-3P(L) package. Front view shows a rectangular body with a width of 20.0 mm and a height of 26.0 mm. The top surface has a central circular feature with a diameter of $\Phi 3.3$ mm. The bottom surface has three pins. Back view shows a width of 18.0 mm and a height of 20.5 mm. The top surface has a central circular feature with a diameter of $\Phi 7.2$ mm. The bottom surface has three pins. Dimensions for the pins are: 2.5 mm, 1.0 mm, 3.0 mm, 5.45 mm, 5.45 mm, 0.6 mm, and 2.8 mm.			 Technical drawing of TO-247-4L package. Front view shows a rectangular body with a width of 15.94 mm and a height of 20.95 mm. The top surface has a central circular feature with a diameter of $\Phi 3.6$ mm. The bottom surface has four pins. Back view shows a width of 13.3 mm and a height of 16.55 mm. The top surface has a central circular feature with a diameter of $\Phi 7.2$ mm. The bottom surface has four pins. Dimensions for the pins are: 5.0 mm, 2.0 mm, 0.6 mm, 2.41 mm, 1.4 mm, 1.2 mm, 2.54 mm, 5.08 mm, and 10.16 mm.			 Technical drawing of TO-247-4L(X) package. Front view shows a rectangular body with a width of 15.94 mm and a height of 23.45 mm. The top surface has a central circular feature with a diameter of $\Phi 3.58$ mm. The bottom surface has four pins. Back view shows a width of 13.63 mm and a height of 16.95 mm. The top surface has a central circular feature with a diameter of $\Phi 7.2$ mm. The bottom surface has four pins. Dimensions for the pins are: 5.02 mm, 0.62 mm, 2.42 mm, 1.34 mm, 2.67 mm, 2.54 mm, 1.2 mm, 5.08 mm, 4.17 mm, 2.5 mm, 6.17 mm, and 17.57 mm.		
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
3	9750 mg	100 p/tray	4	6360 mg	30 p/tube	4	6550 mg	30 p/tube
Tray dimension		Tray Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
184 x 24 x 290 mm		5 tray	45.5 x 7.6 x 533 mm		15 tube	46 x 7.7 mm		

4. Power Discrete Devices

■ Package Lineups



* S-FLAT™ and M-FLAT™ are trademarks of Toshiba Electronic Devices & Storage Corporation.

Package		Pin Count	Dimension W x L (mm)	Products					Page
				Three-Phase Brushless DC Motor Driver ICs (with Built-in Power Device)	Low Voltage IPDs (Intelligent Power Devices)	Diodes	IGBTs	Bipolar Transistors	
Surface Mount Type	S-FLAT™	2	1.6 x 3.5			✓			38
	M-FLAT™	2	2.4 x 4.7			✓			38
	TSM	3	2.9 x 2.8					✓	38
	PW-Mini	3	4.6 x 4.2					✓	38
	New PW-Mold	3	6.5 x 9.5					✓	38
	SMV	5	2.9 x 2.8					✓	38
	DFN8x8	5	8.0 x 8.0			✓			39
	PS-8	8	2.9 x 2.8		✓			✓	39
	WSON10	10	3.0 x 3.0		✓				39
	WSON10A	10	3.0 x 3.0		✓				39
	SSOP16	16	5.0 x 6.4		✓				39
	SSOP30	30	10.2 x 7.6		✓				40
	SSOP30	30	20.0 x 14.2	✓					40
	HSSOP31	31	17.5 x 11.93	✓					40
	WQFN32	32	5.0 x 5.0		✓				40
Through Hole Type	TO-220-2L	2	10.05 x 15.3			✓			41
	TO-220F-2L	2	10.0 x 15.0			✓			41
	TO-247-2L	2	15.94 x 20.95			✓			41
	New PW-Mold2	3	6.5 x 5.5					✓	41
	TO-126N	3	8.0 x 11.0					✓	41
	TO-220SIS	3	10.0 x 15.0				✓	✓	41
	TO-3P(N)	3	15.5 x 20.0				✓	✓	42
	TO-247	3	15.94 x 20.95			✓	✓		42
	TO-3P(L)	3	20.0 x 26.0					✓	42
	HDIP30	30	32.8 x 11.4	✓					42

* S-FLAT™ and M-FLAT™ are trademarks of Toshiba Electronic Devices & Storage Corporation.

