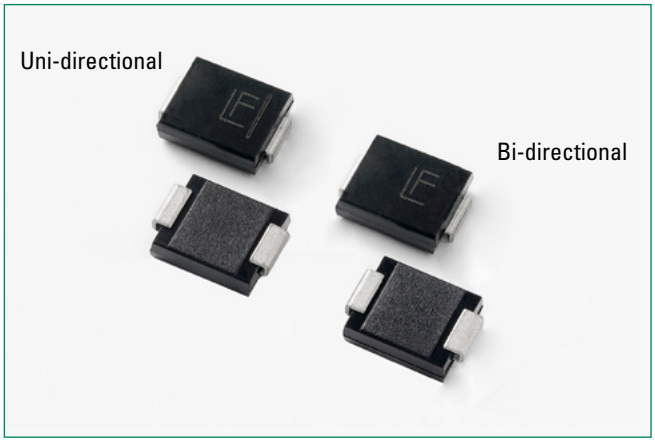
8.0SMDJ Series
Surface Mount – 8000 W



Agency Recognitions

Agency	Agency File Number
	E230531

Maximum Ratings and Thermal Characteristics
(T_A=25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_L=25 °C by 10/1000 µs Waveform (Fig.2)(Note 1), (Note 2)	P_{PPM}	8000	W
Power Dissipation on Infinite Heat Sink at T_L= 50 °C	P_D	6.5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave (Note 3)	I_{FSM}	300	A
Maximum Instantaneous Forward Voltage at 100 A for Unidirectional Only	V_F	5.0	V
Operating Temperature Range	T_J	-65 to 150	°C
Storage Temperature Range	T_{STG}	-65 to 175	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	°C/W

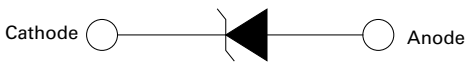
Notes:
1. Non-repetitive current pulse , per Fig. 4 and derated above T_J (initial) =25 °C per Fig. 3.
2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
3. Measured on 8.3 ms single half sine wave or equivalent square wave for unidirectional component only, duty cycle=4 per minute maximum.

Description
The 8.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features and Benefits
- For surface mounted applications to optimize board space
- Low profile package
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c pass Cass 1 and Class 2
- IEC-61000-4-2 ESD 30 kV(Air), 30 kV (Contact)
- Glass passivated chip junction
- 8 kW peak pulse power capability at 10/1000 µs waveform, repetition rate (duty cycles):0.01 %
- Compact size with high power density in DO-214AB Package
- Low dynamic resistance
- V_{BR} @ T_J= V_{BR}@25°C x (1+αT x (T_J - 25))(αT:Temperature Coefficient, typical value is 0.1%)
- UL Recognized compound meeting flammability rating V-0
- Halogen free and RoHS compliant
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)
- Recoginzed to UL 497B as an Isolated Loop Circuit Protector

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.

