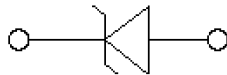
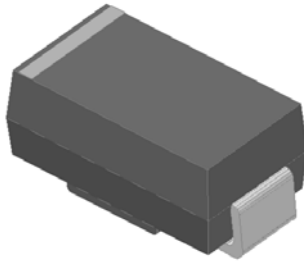
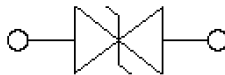
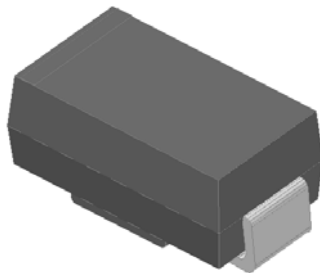


Surface Mount Transient Voltage Suppressor Diodes

Uni-directional



Bi-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 600 W peak pulse power capability with a 10/1000 μ s waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- ESD protection of data lines in accordance with IEC 61000-4-2, 30kV(Air), 30kV (Contact)
- Part no. with suffix "Q" means AEC-Q101 qualified

Typical Applications

For use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, automotive, and telecommunication.

Mechanical Data

- **Package:** DO-214AC (SMA)
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

■Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform ⁽¹⁾ ⁽²⁾ (Fig.1)	P_{PPM}	W	600
Peak pulse current, with a 10/1000us waveform ⁽¹⁾	I_{PPM}	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=85^\circ\text{C}$	P_D	W	3.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	A	60
Operating junction	T_J	$^\circ\text{C}$	-55 to +175
Storage temperature range	T_{STG}	$^\circ\text{C}$	-55 to +175

■Electrical Characteristics ($T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @ at 25A for unidirectional only	V_F	V	3.5



SMA6J SERIES

■ Thermal Characteristics (T_a=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R _{θJL}	℃/W	junction to lead	30
	R _{θJA}	℃/W	junction to ambient	120

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25℃ per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

■ Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMA6J SERIES	F2	Approximate 0.067	7500	120000	13" reel

■ Electrical Characteristics (T_a=25℃ Unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V _{BR} @I _T			Maximum Reverse Leakage I _R @ V _{RWM} (μA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} ⁽⁴⁾ (A)	Maximum Clamping Voltage V _c @ I _{PP} (V)
		Min(V)	Max (V)	I _T ⁽³⁾ (mA)				
SMA6J5.0AQ	SMA6J5.0CAQ	6.4	7.07	10	800	5.0	65.2	9.2
SMA6J6.0AQ	SMA6J6.0CAQ	6.67	7.37	10	800	6.0	58.3	10.3
SMA6J6.5AQ	SMA6J6.5CAQ	7.22	7.98	10	500	6.5	53.6	11.2
SMA6J7.0AQ	SMA6J7.0CAQ	7.78	8.6	10	200	7.0	50	12
SMA6J7.5AQ	SMA6J7.5CAQ	8.33	9.21	1	100	7.5	46.5	12.9
SMA6J8.0AQ	SMA6J8.0CAQ	8.89	9.83	1	50	8.0	44.1	13.6
SMA6J8.5AQ	SMA6J8.5CAQ	9.44	10.4	1	10	8.5	41.7	14.4
SMA6J9.0AQ	SMA6J9.0CAQ	10	11.1	1	5	9.0	39	15.4
SMA6J10AQ	SMA6J10CAQ	11.1	12.3	1	5	10	35.3	17
SMA6J11AQ	SMA6J11CAQ	12.2	13.5	1	5	11	33.0	18.2
SMA6J12AQ	SMA6J12CAQ	13.3	14.7	1	5	12	30.2	19.9
SMA6J13AQ	SMA6J13CAQ	14.4	15.9	1	1	13	27.9	21.5
SMA6J14AQ	SMA6J14CAQ	15.6	17.2	1	1	14	25.9	23.2
SMA6J15AQ	SMA6J15CAQ	16.7	18.5	1	1	15	24.6	24.4
SMA6J16AQ	SMA6J16CAQ	17.8	19.7	1	1	16	23.1	26
SMA6J17AQ	SMA6J17CAQ	18.9	20.9	1	1	17	21.7	27.6
SMA6J18AQ	SMA6J18CAQ	20	22.1	1	1	18	20.6	29.2
SMA6J19AQ	SMA6J19CAQ	21.1	23.3	1	1	19	19.5	30.8
SMA6J20AQ	SMA6J20CAQ	22.2	24.5	1	1	20	18.5	32.4
SMA6J22AQ	SMA6J22CAQ	24.4	26.9	1	1	22	16.9	35.5
SMA6J24AQ	SMA6J24CAQ	26.7	29.5	1	1	24	15.4	38.9
SMA6J26AQ	SMA6J26CAQ	28.9	31.9	1	1	26	14.3	42.1
SMA6J28AQ	SMA6J28CAQ	31.1	34.4	1	1	28	13.2	45.4
SMA6J30AQ	SMA6J30CAQ	33.3	36.8	1	1	30	12.4	48.4
SMA6J33AQ	SMA6J33CAQ	36.7	40.6	1	1	33	11.3	53.3
SMA6J36AQ	SMA6J36CAQ	40	44.2	1	1	36	10.3	58.1
SMA6J40AQ	SMA6J40CAQ	44.4	49.1	1	1	40	9.3	64.5
SMA6J43AQ	SMA6J43CAQ	47.8	52.8	1	1	43	8.7	69.4
SMA6J45AQ	SMA6J45CAQ	50	55.3	1	1	45	8.3	72.7
SMA6J48AQ	SMA6J48CAQ	53.3	58.9	1	1	48	7.8	77.4
SMA6J51AQ	-	56.7	62.7	1	1	51	7.3	82.4
SMA6J54AQ	-	60	66.3	1	1	54	6.9	87.1
SMA6J58AQ	-	64.4	71.2	1	1	58	6.4	93.6
SMA6J60AQ	-	66.7	73.7	1	1	60	6.2	96.8
SMA6J64AQ	-	71.1	78.6	1	1	64	5.8	103
SMA6J70AQ	-	77.8	86	1	1	70	5.3	113