■ Dimensional Outline

Surface Mount Type

S-FLAT™ (1.6 x 3.5)			M-FLAT™ (2.4 x 4.7)			TSM (2.9 x 2.8)		
Package dimension unit: mm 			Package dimension unit: mm 			Package dimension unit: mm 		
Land pattern example unit: mm 			Land pattern example unit: mm 			Land pattern example unit: mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
2	13 mg	3,000 p/reel	2	23 mg	3,000 p/reel	3	10 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	13 mm	12 mm	180 mmΦ	9 mm	8 mm

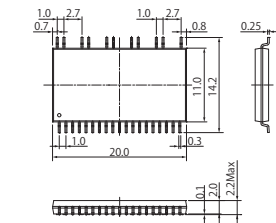
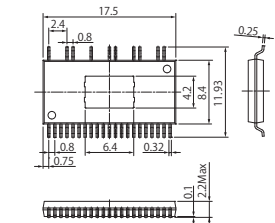
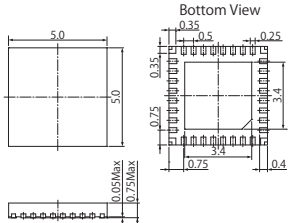
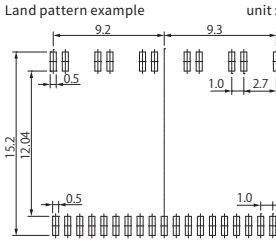
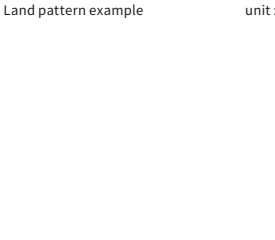
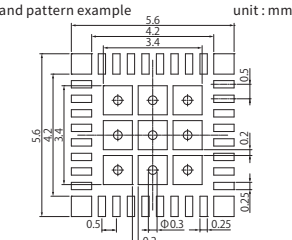
PW-Mini (4.6 x 4.2)			New PW-Mold (6.5 x 9.5)			SMV (2.9 x 2.8)		
Package dimension unit: mm 			Package dimension unit: mm 			Package dimension unit: mm 		
Land pattern example unit: mm 			Land pattern example unit: mm 			Land pattern example unit: mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
3	50 mg	1,000 p/reel	3	360 mg	2,000 p/reel	5	14 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	13 mm	12 mm	330 mmΦ	17.5 mm	16 mm	180 mmΦ	9 mm	8 mm

* S-FLAT™ and M-FLAT™ are trademarks of Toshiba Electronic Devices & Storage Corporation.

DFN8x8 (8.0 x 8.0)			PS-8 (2.9 x 2.8)			WSN10 (3.0 x 3.0)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
5	175 mg	2,500 p/reel	8	17 mg	3,000 p/reel	10	20 mg	15,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
332 mmΦ	17.2 mm	16.2 mm	180 mmΦ	9 mm	8 mm	330 mmΦ	9 mm	8 mm

WSN10A (3.0 x 3.0)			SSOP16 (5.0 x 6.4)			SSOP30 (10.2 x 7.6)		
Package dimension unit : mm 			Package dimension unit : mm 			Package dimension unit : mm 		
Land pattern example unit : mm 			Land pattern example unit : mm 			Land pattern example unit : mm 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
10	20 mg	1,500 p/reel	16	74 mg	2,000 p/reel	30	176 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	9 mm	8 mm	330 mmΦ	17.4 mm	16 mm			

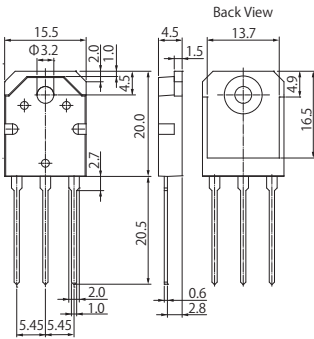
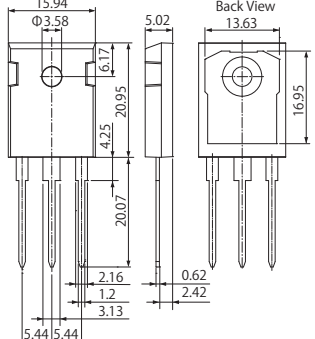
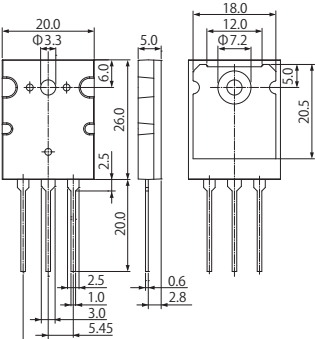
Surface Mount Type

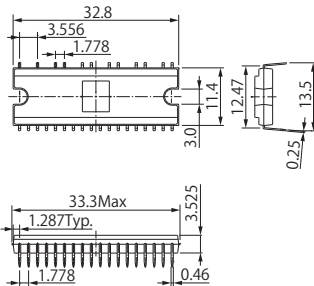
SSOP30 (20.0 x 14.2)			HSSOP31 (17.5 x 11.93)			WQFN32 (5.0 x 5.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
30	1,200 mg	1,000 p/reel	31	700 mg	1,000 p/reel	32	60 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	33.4 mm	32 mm	330 mmΦ	25.4 mm	24 mm			

Through Hole Type

TO-220-2L (10.05 x 15.3)			TO-220F-2L (10.0 x 15.0)			TO-247-2L (15.94 x 20.95)		
Package dimension		unit: mm	Package dimension		unit: mm	Package dimension		unit: mm
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
2	1,900 mg	50 p/tube	2	1,830 mg	50 p/tube	2		
Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Carton Dimension		Bag Q'ty / Carton
32.8/33.0 x 7.0 x 533/534.5 mm		20 tube	33.0 x 7.0 x 532.5 mm		20 tube			