Functional Diagram



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

Part Number (Uni)	Part Number (Bi)	Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (10/1000 µs) (V)	Maximum Peak Pulse Current I_{PP} (10/1000 µs) (A)	Maximum Clamping Voltage V_C @ I_{PP} (8/20 µs) (V)	Maximum Peak Pulse Current I_{PP} (8/20 µs) (A)	Maximum Reverse Leakage I_R @ V_R (µA)	Agency Approval
		UNI	BI		MIN	MAX							
8.0SMDJ12A	8.0SMDJ12CA	8PEP	8BEP	12	13.3	14.7	10	19.9	402.1	25.7	2613.7	800	X
8.0SMDJ13A	8.0SMDJ13CA	8PEQ	8BEQ	13	14.4	15.9	10	21.5	372.1	27.8	2418.7	500	X
8.0SMDJ14A	8.0SMDJ14CA	8PER	8BER	14	15.6	17.2	10	23.2	344.9	30.0	2241.9	200	X
8.0SMDJ15A	8.0SMDJ15CA	8PES	8BES	15	16.7	18.5	1	24.4	327.9	31.5	2131.4	100	X
8.0SMDJ16A	8.0SMDJ16CA	8PET	8BET	16	17.8	19.7	1	26.0	307.7	33.6	2000.1	50	X
8.0SMDJ17A	8.0SMDJ17CA	8PEU	8BEU	17	18.9	20.9	1	27.6	290.0	35.7	1885.0	20	X
8.0SMDJ18A	8.0SMDJ18CA	8PEV	8BEV	18	20.0	22.1	1	29.2	274.0	37.7	1781.0	10	X
8.0SMDJ20A	8.0SMDJ20CA	8PEW	8BEW	20	22.2	24.5	1	32.4	247.0	41.9	1605.5	5	X
8.0SMDJ22A	8.0SMDJ22CA	8PEX	8BEX	22	24.4	26.9	1	35.5	225.4	45.9	1464.8	5	X
8.0SMDJ24A	8.0SMDJ24CA	8PEZ	8BEZ	24	26.7	29.5	1	38.9	205.7	50.3	1336.8	5	X
8.0SMDJ26A	8.0SMDJ26CA	8PFE	8BFE	26	28.9	31.9	1	42.1	190.1	54.4	1235.7	5	X
8.0SMDJ28A	8.0SMDJ28CA	8PFG	8BFG	28	31.1	34.4	1	45.4	176.2	58.7	1145.4	5	X
8.0SMDJ30A	8.0SMDJ30CA	8PFK	8BFK	30	33.3	36.8	1	48.4	165.3	62.5	1074.5	5	X
8.0SMDJ33A	8.0SMDJ33CA	8PFM	8BFM	33	36.7	40.6	1	53.3	150.1	68.9	975.7	5	X
8.0SMDJ36A	8.0SMDJ36CA	8PFP	8BFP	36	40.0	44.2	1	58.1	137.8	75.1	895.7	5	X
8.0SMDJ40A	8.0SMDJ40CA	8PFR	8BFR	40	44.4	49.1	1	64.5	124.1	83.3	806.7	5	X
8.0SMDJ43A	8.0SMDJ43CA	8PFT	8BFT	43	47.8	52.8	1	69.4	115.3	89.7	749.5	5	X
8.0SMDJ45A	8.0SMDJ45CA	8PFV	8BFV	45	50.0	55.3	1	72.7	110.1	93.9	715.7	5	X
8.0SMDJ48A	8.0SMDJ48CA	8PFX	8BFX	48	53.3	58.9	1	77.4	103.4	100.0	671.8	5	X
8.0SMDJ51A	8.0SMDJ51CA	8PFZ	8BFZ	51	56.7	62.7	1	82.4	97.1	106.5	631.2	5	X
8.0SMDJ54A	8.0SMDJ54CA	8PGE	8BGE	54	60.0	66.3	1	87.1	92.0	112.5	598.0	5	X
8.0SMDJ58A	8.0SMDJ58CA	8PGG	8BGG	58	64.4	71.2	1	93.6	85.5	120.9	555.8	5	X
8.0SMDJ60A	8.0SMDJ60CA	8PGK	8BGK	60	66.7	73.7	1	96.8	82.7	125.1	537.2	5	X
8.0SMDJ64A	8.0SMDJ64CA	8PGM	8BGM	64	71.1	78.6	1	103.0	77.7	133.1	504.9	5	X
8.0SMDJ70A	8.0SMDJ70CA	8PGP	8BGB	70	77.8	86.0	1	113.0	71.0	146.0	461.5	5	X
8.0SMDJ75A	8.0SMDJ75CA	8PGR	8BGR	75	83.3	92.1	1	121.0	66.2	156.3	430.3	5	X
8.0SMDJ78A	8.0SMDJ78CA	8PGT	8BGT	78	86.7	95.8	1	126.0	63.5	162.8	412.8	5	X
8.0SMDJ85A	8.0SMDJ85CA	8PGV	8BGV	85	94.4	104.0	1	137.0	58.4	177.0	379.6	5	X
8.0SMDJ90A	8.0SMDJ90CA	8PGX	8BGX	90	100.0	111.0	1	146.0	55.0	188.6	357.5	5	X
8.0SMDJ100A	8.0SMDJ100CA	8PGZ	8BGZ	100	111.0	123.0	1	162.0	49.4	209.3	321.1	5	X
8.0SMDJ110A	8.0SMDJ110CA	8PHE	8BHE	110	122.0	135.0	1	177.0	45.2	228.7	293.8	5	X

For bidirectional type having V_R of 20 volts and less, the I_R limit is double.