SMA6J SERIES

SMA6J75AQ	-	83.3	92.1	1	1	75	5.0	121
SMA6J78AQ	-	86.7	95.8	1	1	78	4.8	126
SMA6J80AQ	-	88.8	97.6	1	1	80	4.6	129.6
SMA6J85AQ	-	94.4	104	1	1	85	4.4	137
SMA6J90AQ	-	100	111	1	1	90	4.1	146
SMA6J100AQ	-	111	123	1	1	100	3.7	162

Notes:

(3) Pulse test: $t_p \leq 50\text{ms}$.

(4) Surge current waveform per Fig.3 and derated per Fig.2.



SMA6J SERIES

■ Characteristics (Typical)

Fig.1 Peak Pulse Power Rating Curve

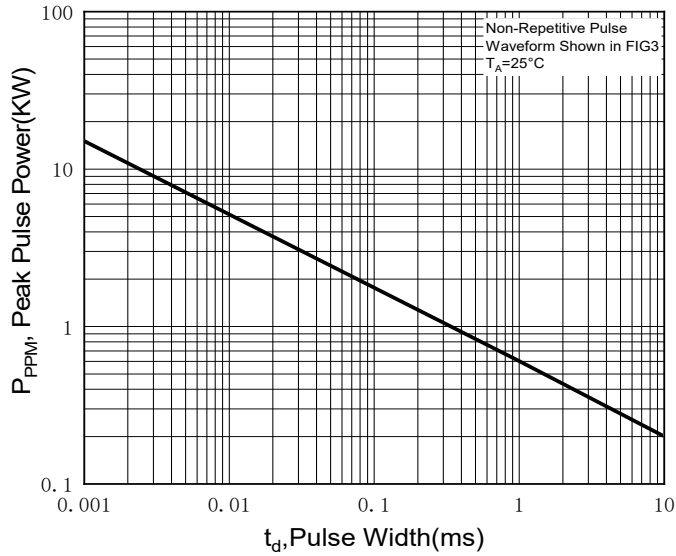


Fig.2 Pulse Power or Current vs. Initial Junction Temperature

