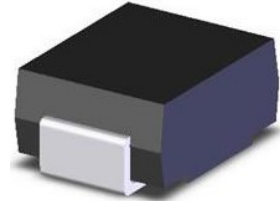


Description

The SMDJ-Q series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events. For surface mounted applications in order to optimize board space.

Features

- Halogen free and RoHS compliant
- Low profile package
- Built-in strain relief design
- Low inductance
- Excellent clamping capability
- 3000W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical I_R less than 1 μ A above 12V devices
- Peak 260 $^{\circ}$ C high temperature Reflow Soldering withstanding
- Meet MSL level1, per J-STD-020
- IEC-61000-4-2 ESD 30kV(Air), 30kV (Contact)
- Unit Weight: 0.265g
- AEC-Q101 Qualified



Applications

TVS components are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in telecom, computer, Industrial and consumer electronic applications.

Maximum Ratings and Characteristics ($T_A=25^{\circ}\text{C}$)

Rating	Symbol	Value
Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Note2, Fig.1)	P_{PPM}	3000W
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table(A)
Steady state power dissipation at $T_A=50^{\circ}\text{C}$ (Fig.5)	$P_{M(AV)}$	6.5W
Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only	V_F	3.5V
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I_{FSM}	300A
Operating junction and Storage Temperature Ranges	T_J, T_{STG}	-55 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15 $^{\circ}\text{C}/\text{W}$
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75 $^{\circ}\text{C}/\text{W}$

Notes:1. Non-repetitive current pulse, per Fig.3 and derating above $T_A=25^{\circ}\text{C}$ per Fig.2.

2. Each terminal is surface Mounted on the 8.0mm \times 8.0mm copper pads.

3. 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (T_A=25°C)

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _T		Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _R
Uni.	Bi.	Uni.	Bi.	V _R (V)	V _{B Min.} (V)	V _{B Max.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
SMDJ5.0A-Q	SMDJ5.0CA-Q	RDE	DDE	5.0	6.40	7.00	10	9.2	326.1	600
SMDJ6.0A-Q	SMDJ6.0CA-Q	RDG	DDG	6.0	6.67	7.37	10	10.3	291.3	600
SMDJ6.5A-Q	SMDJ6.5CA-Q	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	300
SMDJ7.0A-Q	SMDJ7.0CA-Q	PDM	DDM	7.0	7.78	8.60	10	12.0	250.0	200
SMDJ7.5A-Q	SMDJ7.5CA-Q	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A-Q	SMDJ8.0CA-Q	PDR	DDR	8.0	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A-Q	SMDJ8.5CA-Q	PDT	DDT	8.5	9.44	10.40	1	14.4	208.3	20
SMDJ9.0A-Q	SMDJ9.0CA-Q	PDV	DDV	9.0	10.00	11.10	1	15.4	194.8	10
SMDJ10A-Q	SMDJ10CA-Q	PDX	DDX	10.0	11.10	12.30	1	17.0	176.5	5
SMDJ11A-Q	SMDJ11CA-Q	PDZ	DDZ	11.0	12.20	13.50	1	18.2	164.8	2
SMDJ12A-Q	SMDJ12CA-Q	PEE	DEE	12.0	13.30	14.70	1	19.9	150.8	2
SMDJ13A-Q	SMDJ13CA-Q	PEG	DEG	13.0	14.40	15.90	1	21.5	139.5	1
SMDJ14A-Q	SMDJ14CA-Q	PEK	DEK	14.0	15.60	17.20	1	23.2	129.3	1
SMDJ15A-Q	SMDJ15CA-Q	PEM	DEM	15.0	16.70	18.50	1	24.4	123.0	1
SMDJ16A-Q	SMDJ16CA-Q	PEP	DEP	16.0	17.80	19.70	1	26.0	115.4	1
SMDJ17A-Q	SMDJ17CA-Q	PER	DER	17.0	18.90	20.90	1	27.6	108.7	1
SMDJ18A-Q	SMDJ18CA-Q	PET	DET	18.0	20.00	22.10	1	29.2	102.7	1
SMDJ20A-Q	SMDJ20CA-Q	PEV	DEV	20.0	22.20	24.50	1	32.4	92.6	1
SMDJ22A-Q	SMDJ22CA-Q	PEX	DEX	22.0	24.40	26.90	1	35.5	84.5	1
SMDJ24A-Q	SMDJ24CA-Q	PEZ	DEZ	24.0	26.70	29.50	1	38.9	77.1	1
SMDJ26A-Q	SMDJ26CA-Q	PFE	DFE	26.0	28.90	31.90	1	42.1	71.3	1
SMDJ28A-Q	SMDJ28CA-Q	PFG	DFG	28.0	31.10	34.40	1	45.4	66.1	1
SMDJ30A-Q	SMDJ30CA-Q	PFK	DFK	30.0	33.30	36.80	1	48.4	62.0	1
SMDJ33A-Q	SMDJ33CA-Q	PFM	DFM	33.0	36.70	40.60	1	53.3	56.3	1
SMDJ36A-Q	SMDJ36CA-Q	PFP	DFP	36.0	40.00	44.20	1	58.1	51.6	1
SMDJ40A-Q	SMDJ40CA-Q	PFR	DFR	40.0	44.40	49.10	1	64.5	46.5	1
SMDJ43A-Q	SMDJ43CA-Q	PFT	DFT	43.0	47.80	52.80	1	69.4	43.2	1
SMDJ45A-Q	SMDJ45CA-Q	PFV	DFV	45.0	50.00	55.30	1	72.7	41.3	1
SMDJ48A-Q	SMDJ48CA-Q	PFX	DFX	48.0	53.30	58.90	1	77.4	38.8	1