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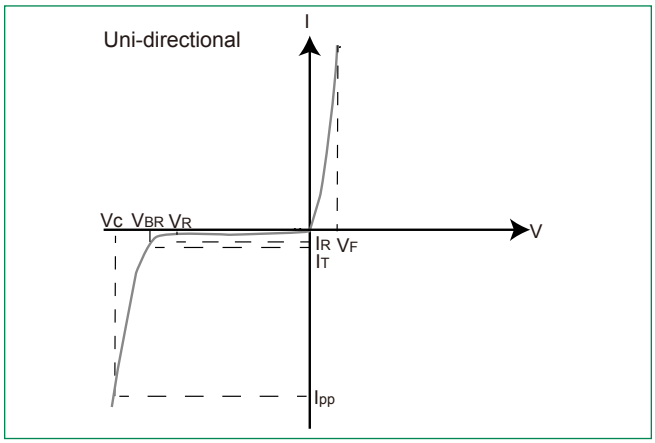
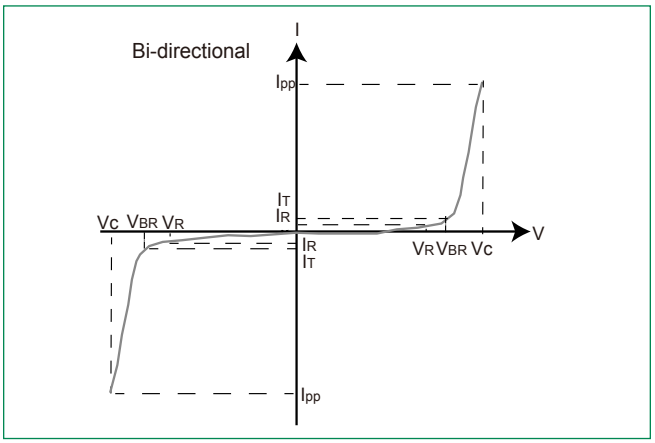
I-V Curve Characteristics





P_{PPM} Peak Pulse Power Dissipation (I_{PP} x V_C) -- Max power dissipation
V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation
V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)
V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
I_R Reverse Leakage Current -- Current measured at V_R
V_F Forward Voltage Drop for Uni-directional

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1:
TVS Transients Clamping Waveform

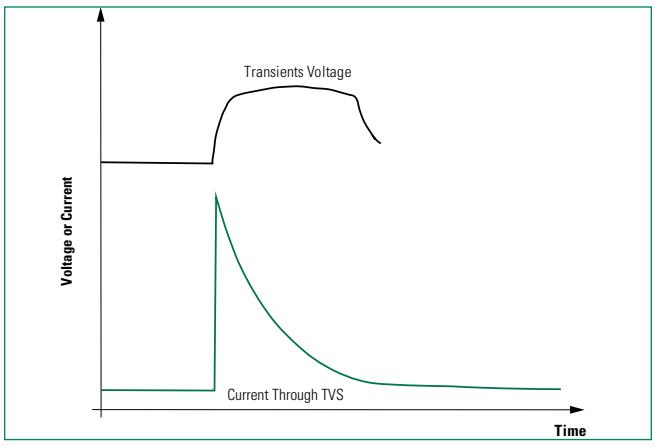
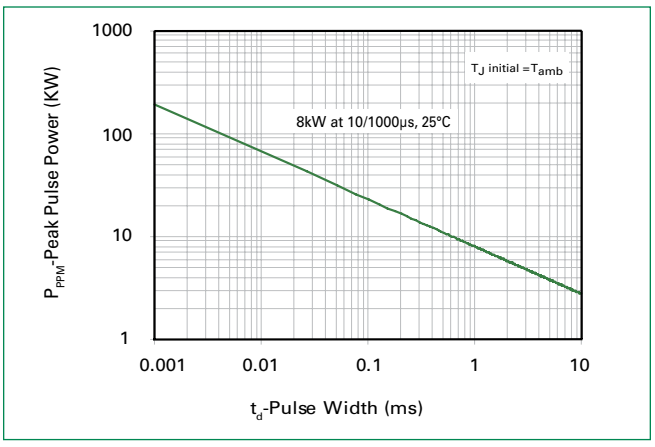


Figure 2:
Typical Peak Pulse Power Rating



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Ratings and Characteristic Curves (T_A=25 °C unless otherwise noted) (Continued)