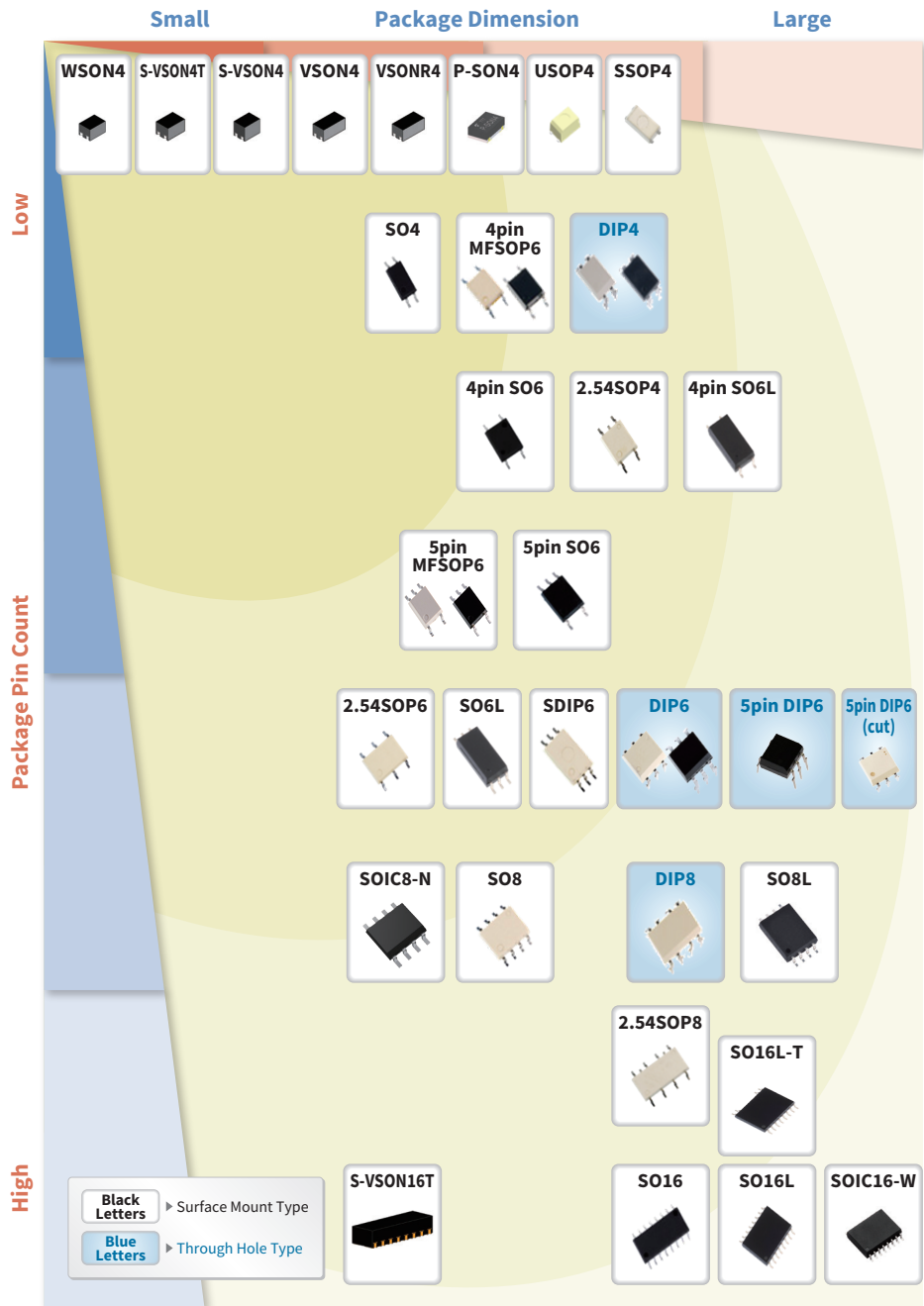
New PW-Mold2 (6.5 x 5.5)			TO-126N (8.0 x 11.0)			TO-220SIS (SC-67) (10.0 x 15.0)		
Package dimension		unit: mm	Package dimension		unit: mm	Package dimension		unit: mm
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
3	360 mg	200 p/bag	3	840 mg	250 p/bag	3	1,700 mg	50 p/tube
Carton Dimension		Bag Q'ty / Carton	Carton dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
178 x 80 x 90 mm		15 bag	245 x 175 x 100 mm		8 bag	32.4 x 7.11 x 528.5 mm		30 tube

TO-3P(N) (SC-65) (15.5 x 20.0)			TO-247 (15.94 x 20.95)			TO-3P(L) (20.0 x 26.0)		
Package dimension			Package dimension			Package dimension		
unit : mm			unit : mm			unit : mm		
								
