

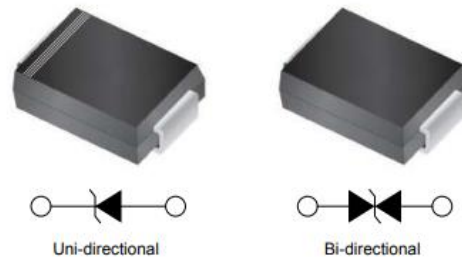
Transient Voltage Suppression Diodes: SMDJ Series

SMD Type 3000 W



■ Features

1. Glass passivated chip
2. 3000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
3. Excellent clamping capability
4. Very fast response time
5. Low clamping voltage
6. Low leakage current
7. Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C
8. JESD22-A114-B ESD Voltage: HBM 15KV
9. JEDEC EIA/JESD22-C101F ESD Voltage: CDM 500V
10. JEDEC EIA/JESD22-A115 ESD Voltage: MM 400V
11. ESD-immunity acc. IEC 61000-4-2 ±30kV(contact), ±30kV(air)
12. Halogen free and RoHS compliant



■ Recommended Applications

1. Computers
2. Telecom system
3. Industrial equipment
4. Consumer electronic applications
5. Other VCC bus and I/O interfaces

■ Mechanical Data

1. Case: Molded plastic, SMC / DO-214AB
2. Epoxy: UL 94V-0 rate flame retardant
3. Terminals: Solderable per MIL-STD-750, method 2026
4. Polarity: Color band denotes cathode end
5. Mounting Position: Any

■ Part Number Code

S	M	D	J	5	.	0	C	A	y
1	2	3	4	5	6	7	8	9	10

Product Series	
SMDJ	THINKING Transient Voltage Suppression Diodes SMDJ Series

Reverse Stand off Voltage (V_{RWM})	
5.0	5V
70	70V
120	120V

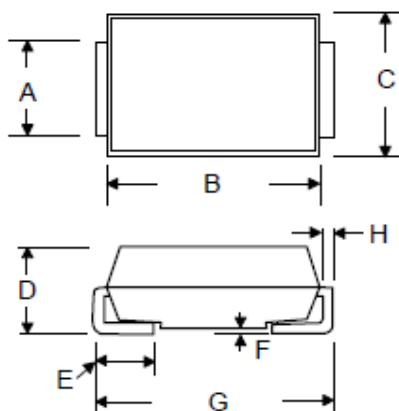
Type Code	
AY	Uni-directional, 5% V_{BR} Voltage Tolerance
CAY	Bi-directional, 5% V_{BR} Voltage Tolerance

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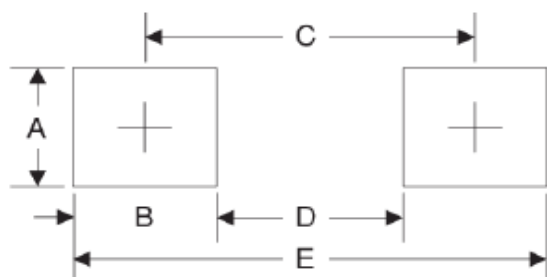
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Structures and Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	2.90	3.20
B	6.60	7.11
C	5.59	6.22
D	2.06	2.62
E	0.76	1.52
F	-	0.20
G	7.75	8.13
H	0.15	0.31



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
D	4.40	0.173
E	9.40	0.370

Maximum Rating ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μs waveform (Note 1,2)	P_{PPM}	3000	W
Peak pulse current with 10/1000 μs waveform (Note 1)	I_{PPM}	See next table	A
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	300	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	6.5	W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on 8.0 x 8.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