Electrical Characteristics (T_A=25°C)

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I _T		Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _R
Uni.	Bi.	Uni.	Bi.	V _R (V)	V _{B Min.} (V)	V _{B Max.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
SMDJ51A-Q	SMDJ51CA-Q	PFZ	DFZ	51.0	56.70	62.70	1	82.4	36.4	1
SMDJ54A-Q	SMDJ54CA-Q	PGE	DGE	54.0	60.00	66.30	1	87.1	34.4	1
SMDJ58A-Q	SMDJ58CA-Q	PGG	DGG	58.0	64.40	71.20	1	93.6	32.1	1
SMDJ60A-Q	SMDJ60CA-Q	PGK	DGK	60.0	66.70	73.70	1	96.8	31.0	1
SMDJ64A-Q	SMDJ64CA-Q	PGM	DGM	64.0	71.10	78.60	1	103.0	29.1	1
SMDJ70A-Q	SMDJ70CA-Q	PGP	DGP	70.0	77.80	86.00	1	113.0	26.5	1
SMDJ75A-Q	SMDJ75CA-Q	PGR	DGR	75.0	83.30	92.10	1	121.0	24.8	1
SMDJ78A-Q	SMDJ78CA-Q	PGT	DGT	78.0	86.70	95.80	1	126.0	23.8	1
SMDJ85A-Q	SMDJ85CA-Q	PGV	DGV	85.0	94.40	104.00	1	137.0	21.9	1
SMDJ90A-Q	SMDJ90CA-Q	PGX	DGX	90.0	100.00	111.00	1	146.0	20.5	1
SMDJ100A-Q	SMDJ100CA-Q	PGZ	DGZ	100.0	111.00	123.00	1	162.0	18.5	1
SMDJ110A-Q	SMDJ110CA-Q	PHE	DHE	110.0	122.00	135.00	1	177.0	16.9	1
SMDJ120A-Q	SMDJ120CA-Q	PHG	DHG	120.0	133.00	147.00	1	193.0	15.5	1
SMDJ130A-Q	SMDJ130CA-Q	PHK	DHK	130.0	144.00	159.00	1	209.0	14.4	1
SMDJ150A-Q	SMDJ150CA-Q	PHM	DHM	150.0	167.00	185.00	1	243.0	12.3	1
SMDJ160A-Q	SMDJ160CA-Q	PHP	DHP	160.0	178.00	197.00	1	259.0	11.6	1
SMDJ170A-Q	SMDJ170CA-Q	PHR	DHR	170.0	189.00	209.00	1	275.0	10.9	1
SMDJ180A-Q	SMDJ180CA-Q	HHT	IHT	180.0	201.00	222.00	1	292.0	10.3	1
SMDJ190A-Q	SMDJ190CA-Q	HHV	IHV	190.0	211.00	233.00	1	308.0	9.7	1
SMDJ200A-Q	SMDJ200CA-Q	HHX	IHX	200.0	224.00	247.00	1	324.0	9.3	1
SMDJ210A-Q	SMDJ210CA-Q	HHZ	IHZ	210.0	237.00	263.00	1	340.0	8.8	1
SMDJ220A-Q	SMDJ220CA-Q	HIE	IIE	220.0	246.00	272.00	1	356.0	8.4	1