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
3	4,600 mg	25 p/tube	3	6,150 mg	30 p/tube	3	9,750 mg	100 p/tray
Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tray dimension		Tray Q'ty / Carton
45 x 7.6 x 433 mm		40 tube	46 x 7.7 x 533.5 mm		8 tube	184 x 24 x 290 mm		5 tray

HDIP30 (32.8 x 11.4)		
Package dimension		
unit : mm		
		
Pin count	Weight	Q'ty
30	2,590 mg	
Tube dimension		Tube Q'ty / Carton

5. Isolators and Solid State Relays

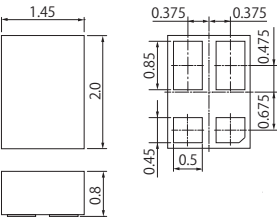
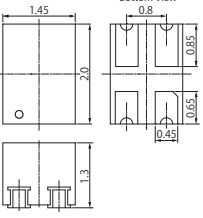
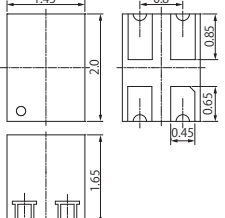
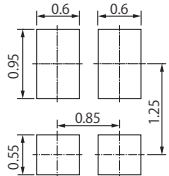
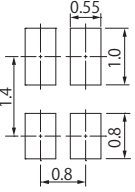
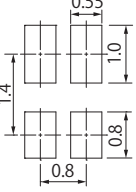
■ Package Lineups

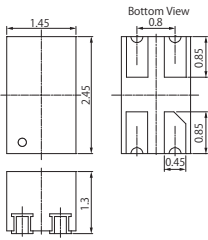
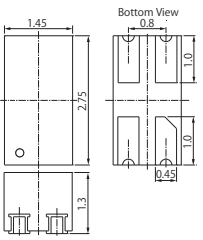
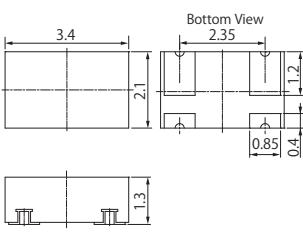
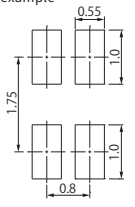
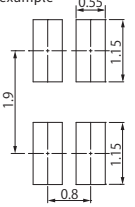
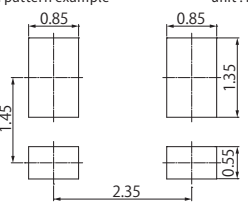


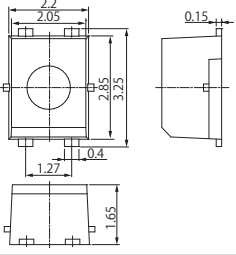
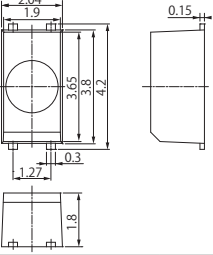
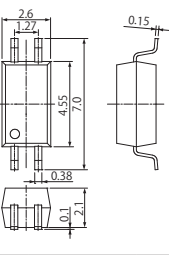
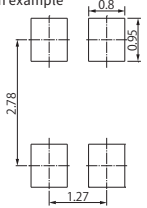
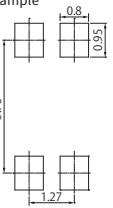
Package		Pin Count	Dimension W x L (mm)	Products							Page
				Isolators			Solid State Relays				
				Photocouplers		Digital Isolators	Photorelays	Photovoltaic Output	Triac Output	Thyristor Output	
				IC Output	Transistor Output						
Surface Mount Type	WSO4	4	1.45 x 2.0				✓				46
	S-VSON4T	4	1.45 x 2.0				✓				46
	S-VSON4	4	1.45 x 2.0				✓				46
	VSON4	4	1.45 x 2.45				✓				46
	VSONR4	4	1.45 x 2.75				✓				46
	P-SON4	4	3.4 x 2.1				✓				46
	USOP4	4	2.2 x 3.25				✓				47
	SSOP4	4	2.04 x 4.2				✓	✓			47
	SO4	4	2.6 x 7.0		✓						47
	4pin MFSOP6	4	3.6 x 7.0					✓	✓		47
	4pin SO6	4	3.7 x 7.0	✓	✓		✓	✓	✓		47
	2.54 SOP4	4	3.9 x 7.0				✓				47
	4pin SO6L	4	3.84 x 10.0	✓	✓						48
	5pin MFSOP6	5	3.6 x 7.0	✓					✓	✓	48
	5pin SO6	5	3.7 x 7.0	✓							48
	2.54 SOP6	6	6.3 x 7.0				✓				48
	SO6L	6	3.84 x 10.0	✓							48
	SDIP6	6	4.58 x 9.7	✓							48
	SOIC8-N	8	4.9 x 6.0			✓					49
	SO8	8	5.1 x 6.0	✓							49
	SO8L	8	5.85 x 10.0	✓							49
	2.54 SOP8	8	9.4 x 7.0				✓				49
	SO16L-T	12	10.3 x 10.0				✓				49
	S-VSON16T	16	6.25 x 2.0				✓				49
	SO16	16	10.3 x 7.0		✓						50
	SO16L	16	10.3 x 10.0	✓							50
	SOIC16-W	16	10.3 x 10.0			✓					50
Through Hole Type	DIP4	4	4.58 x 7.62		✓		✓		✓		51
	DIP4(TLP785)	4	4.6 x 7.62		✓						51
	5pin DIP6	5	7.12 x 7.62						✓		51
	5pin DIP6(cut)	5	7.12 x 7.62				✓	✓	✓		51
	DIP6	6	7.12 x 7.62		✓		✓	✓	✓	✓	51
	DIP8	8	9.66 x 7.62	✓	✓		✓		✓	✓	51