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■ Electrical Characteristics (T_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage V _{RWM} (V)	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp}	Maximum Peak Pulse Current	Maximum Reverse Leakage I _R @ V _{RWM}	Marking Code	
			Min(V)	Max(V)		V _C (V)	I _{pp} (A)	I _R (μA)	Uni	Bi
SMDJ5.0AY	SMDJ5.0CAY	5	6.4	7.00	10	9.2	326.09	800	RDE	DDE
SMDJ6.0AY	SMDJ6.0CAY	6	6.7	7.37	10	10.3	291.26	800	RDG	DDG
SMDJ6.5AY	SMDJ6.5CAY	6.5	7.2	7.98	10	11.2	267.86	500	RDK	DDK
SMDJ7.0AY	SMDJ7.0CAY	7	7.8	8.60	10	12	250.00	200	PDM	DDM
SMDJ7.5AY	SMDJ7.5CAY	7.5	8.3	9.21	1	12.9	232.56	100	PDP	DDP
SMDJ8.0AY	SMDJ8.0CAY	8	8.9	9.83	1	13.6	220.59	50	PDR	DDR
SMDJ8.5AY	SMDJ8.5CAY	8.5	9.4	10.40	1	14.4	208.33	20	PDT	DDT
SMDJ9.0AY	SMDJ9.0CAY	9	10	11.10	1	15.4	194.81	10	PDV	DDV
SMDJ10AY	SMDJ10CAY	10	11.1	12.30	1	17	176.47	5	PDX	DDX
SMDJ11AY	SMDJ11CAY	11	12.2	13.50	1	18.2	164.84	2	PDZ	DDZ
SMDJ12AY	SMDJ12CAY	12	13.3	14.70	1	19.9	150.75	2	PEE	DEE
SMDJ13AY	SMDJ13CAY	13	14.4	15.90	1	21.5	139.53	2	PEG	DEG
SMDJ14AY	SMDJ14CAY	14	15.6	17.20	1	23.2	129.31	2	PEK	DEK
SMDJ15AY	SMDJ15CAY	15	16.7	18.50	1	24.4	122.95	2	PEM	DEM
SMDJ16AY	SMDJ16CAY	16	17.8	19.70	1	26	115.38	2	PEP	DEP
SMDJ17AY	SMDJ17CAY	17	18.9	20.90	1	27.6	108.70	2	PER	DER
SMDJ18AY	SMDJ18CAY	18	20	22.10	1	29.2	102.74	2	PET	DET
SMDJ19AY	SMDJ19CAY	19	21.1	23.30	1	30.8	97.47	2	PEW	DEW
SMDJ20AY	SMDJ20CAY	20	22.2	24.50	1	32.4	92.59	2	PEV	DEV
SMDJ22AY	SMDJ22CAY	22	24.4	26.90	1	35.5	84.51	2	PEX	DEX
SMDJ24AY	SMDJ24CAY	24	26.7	29.50	1	38.9	77.12	2	PEZ	DEZ
SMDJ26AY	SMDJ26CAY	26	28.9	31.90	1	42.1	71.26	2	PFE	DFE
SMDJ28AY	SMDJ28CAY	28	31.1	34.40	1	45.4	66.08	2	PFG	DFG
SMDJ30AY	SMDJ30CAY	30	33.3	36.80	1	48.4	61.98	2	PFK	DFK
SMDJ33AY	SMDJ33CAY	33	36.7	40.60	1	53.3	56.29	2	PFM	DFM
SMDJ36AY	SMDJ36CAY	36	40	44.20	1	58.1	51.64	2	PFP	DFP
SMDJ40AY	SMDJ40CAY	40	44.4	49.10	1	64.5	46.51	2	PFR	DFR
SMDJ43AY	SMDJ43CAY	43	47.8	52.80	1	69.4	43.23	2	PFT	DFT
SMDJ45AY	SMDJ45CAY	45	50	55.30	1	72.7	41.27	2	PFV	DFV
SMDJ48AY	SMDJ48CAY	48	53.3	58.90	1	77.4	38.76	2	PFX	DFX