Figure 3:
Peak Pulse Power Derating Curve

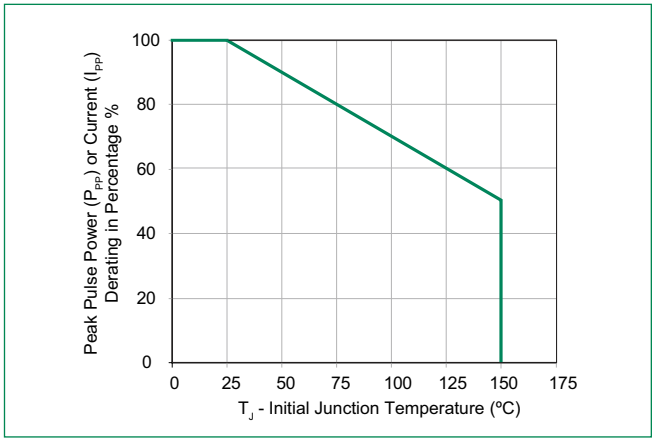


Figure 4:
Pulse Waveform

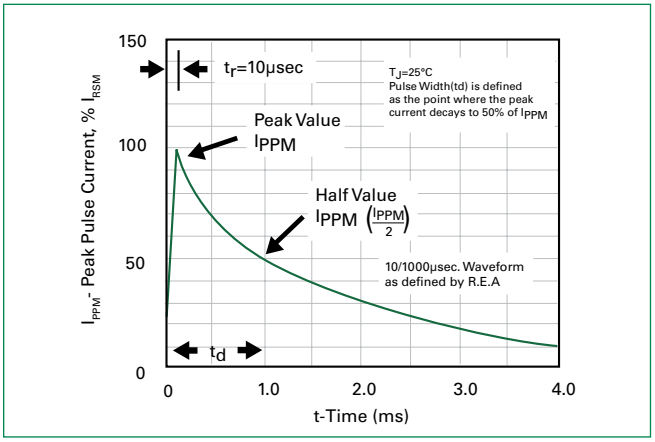


Figure 5:
Typical Junction Capacitance

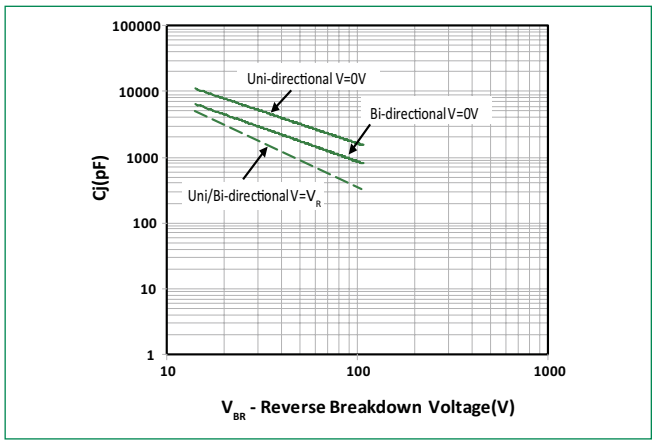


Figure 6:
Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

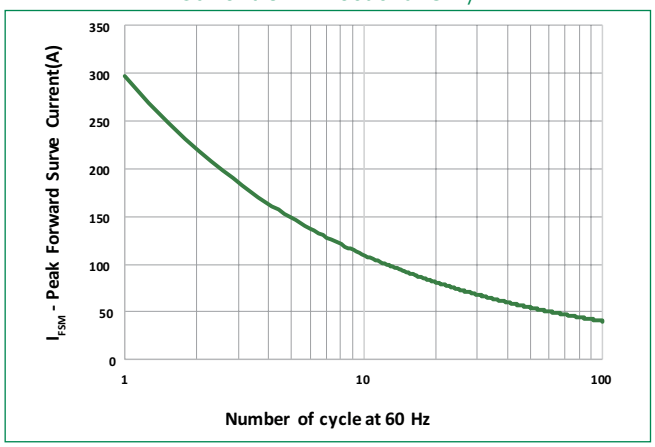
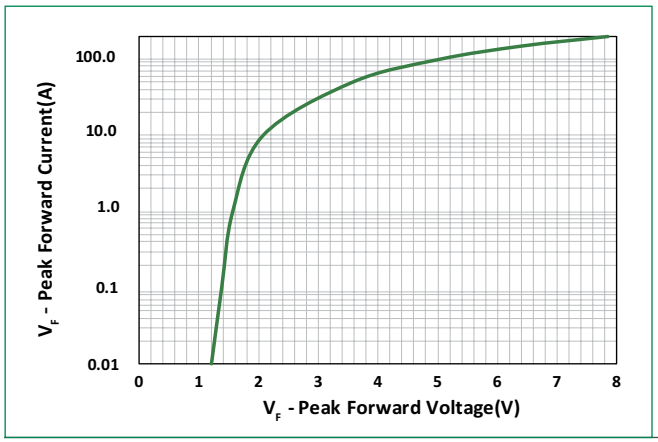