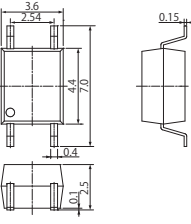
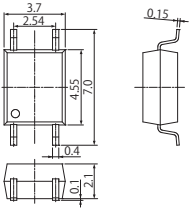
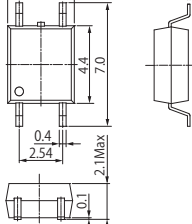
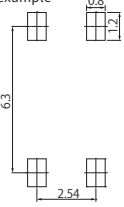
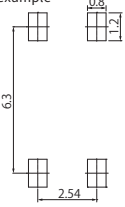
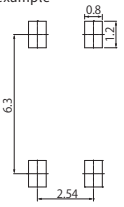
■ Dimensional Outline

Surface Mount Type

WSON4 (1.45 x 2.0)			S-VSON4T (1.45 x 2.0)			S-VSON4 (1.45 x 2.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	10 mg		4	10 mg	2,500 p/reel	4	10 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
			180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

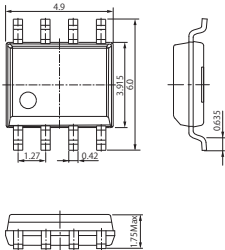
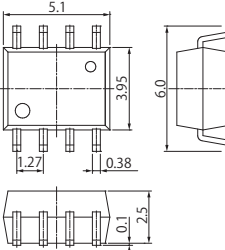
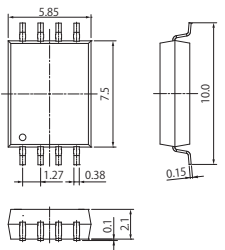
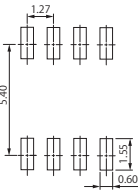
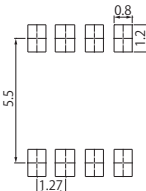
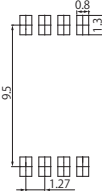
VSON4 (1.45 x 2.45)			VSONR4 (1.45 x 2.75)			P-SON4 (3.4 x 2.1)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	10 mg	3,000 p/reel	4	10 mg	3,000 p/reel	4	20 mg	1,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm	180 mmΦ	9 mm	8 mm

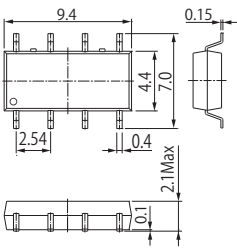
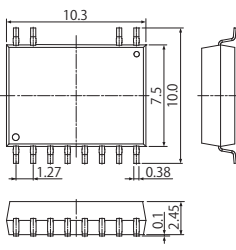
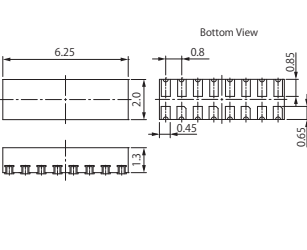
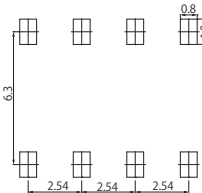
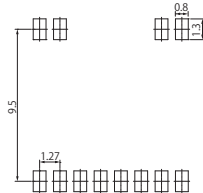
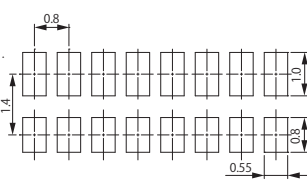
USOP4 (2.2 x 3.25)			SSOP4 (2.04 x 4.2)			SO4 (2.6 x 7.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	30 mg	1,500 p/reel	4	30 mg	1,500 p/reel	4	50 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
180 mmΦ	13 mm	12 mm	180 mmΦ	13 mm	12 mm	330 mmΦ	13.5 mm	12 mm