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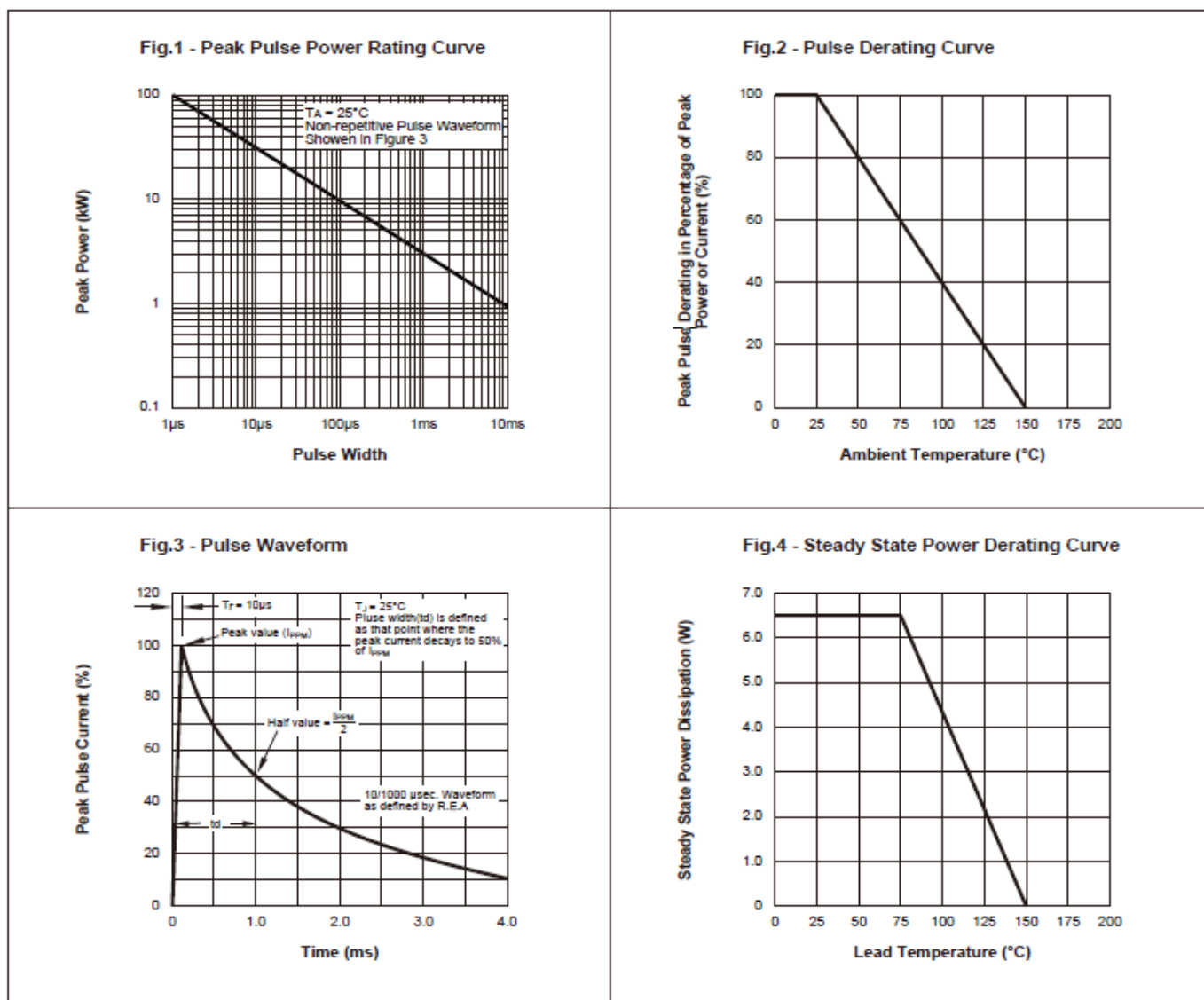
Part No. (Uni)	Part No. (Bi)	Reverse Stand off Voltage V _{RWM} (V)	Breakage Voltage V _{BR} @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp} V _C (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _{RWM} I _R (μA)	Marking Code	
			Min(V)	Max(V)					Uni	Bi
SMDJ51AY	SMDJ51CAY	51	56.7	62.70	1	82.4	36.41	2	PFZ	DFZ
SMDJ54AY	SMDJ54CAY	54	60	66.30	1	87.1	34.44	2	RGE	DGE
SMDJ58AY	SMDJ58CAY	58	64.4	71.20	1	93.6	32.05	2	PGG	DGG
SMDJ60AY	SMDJ60CAY	60	66.7	73.70	1	96.8	30.99	2	PGK	DGK
SMDJ64AY	SMDJ64CAY	64	71.1	78.60	1	103	29.13	2	PGM	DGM
SMDJ70AY	SMDJ70CAY	70	77.8	86.00	1	113	26.55	2	PGP	DGP
SMDJ75AY	SMDJ75CAY	75	83.3	92.10	1	121	24.79	2	PGR	DGR
SMDJ78AY	SMDJ78CAY	78	86.7	95.80	1	126	23.81	2	PGT	DGT
SMDJ80AY	SMDJ80CAY	80	88.8	97.60	1	129.6	23.15	2	PGW	DGW
SMDJ85AY	SMDJ85CAY	85	94.4	104.00	1	137	21.9	2	PGV	DGV
SMDJ90AY	SMDJ90CAY	90	100.0	111.00	1	146	20.55	2	PGX	DGX