Figure 7:
Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



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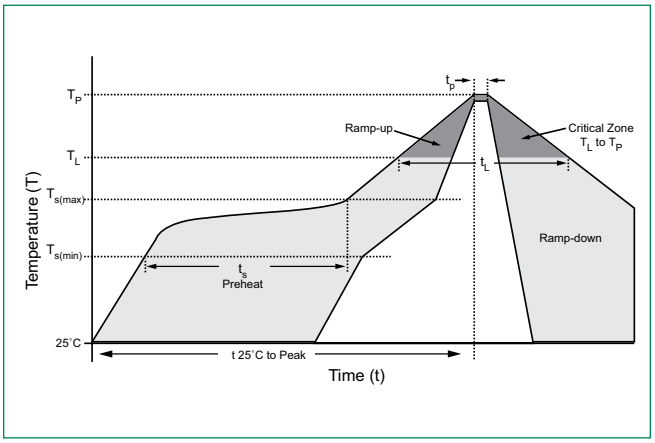
Soldering Parameters

Reflow Condition		Lead–free assembly
Pre Heat	**- Temperature Min ($T_{s(min)}$)**	150 °C
	- Temperature Max ($T_{s(max)}$)	200 °C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_A) to peak		3 °C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3 °C/second max
Reflow	**- Temperature (T_L) (Liquidus)**	217 °C
	- Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260 $^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260 °C



Physical Specifications

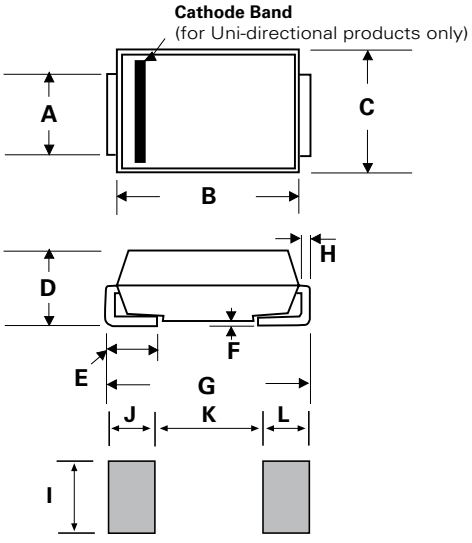
Weight	0.011 ounce ,0.3 grams
Case	JEDEC DO214AB. Molded plastic body over glass passivated junction
Polarity	Color band denotes positive end (cathode) except Bidirectional.
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102

Environmental Specifications

High Temp Voltage Blocking (HTRB)	100 % DC reverse voltage rated 150 °C, 1008 hours JEDEC, JESD22-A-108
Biased Temp & Humidity (H3TRB)	80 % breakdown voltage (+85 °C) 85 %RH, 1008 hours JEDEC, JESD22-A-101
Unbiased Highly Accelerated Stress Test (UHAST)	96 hours at TA = 130 °C/85 %RH. JEDEC, JESD22-A-118
Temp Cycling (TC)	-55 °C to +150 °C, 15 min. dwell, 1000 cycles. JEDEC, JESD22-A104
Moisture Sensitivity Level (MSL)	85 %RH, +85 °C, 168 hours, 3 reflow cycles (+260 °C Peak). JEDEC, JEDEC-J-STD-020, Level 1
Resistance to Solder Heat (RSH)	+260 °C, 30 seconds JEDEC, JEDEC JESD22-A-111

Dimensions

DO-214AB (SMC J-Bend)



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

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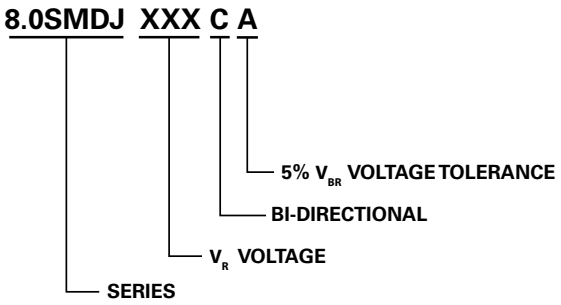
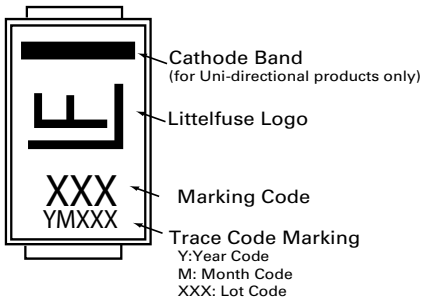
Part Numbering System



Part Marking System



Packaging Options

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
8.0SMDJxxxXX	DO-214AB	3000	Tape & Reel - 16 mm tape/13" reel	EIA STD RS-481
8.0SMDJxxxXX-T7	DO-214AB	500	Tape & Reel – 16 mm tape/7" reel	EIA STD RS-481

Tape and Reel Specification