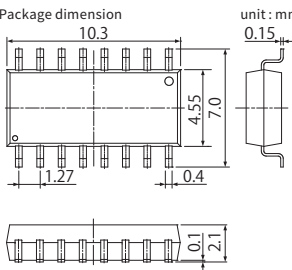
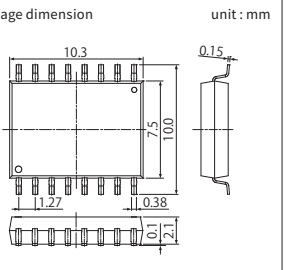
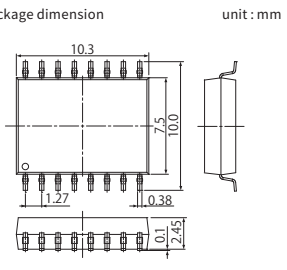
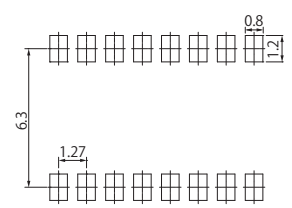
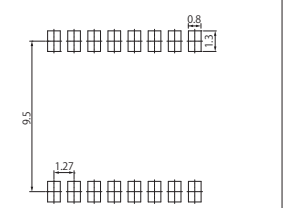
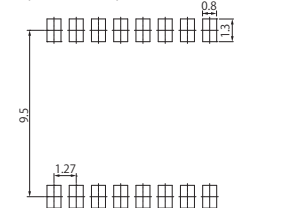
4pin MFSOP6 (3.6 x 7.0)			4pin SO6 (3.7 x 7.0)			2.54SOP4 (3.9 x 7.0)		
Package dimension unit : mm			Package dimension unit : mm			Package dimension unit : mm		
								
Land pattern example unit : mm			Land pattern example unit : mm			Land pattern example unit : mm		
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	90 mg	3,000 p/reel	4	80 mg	3,000 p/reel	4	100 mg	2,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	13.5 mm	12 mm	380 mmΦ	13.5 mm	12 mm	330 mmΦ	13.5 mm	12 mm

4pin SO6L (3.84 x 10.0)			5pin MFSOP6 (3.6 x 7.0)			5pin SO6 (3.7 x 7.0)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
4	128 mg	3,000 p/reel	5	90 mg	3,000 p/reel	5	80 mg	3,000 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.4 mm	16 mm	380 mmΦ	13.5 mm	12 mm	330 mmΦ	13.5 mm	12 mm

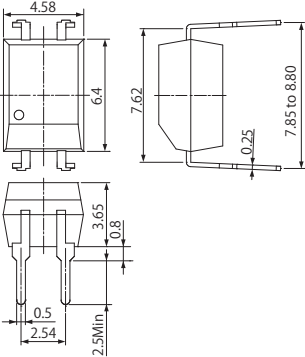
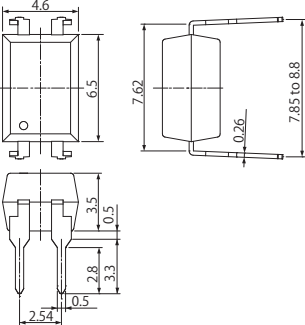
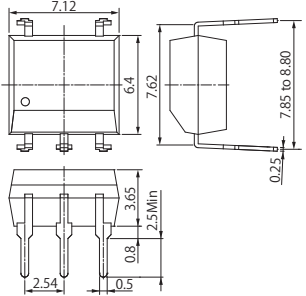
2.54SOP6 (6.3 x 7.0)			SO6L (3.84 x 10.0)			SDIP6 (4.58 x 9.7)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
6	130 mg	2,500 p/reel	6	126 mg	1,500 p/reel	6	260 mg	1,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	330 mmΦ	17.4 mm	16 mm	380 mmΦ	17.5 mm	16 mm

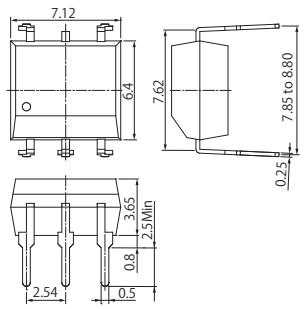
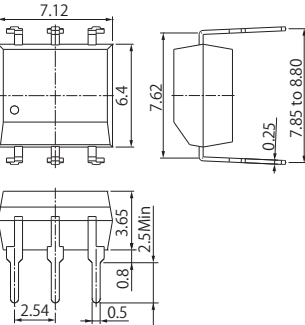
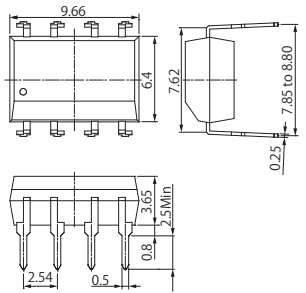
SOIC8-N (4.9 x 6.0)			SO8 (5.1 x 6.0)			SO8L (5.85 x 10.0)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
								
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8			8	110 mg	2,500 p/reel	8	203 mg	1,500 p/reel
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
			380 mmΦ	13.5 mm	12 mm	330 mmΦ	17.4 mm	16 mm

2.54SOP8 (9.4 x 7.0)			SO16L-T (10.3 x 10.0)			S-VSON16T (6.25 x 2.0)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
								
