

SMAJ-Q Transient Voltage Suppressor Diode Series

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Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted) - Continued

Unidirectional Device		Bidirectional Device		Breakdown Voltage V _{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V _{RWM}	Maximum Clamping Voltage @ I _{pp} (10/1000 μs)	Maximum Peak Pulse Current (10/1000 μs)	Maximum Clamping Voltage @ I _{pp} (8/20 μs)	Maximum Peak Pulse Current (8/20 μs)
Part No.	Marking	Part No.	Marking	Min.	Max.	@ I _T (mA)	V _{RWM} (V)	I _R (μA)	V _c (V)	I _{pp} (A)	V _c (V)	I _{pp} (A)
SMAJ17A-Q	IRQ	SMAJ17CA-Q	URQ	18.9	20.9	1.0	17	1.0	27.6	14.5	35.9	72.5
SMAJ18A-Q	ITQ	SMAJ18CA-Q	UTQ	20.0	22.1	1.0	18	1.0	29.2	13.7	38.0	68.5
SMAJ20A-Q	IVQ	SMAJ20CA-Q	UVQ	22.2	24.5	1.0	20	1.0	32.4	12.3	42.1	61.5
SMAJ22A-Q	IXQ	SMAJ22CA-Q	UXQ	24.4	26.9	1.0	22	1.0	35.5	11.3	46.2	56.5
SMAJ24A-Q	IZQ	SMAJ24CA-Q	UZQ	26.7	29.5	1.0	24	1.0	38.9	10.3	50.6	51.5
SMAJ26A-Q	JEQ	SMAJ26CA-Q	VEQ	28.9	31.9	1.0	26	1.0	42.1	9.5	54.7	47.5
SMAJ28A-Q	JGQ	SMAJ28CA-Q	VGQ	31.1	34.4	1.0	28	1.0	45.4	8.8	59.0	44.0
SMAJ30A-Q	JKQ	SMAJ30CA-Q	VKQ	33.3	36.8	1.0	30	1.0	48.4	8.3	62.9	41.5
SMAJ33A-Q	JMQ	SMAJ33CA-Q	VMQ	36.7	40.6	1.0	33	1.0	53.3	7.5	69.3	37.5
SMAJ36A-Q	JPQ	SMAJ36CA-Q	VPQ	40	44.2	1.0	36	1.0	58.1	6.9	75.5	34.5
SMAJ40A-Q	JRQ	SMAJ40CA-Q	VRQ	44.4	49.1	1.0	40	1.0	64.5	6.2	83.9	31.0
SMAJ43A-Q	JTQ	SMAJ43CA-Q	VTQ	47.8	52.8	1.0	43	1.0	69.4	5.8	90.2	29.0
SMAJ45A-Q	JVQ	SMAJ45CA-Q	VVQ	50	55.3	1.0	45	1.0	72.7	5.5	94.5	27.5
SMAJ48A-Q	JXQ	SMAJ48CA-Q	VXQ	53.3	58.9	1.0	48	1.0	77.4	5.2	100.6	26.0
SMAJ51A-Q	JZQ	SMAJ51CA-Q	VZQ	56.7	62.7	1.0	51	1.0	82.4	4.9	107.1	24.5
SMAJ54A-Q	REQ	SMAJ54CA-Q	WEQ	60	66.3	1.0	54	1.0	87.1	4.6	113.2	23.0
SMAJ58A-Q	RGQ	SMAJ58CA-Q	WGQ	64.4	71.2	1.0	58	1.0	93.6	4.3	121.7	21.5
SMAJ60A-Q	RKQ	SMAJ60CA-Q	WKQ	66.7	73.7	1.0	60	1.0	96.8	4.1	125.8	20.5
SMAJ64A-Q	RMQ	SMAJ64CA-Q	WMQ	71.1	78.6	1.0	64	1.0	103	3.9	133.9	19.5
SMAJ70A-Q	RPQ	SMAJ70CA-Q	WPQ	77.8	86.0	1.0	70	1.0	113	3.5	146.9	17.5
SMAJ75A-Q	RRQ	SMAJ75CA-Q	WRQ	83.3	92.1	1.0	75	1.0	121	3.3	157.3	16.5
SMAJ78A-Q	RTQ	SMAJ78CA-Q	WTQ	86.7	95.8	1.0	78	1.0	126	3.2	163.8	16.0
SMAJ85A-Q	RVQ	SMAJ85CA-Q	WVQ	94.4	104	1.0	85	1.0	137	2.9	178.1	14.5
SMAJ90A-Q	RXQ	SMAJ90CA-Q	WXQ	100	111	1.0	90	1.0	146	2.7	189.8	13.5
SMAJ100A-Q	RZQ	SMAJ100CA-Q	WZQ	111	123	1.0	100	1.0	162	2.5	210.6	12.5
SMAJ110A-Q	SEQ	SMAJ110CA-Q	XEQ	122	135	1.0	110	1.0	177	2.3	230.1	11.5
SMAJ120A-Q	SGQ	SMAJ120CA-Q	XGQ	133	147	1.0	120	1.0	193	2.1	250.9	10.5
SMAJ130A-Q	SKQ	SMAJ130CA-Q	XKQ	144	159	1.0	130	1.0	209	1.9	271.7	9.5
SMAJ150A-Q	SMQ	SMAJ150CA-Q	XMQ	167	185	1.0	150	1.0	243	1.6	315.9	8.0
SMAJ160A-Q	SPQ	SMAJ160CA-Q	XPQ	178	197	1.0	160	1.0	259	1.5	336.7	7.5
SMAJ170A-Q	SRQ	SMAJ170CA-Q	XRQ	189	209	1.0	170	1.0	275	1.5	357.5	7.5
SMAJ180A-Q	STQ	SMAJ180CA-Q	XTQ	201	222	1.0	180	1.0	292	1.4	379.6	7.0
SMAJ200A-Q	SVQ	SMAJ200CA-Q	XVQ	224	247	1.0	200	1.0	324	1.2	421.2	6.0
SMAJ220A-Q	SXQ	SMAJ220CA-Q	XXQ	246	272	1.0	220	1.0	356	1.1	462.8	5.5