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$)

Figure 1. Peak Pulse Power Rating Curve

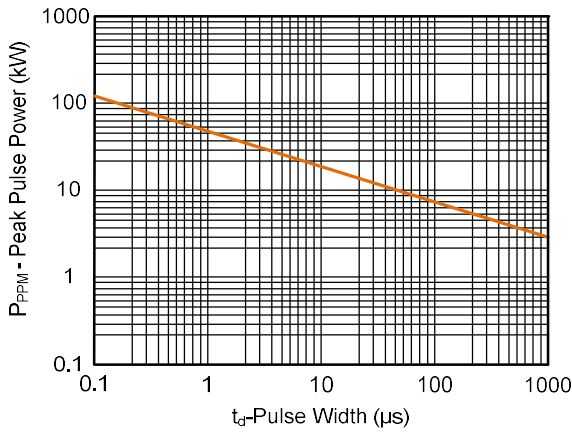


Figure 2. Pulse Derating Curve

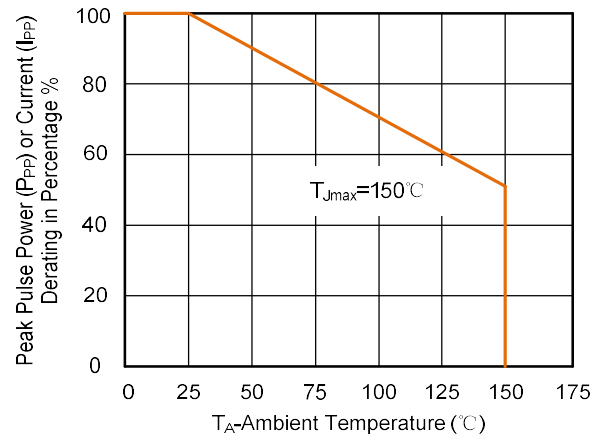


Figure 3. Pulse Waveform

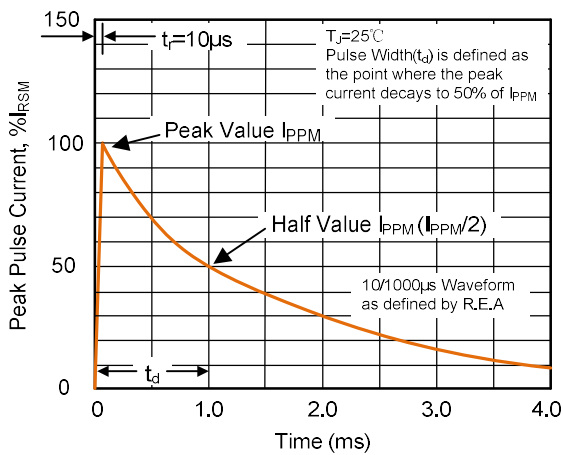