Land pattern example		unit : mm	Land pattern example		unit : mm	Land pattern example		unit : mm
								
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
8	200 mg	2,500 p/reel	12	420 mg	1,500 p/reel	16	40 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	330 mmΦ	17.4 mm	16 mm			

SO16 (10.3 x 7.0)			SO16L (10.3 x 10.0)			SOIC16-W (10.3 x 10.0)		
Package dimension 			Package dimension 			Package dimension 		
Land pattern example 			Land pattern example 			Land pattern example 		
Pin count	Weight	MOQ	Pin count	Weight	MOQ	Pin count	Weight	MOQ
16	190 mg	2,000 p/reel	16	370 mg	1,500 p/reel	16	426 mg	
Reel dimension		Tape width	Reel dimension		Tape width	Reel dimension		Tape width
Diameter	Width		Diameter	Width		Diameter	Width	
330 mmΦ	17.5 mm	16 mm	330 mmΦ	17.4 mm	16 mm			

Through Hole Type

DIP4 (4.58 x 7.62)			DIP4(TLP785) (4.6 x 7.62)			5pin DIP6 (7.12 x 7.62)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
								
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
4	260 mg	100 p/tube	4	250 mg	100 p/tube	5	400 mg	50 p/tube
Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
11.3 x 10.3 x 525 mm		4 tube	11.3 x 10.3 x 525 mm		4 tube	11.3 x 10.3 x 525 mm		20 tube

5pin DIP6(cut) (7.12 x 7.62)			DIP6 (7.12 x 7.62)			DIP8 (9.66 x 7.62)		
Package dimension		unit : mm	Package dimension		unit : mm	Package dimension		unit : mm
								
Pin count	Weight	Q'ty	Pin count	Weight	Q'ty	Pin count	Weight	Q'ty
5	390 mg	50 p/tube	6	400 mg	50 p/tube	8	540 mg	50 p/tube
Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton	Tube dimension		Tube Q'ty / Carton
11.3 x 10.3 x 525 mm		20 tube	11.3 x 10.3 x 525 mm		20 tube	11.3 x 10.3 x 525 mm		60 tube

Lead Form Options

DIP4(LF1) / (TP1) (4.58 x 10.0) Package dimension unit : mm Land pattern example unit : mm	DIP4(LF5) / (TP5) (4.58 x 10.0) Package dimension unit : mm Land pattern example unit : mm	DIP4(LF2) (4.58 x 10.16) Package dimension unit : mm Land pattern example unit : mm
DIP4(LF4) / (TP4) (4.58 x 12.0) Package dimension unit : mm Land pattern example unit : mm	DIP4(TLP785)(LF6) / (TP6) (4.6 x 10.0) Package dimension unit : mm Land pattern example unit : mm	DIP4(TLP785F)(LF7) / (TP7) (4.6 x 11.66) Package dimension unit : mm Land pattern example unit : mm

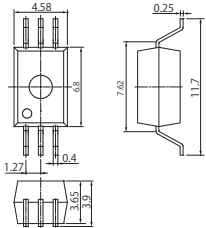
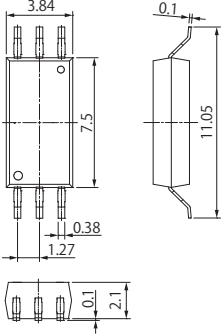
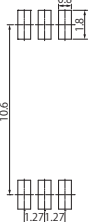
DIP6(LF1) / (TP1) (7.12 x 10.0)	DIP6(LF5) / (TP5) (7.12 x 10.0)	DIP6(LF2) (7.12 x 10.16)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension (DIP6 F type) unit : mm

Land pattern example unit : mm 	Land pattern example unit : mm
------------------------------------	------------------------------------

DIP6(LF4) / (TP4) (7.12 x 12.0)	5pin DIP6(LF1) / (TP1) (7.12 x 10.0)	5pin DIP6(LF5) / (TP5) (7.12 x 10.0)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

5pin DIP6(LF2) (7.12 x 10.16)	5pin DIP6(LF4) / (TP4) (7.12 x 12.0)	5pin DIP6(cut)(LF1) / (TP1) (7.12 x 10.0)
Package dimension (5pin DIP6 F type) unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

5pin DIP6(cut)(LF5) / (TP5) (7.12 x 10.0)	5pin DIP6(cut)(LF2) (7.12 x 10.16)	5pin DIP6(cut)(LF4) / (TP4) (7.12 x 12.0)
Package dimension unit : mm	Package dimension (5pin DIP6(cut) F type) unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

SDIP6 (4.58 x 11.7)	SO6L(LF4) (3.84 x 11.05)
Package dimension (SDIP6 F type) unit : mm 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 

DIP8(LF1) / (TP1) (9.66 x 10.0)	DIP8(LF5) / (TP5) (9.66 x 10.0)	DIP8(LF2) (9.66 x 10.16)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension (DIP8 F type) unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	

DIP8(LF4) / (TP4) (9.66 x 12.0)	SO8L(LF4) (5.85 x 11.05)
Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm

RESTRICTIONS ON PRODUCT USE

Toshiba Corporation and its subsidiaries and affiliates are collectively referred to as "TOSHIBA". Hardware, software and systems described in this document are collectively referred to as "Product".