Notes: 1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

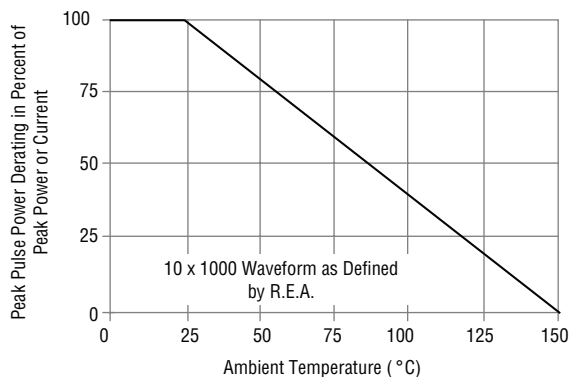
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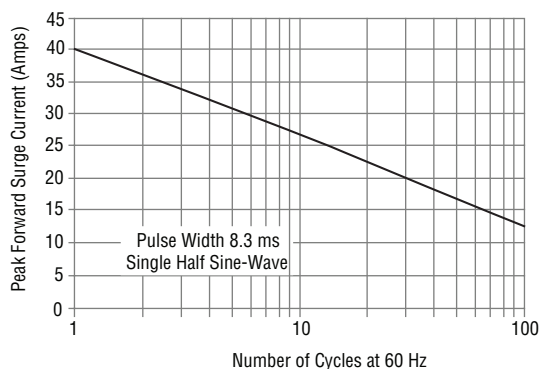
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Performance Graphs