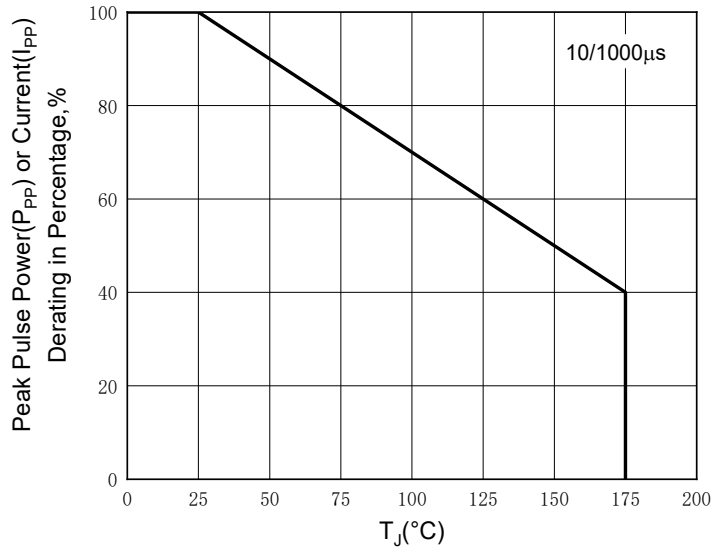


Fig.3 Pulse Waveform

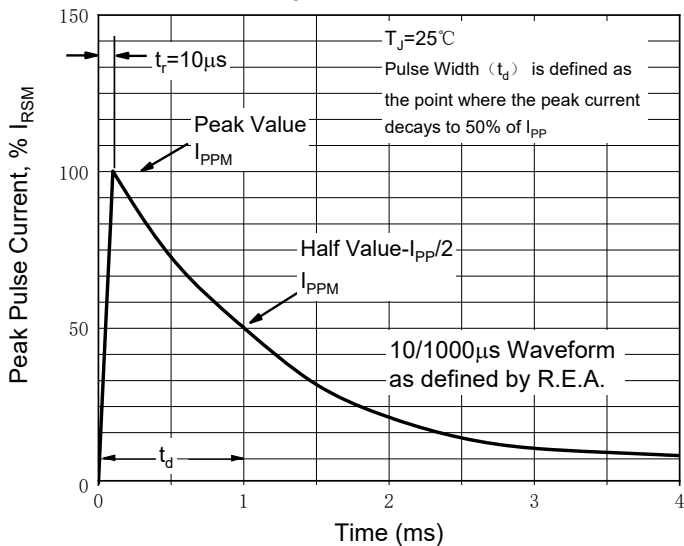


Fig.4 Typical Transient Thermal Impedance

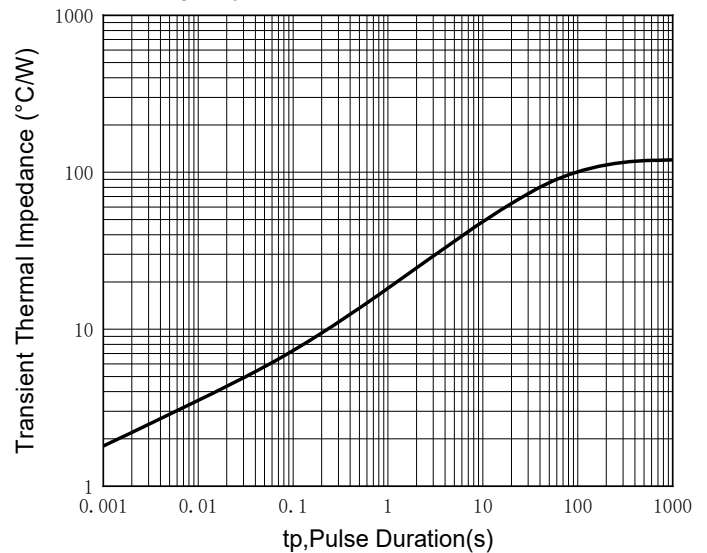


Fig.5 Maximum Non-Repetitive Forward Surge Current

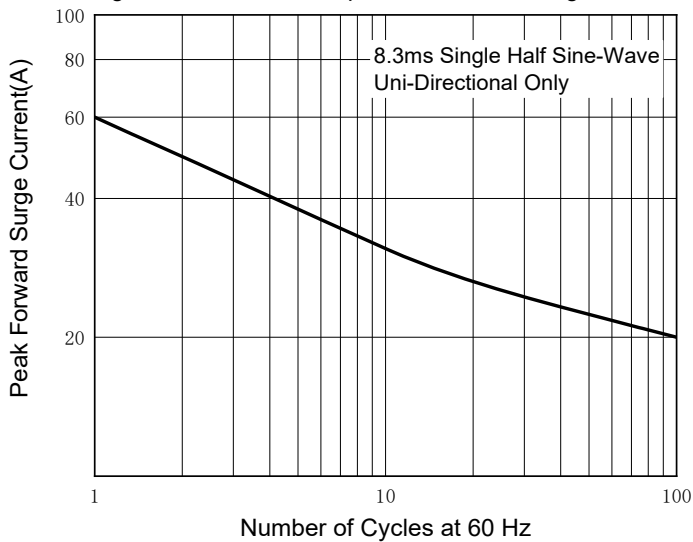
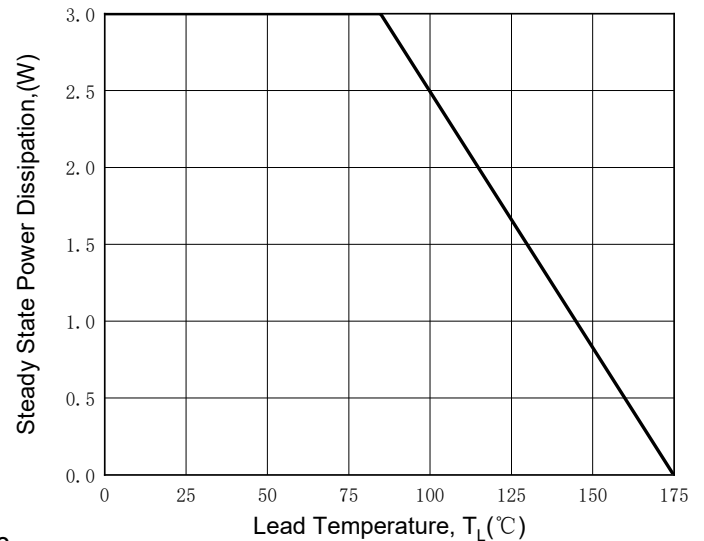


Fig.6 Steady State Power Derating Curve

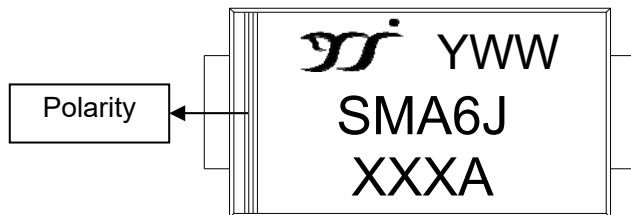




SMA6J SERIES

■ Marking Information

Uni-directional



Bi-directional



Note:

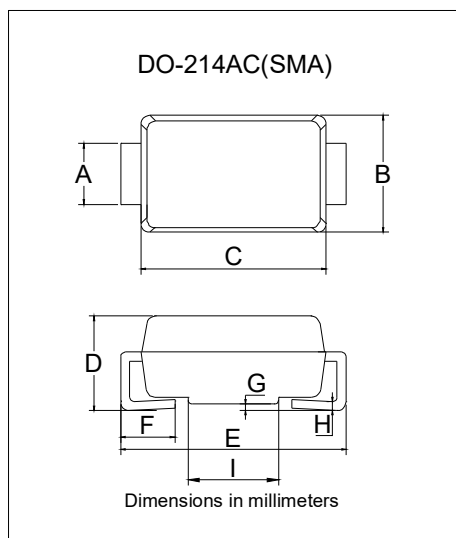
1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXX is marking code, like 100A\100CA marking code is 100
4. Body color: Black
5. YWW is date code, "Y" is year. "WW" is week.

For instance:

The 17th week of 2021, date code is 117

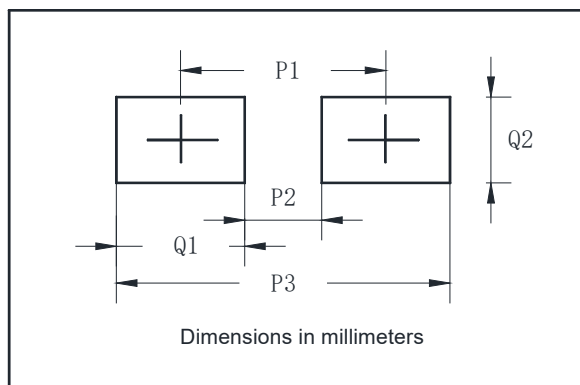
The 17th week of 2022, date code is 217

■ Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.7	2.1

■ Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70



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