Figure 4. Typical Junction Capacitance

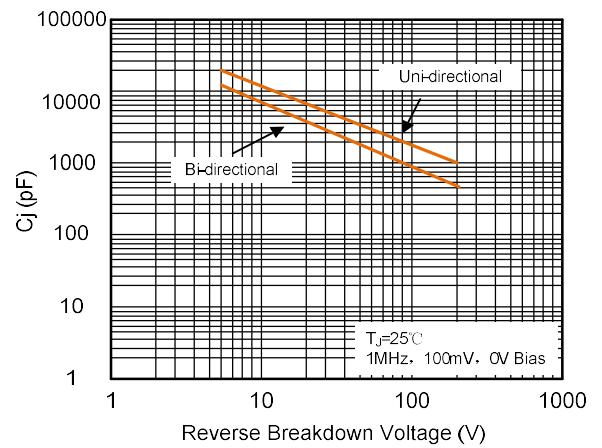


Figure 5. Steady State Power Dissipation Derating Curve

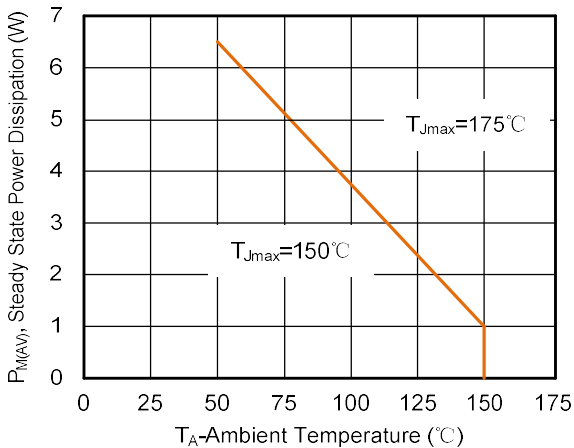
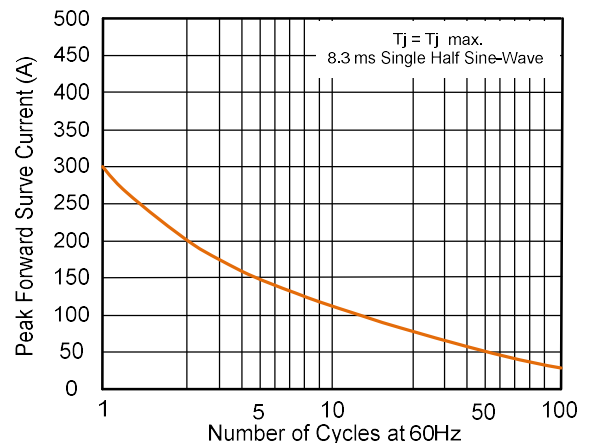
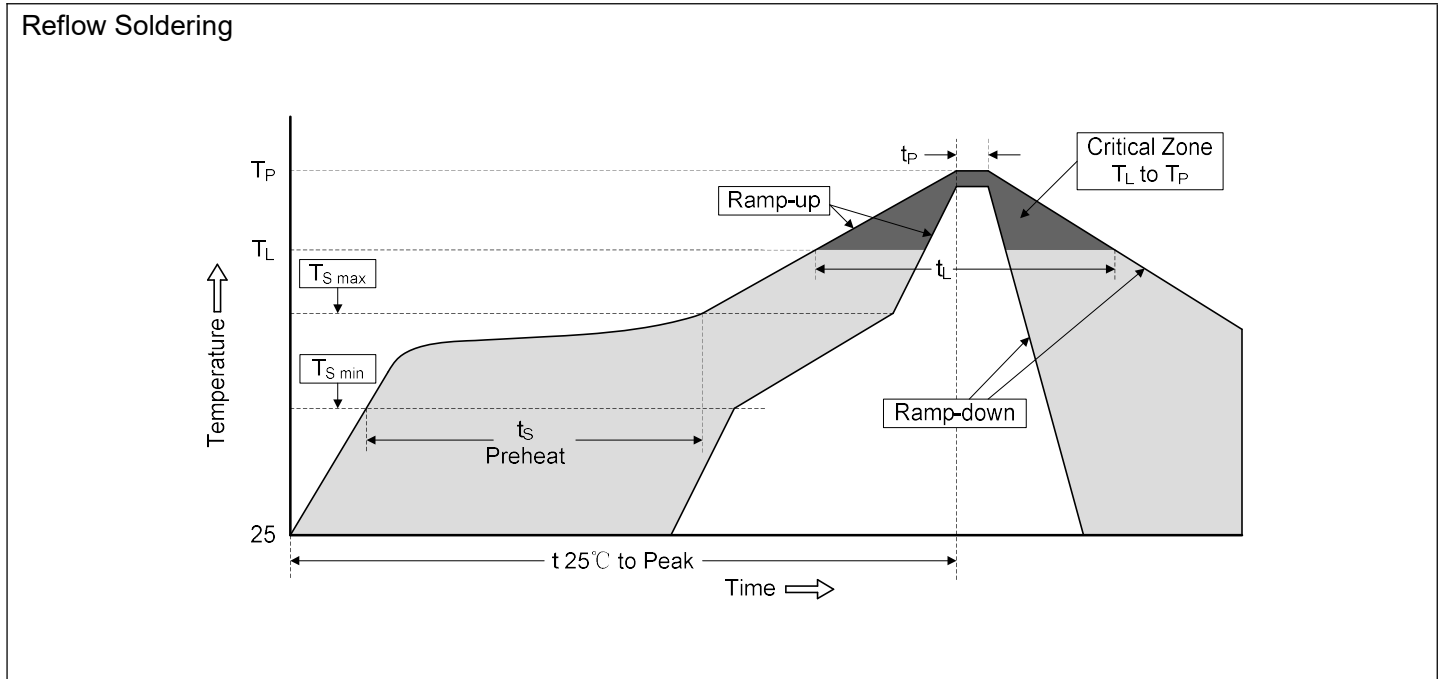