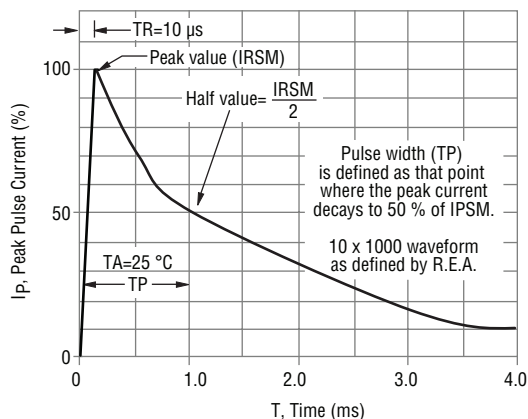
Peak Pulse Power Derating Curve



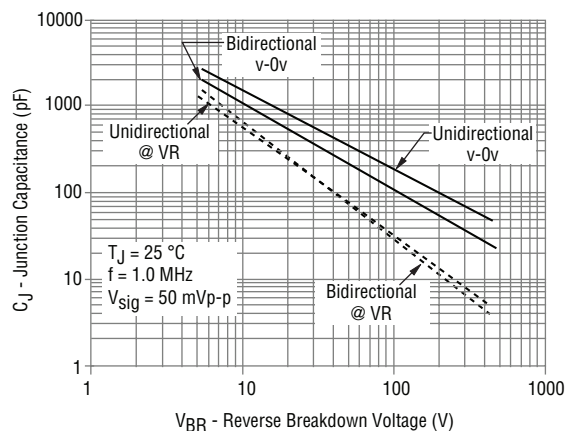
Maximum Non-Repetitive Surge Current



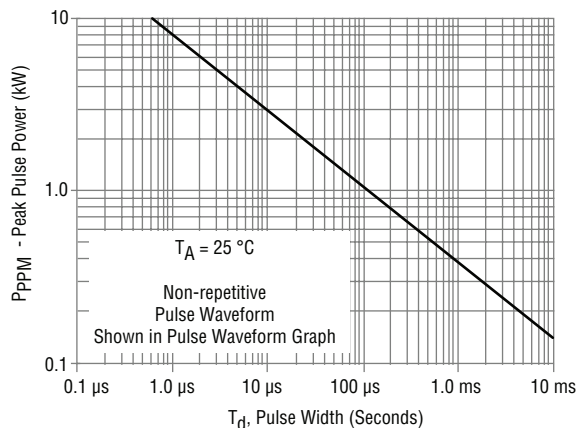
Pulse Waveform



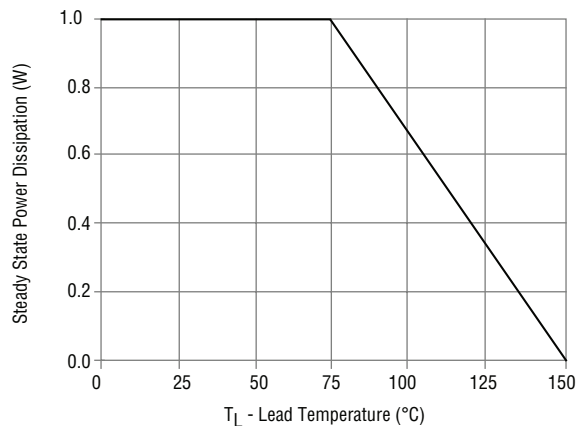
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



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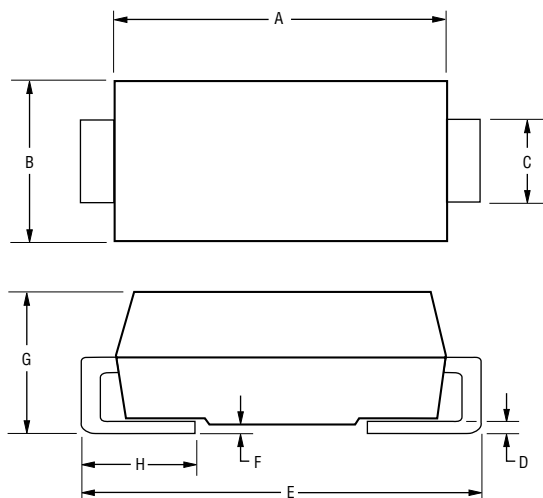
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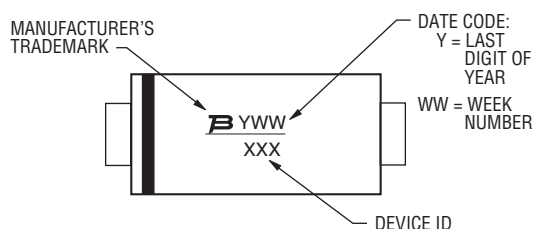
Product Dimensions



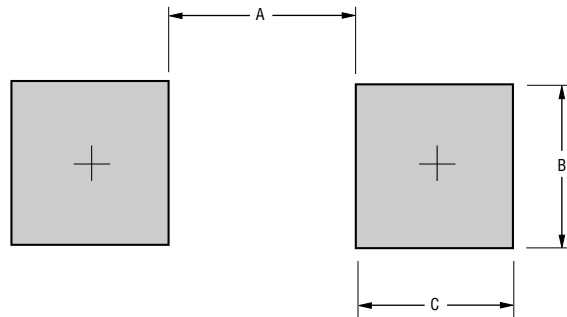
Dimension	SMA (DO-214AC)
A	3.99 - 4.50 (0.157 - 0.177)
B	2.54 - 2.79 (0.100 - 0.110)
C	1.25 - 1.65 (0.049 - 0.065)
D	0.15 - 0.31 (0.006 - 0.012)
E	4.93 - 5.28 (0.194 - 0.208)
F	0.203 MAX. (0.008)
G	1.98 - 2.29 (0.078 - 0.090)
H	0.76 - 1.52 (0.030 - 0.060)