- The drawings shown may not accurately represent the actual shape or dimensions.
- All linear dimensions are given in millimeters unless otherwise specified.
- TOSHIBA reserves the right to make changes to the information in this document and related Product without notice.
- This document and any information herein may not be reproduced without prior written permission from TOSHIBA. Even with TOSHIBA's written permission, reproduction is permissible only if reproduction is without alteration/omission.
- Though TOSHIBA works continually to improve Product's quality and reliability, Product can malfunction or fail. Customers are responsible for complying with safety standards and for providing adequate designs and safeguards for their hardware, software and systems which minimize risk and avoid situations in which a malfunction or failure of Product could cause loss of human life, bodily injury or damage to property, including data loss or corruption. Before customers use the Product, create designs including the Product, or incorporate the Product into their own applications, customers must also refer to and comply with (a) the latest versions of all relevant TOSHIBA information, including without limitation, this document, the specifications, the data sheets and application notes for Product and the precautions and conditions set forth in the "TOSHIBA Semiconductor Reliability Handbook" and (b) the instructions for the application with which the Product will be used with or for. Customers are solely responsible for all aspects of their own product design or applications, including but not limited to (a) determining the appropriateness of the use of this Product in such design or applications; (b) evaluating and determining the applicability of any information contained in this document, or in charts, diagrams, programs, algorithms, sample application circuits, or any other referenced documents; and (c) validating all operating parameters for such designs and applications. **TOSHIBA ASSUMES NO LIABILITY FOR CUSTOMERS' PRODUCT DESIGN OR APPLICATIONS.**
- **PRODUCT IS NEITHER INTENDED NOR WARRANTED FOR USE IN EQUIPMENTS OR SYSTEMS THAT REQUIRE EXTRAORDINARILY HIGH LEVELS OF QUALITY AND/OR RELIABILITY, AND/OR A MALFUNCTION OR FAILURE OF WHICH MAY CAUSE LOSS OF HUMAN LIFE, BODILY INJURY, SERIOUS PROPERTY DAMAGE AND/OR SERIOUS PUBLIC IMPACT ("UNINTENDED USE").** Except for specific applications as expressly stated in this document, Unintended Use includes, without limitation, equipment used in nuclear facilities, equipment used in the aerospace industry, lifesaving and/or life supporting medical equipment, equipment used for automobiles, trains, ships and other transportation, traffic signaling equipment, equipment used to control combustions or explosions, safety devices, elevators and escalators, and devices related to power plant. **IF YOU USE PRODUCT FOR UNINTENDED USE, TOSHIBA ASSUMES NO LIABILITY FOR PRODUCT.** For details, please contact your TOSHIBA sales representative or contact us via our website.
- Do not disassemble, analyze, reverse-engineer, alter, modify, translate or copy Product, whether in whole or in part.
- Product shall not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable laws or regulations.
- The information contained herein is presented only as guidance for Product use. No responsibility is assumed by TOSHIBA for any infringement of patents or any other intellectual property rights of third parties that may result from the use of Product. No license to any intellectual property right is granted by this document, whether express or implied, by estoppel or otherwise.
- **ABSENT A WRITTEN SIGNED AGREEMENT, EXCEPT AS PROVIDED IN THE RELEVANT TERMS AND CONDITIONS OF SALE FOR PRODUCT, AND TO THE MAXIMUM EXTENT ALLOWABLE BY LAW, TOSHIBA (1) ASSUMES NO LIABILITY WHATSOEVER, INCLUDING WITHOUT LIMITATION, INDIRECT, CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OR LOSS, INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS, LOSS OF OPPORTUNITIES, BUSINESS INTERRUPTION AND LOSS OF DATA, AND (2) DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES AND CONDITIONS RELATED TO SALE, USE OF PRODUCT, OR INFORMATION, INCLUDING WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY OF INFORMATION, OR NONINFRINGEMENT.**
- Do not use or otherwise make available Product or related software or technology for any military purposes, including without limitation, for the design, development, use, stockpiling or manufacturing of nuclear, chemical, or biological weapons or missile technology products (mass destruction weapons). Product and related software and technology may be controlled under the applicable export laws and regulations including, without limitation, the Japanese Foreign Exchange and Foreign Trade Law and the U.S. Export Administration Regulations. Export and re-export of Product or related software or technology are strictly prohibited except in compliance with all applicable export laws and regulations.
- Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. Please use Product in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. **TOSHIBA ASSUMES NO LIABILITY FOR DAMAGES OR LOSSES OCCURRING AS A RESULT OF NONCOMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS.**

TOSHIBA

Toshiba Electronic Devices & Storage Corporation
Toshiba Electronic Device Solutions Corporation