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

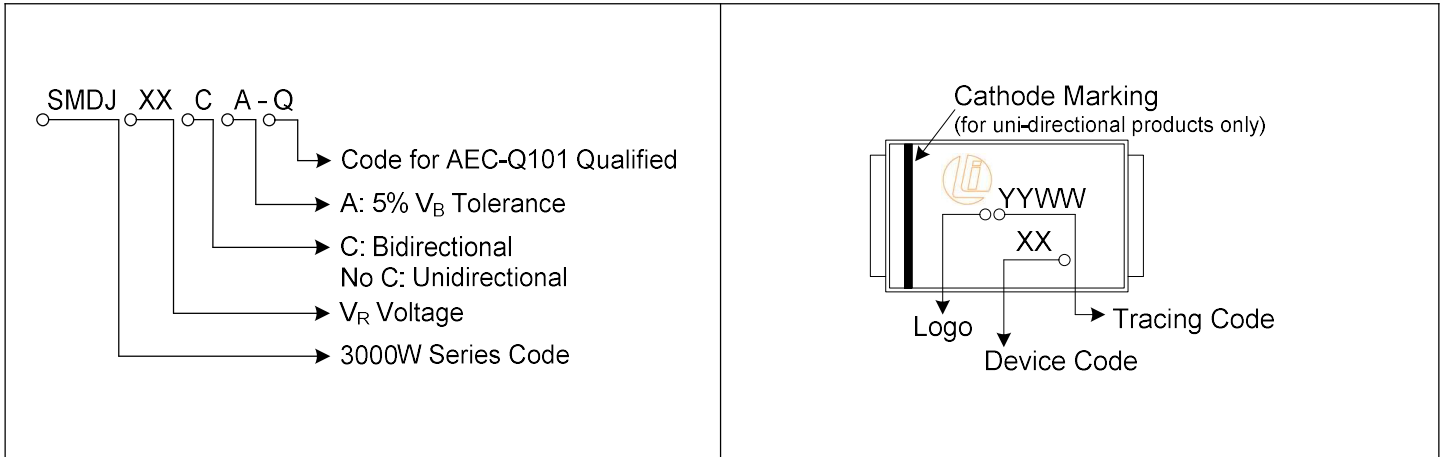


Soldering Parameters



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Part Number Code and Marking Code