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Typical Part Marking



Recommended Footprint



Dimension	SMA (DO-214AC)
A (Max.)	2.70 (0.106)
B (Min.)	2.10 (0.083)
C (Min.)	1.27 (0.050)

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Physical Specifications

CaseMolded plastic per UL Class 94V-0
Polarity..... Cathode band indicates unidirectional device
No cathode band indicates bidirectional device

How to Order

Package **SMAJ 12 CA - Q**
SMAJ = SMA/DO-214AC
Working Peak Reverse Voltage
12 = 12 V_{RWM} (Volts)
Suffix
A = 5 % Tolerance Unidirectional Device
CA = 5 % Tolerance Bidirectional Device
AEC-Q101 Suffix
Q = AEC-Q101 Compliant, 13-inch Reel
QH = AEC-Q101 Compliant, 7-inch Reel
(available only for 12 V to 58 V models)

Environmental Specifications

Moisture Sensitivity Level 1
ESD Classification (HBM)..... 3B

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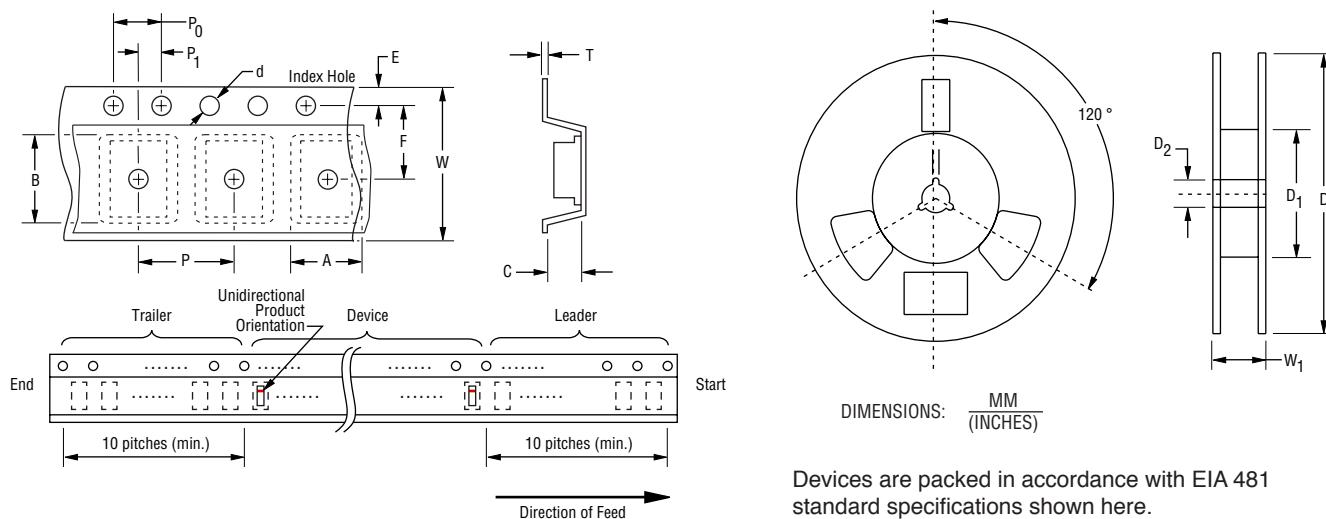
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Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



Item	Symbol	SMA (DO-214AC)	
		7-Inch Reel	13-Inch Reel
Carrier Width	A	2.90 ± 0.20 (0.114 ± 0.008)	
Carrier Length	B	5.50 ± 0.20 (0.217 ± 0.008)	
Carrier Depth	C	2.26 ± 0.20 (0.089 ± 0.008)	
Sprocket Hole	d	1.50 ± 0.10 (0.061 ± 0.004)	
Reel Outside Diameter	D	178 (7.008)	330 (12.992)
Reel Inner Diameter	D ₁	50.0 (1.969) MIN.	
Feed Hole Diameter	D ₂	13.0 ± 0.20 (0.512 ± 0.008)	
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)	
Punch Hole Position	F	5.50 ± 0.05 (0.217 ± 0.002)	
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)	
Sprocket Hole Pitch	P ₀	4.00 ± 0.10 (0.157 ± 0.004)	
Embossment Center	P ₁	2.00 ± 0.05 (0.079 ± 0.002)	
Overall Tape Thickness	T	0.30 ± 0.10 (0.012 ± 0.004)	
Tape Width	W	12.00 ± 0.30 (0.472 ± 0.012)	
Reel Width	W ₁	18.4 (0.724) MAX.	
Quantity per Reel	--	1,000	5,000

REV. 03/20

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