SMDJ100AY	SMDJ100CAY	100	111.0	123.00	1	162	18.52	2	PGZ	DGZ
SMDJ110AY	SMDJ110CAY	110	122.0	135.00	1	177	16.95	2	PHE	DHE
SMDJ120AY	SMDJ120CAY	120	133.0	147.00	1	193	15.54	2	PHG	DHG
SMDJ130AY	SMDJ130CAY	130	144.0	159.00	1	209	14.35	2	PHK	DHK
SMDJ140AY	SMDJ140CAY	140	155.0	171.00	1	226.8	13.2	2	PHW	DHW
SMDJ150AY	SMDJ150CAY	150	167.0	185.00	1	243	12.35	2	PHM	DHM
SMDJ160AY	SMDJ160CAY	160	178.0	197.00	1	259	11.58	2	PHP	DHP
SMDJ170AY	SMDJ170CAY	170	189.0	209.00	1	275	10.91	2	PHR	DHR
SMDJ180AY	SMDJ180CAY	180	200.0	220.00	1	291.6	10.29	2	PHT	DHT
SMDJ190AY	SMDJ190CAY	190	211.0	232.00	1	307.8	9.75	2	PHX	DHX
SMDJ200AY	SMDJ200CAY	200	224.0	247.00	1	324	9.26	2	PHZ	DHZ
SMDJ220AY	SMDJ220CAY	220	246.0	272.00	1	356	8.43	2	PKE	DKE
SMDJ250AY	SMDJ250CAY	250	279.0	309.00	1	405	7.41	2	PKG	DKG
SMDJ300AY	SMDJ300CAY	300	335.0	371.00	1	486	6.17	2	PKM	DKM
SMDJ350AY	SMDJ350CAY	350	391.0	432.00	1	567	5.29	2	PKP	DKP
SMDJ400AY	SMDJ400CAY	400	447.0	494.00	1	648	4.63	2	PKZ	DKZ
SMDJ440AY	SMDJ440CAY	440	492.0	543.00	1	713	4.21	2	PPE	DPE