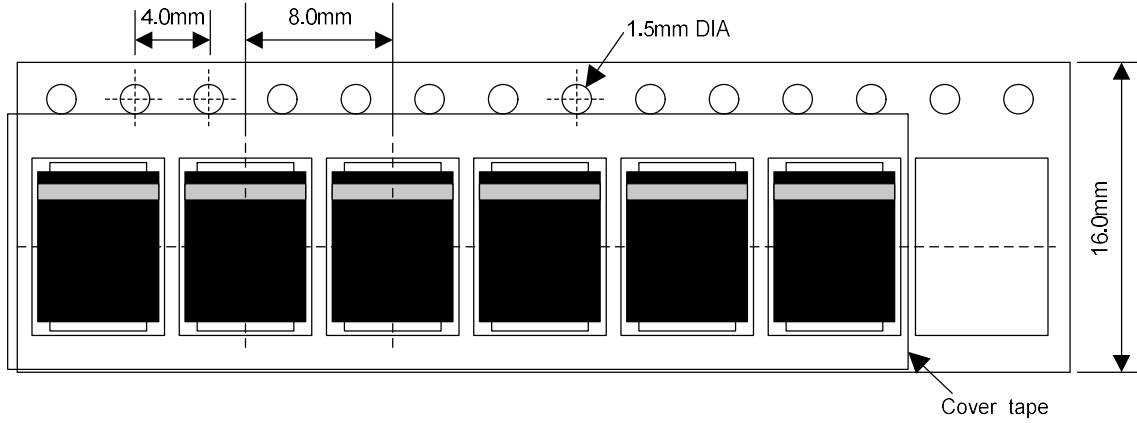


Dimensions (SMC/DO-214AB)

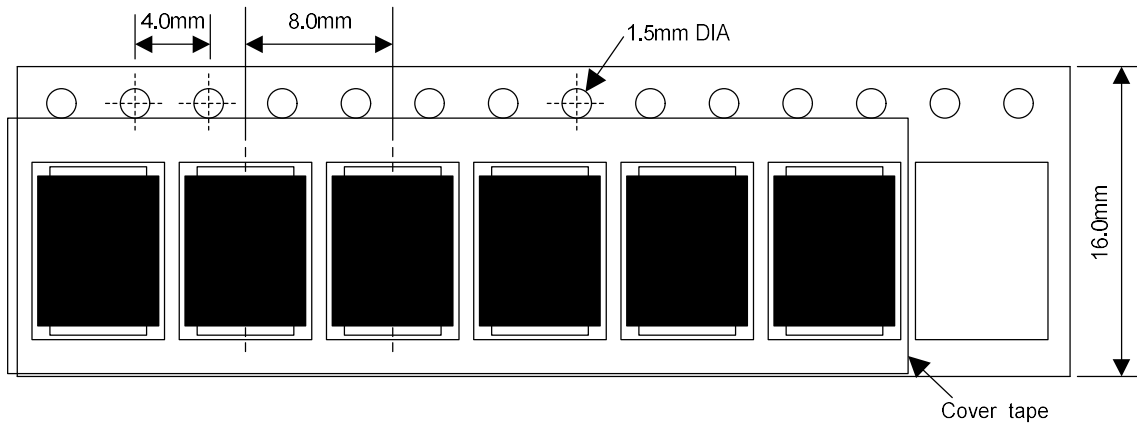
Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.900	3.200	0.114	0.126
B	6.600	7.110	0.260	0.280
C	5.590	6.220	0.220	0.245
D	2.060	2.620	0.079	0.103
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	7.750	8.130	0.305	0.320
H	0.152	0.305	0.006	0.012
T	2.200	2.750	0.087	0.108
I	3.300	-	0.129	-
J	2.400	-	0.094	-
K	-	4.200	-	0.165

Packaging Specification

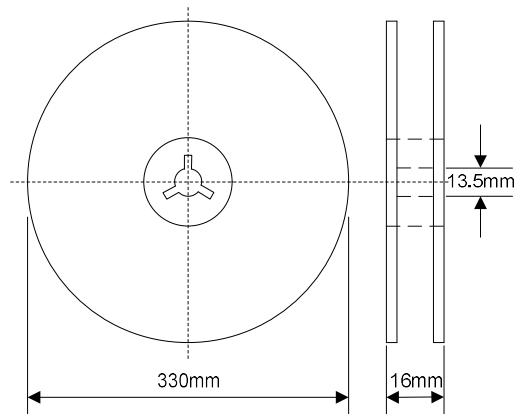
Tape



For Uni-Devices



13 Inches Reel



Quantity: 3000pcs/reel