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■ Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

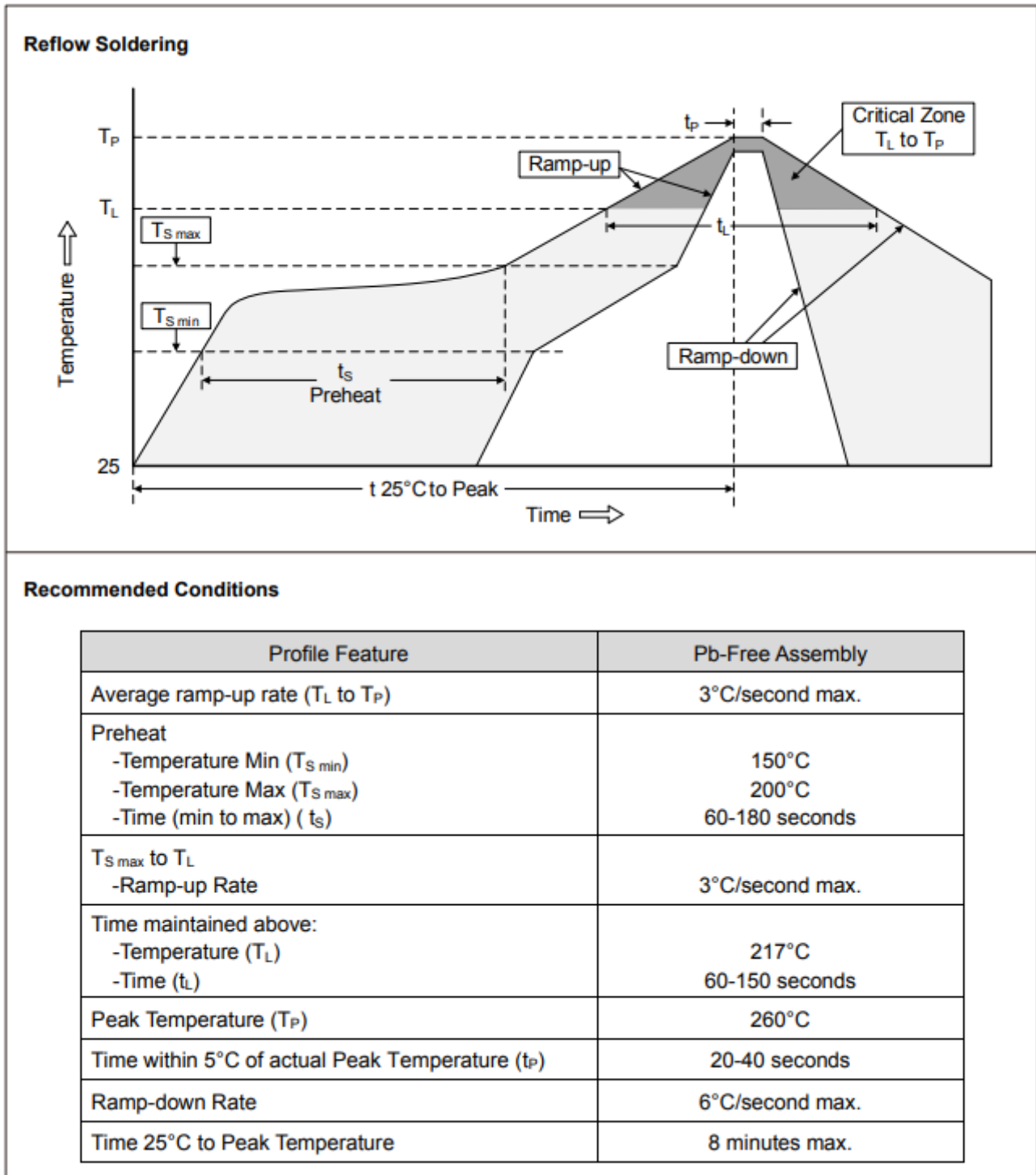


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■ Soldering Recommendation

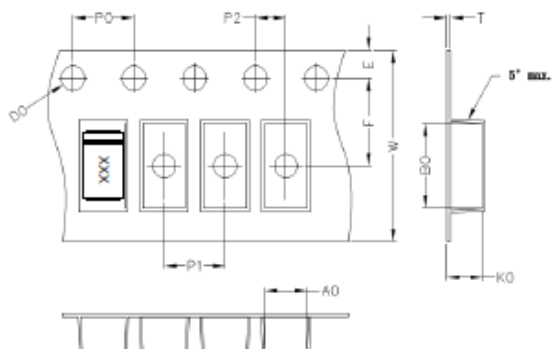


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■ Packaging



A0	B0	K0	D0	E	F
6.05	8.31	2.54	1.55	1.75	7.50
P0	P1	P2	T	W	Tolerance
4.0	8.0	2.0	0.25	16	0.1

■ Quantity

Series Type	Packaging option	Base quantity	Packaging specification
SMDJ	Tape and reel	3000pcs / reel	EIA STD RS-481

■ Warehouse Storage Conditions of product

- Storage Condition:
 1. Storage Temperature: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
 2. Relative Humidity: $\leq 75\% \text{RH}$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.