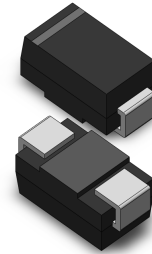


**VOLTAGE RANGE: 6.8 - 43V**  
**POWER: 400Watts**

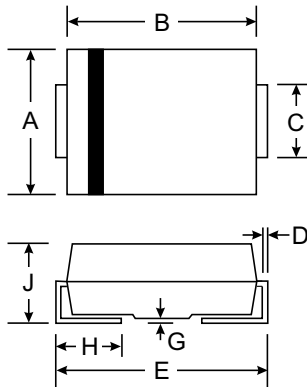
### Features

- Junction passivation optimized design passivated anisotropic rectifier technology
  - $T_J = 185\text{ }^\circ\text{C}$  capability suitable for high reliability and automotive requirement
  - Available in uni-directional polarity only
  - 400 W peak pulse power capability with a
  - 10/1000  $\mu\text{s}$  waveform, repetitive rate (duty cycle): 0.01 %
  - Excellent clamping capability
  - Very fast response time
  - Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260  $^\circ\text{C}$



### Mechanical Data

- Case: SMA/DO-214AC, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.064 grams (approx.)



SMA(DO-214AC)		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.10	0.20
H	0.76	1.52
J	2.01	2.62
All Dimensions in mm		



### Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise specified

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform <sup>(1)(2)</sup> (fig. 3)	$P_{PPM}$	400	W
Peak power pulse current with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup> (fig. 1)	$I_{PPM}$	See next table	A
Power dissipation at $T_A = 25\text{ }^\circ\text{C}$ <sup>(4)</sup>	$P_D$	1.0	W
Peak forward surge current 8.3 ms single half sine-wave <sup>(3)</sup>	$I_{FSM}$	40	A
Maximum instantaneous forward voltage at 25 A <sup>(3)</sup>	$V_F$	3.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 185	$^\circ\text{C}$

### Notes

- (1) Non-repetitive current pulse, per fig. 3 and derated above  $T_A = 25\text{ }^\circ\text{C}$  per fig. 2  
(2) Mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads attached to each terminal  
(3) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum  
(4) Mounted on minimum recommended pad layout



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

DEVICE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE $V_{BR}^{(1)}$ AT $I_T$ (V)		TEST CURRENT $I_T$ (mA)	STAND-OFF VOLTAGE $V_{WM}$ (V)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_R$ ( $\mu\text{A}$ )	$T_J = 150\text{ }^\circ\text{C}$ MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ ( $\mu\text{A}$ )	MAXIMUM PEAK PULSE SURGE CURRENT $I_{PPM}^{(2)}$ (A)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ $V_C$ (V)
		MIN.	MAX.						
TPSMA6.8	ADP	6.12	7.48	10	5.50	300	1000	37.0	10.8
TPSMA6.8A	AEP	6.45	7.14	10	5.80	300	1000	38.1	10.5
TPSMA7.5	AFP	6.75	8.25	10	6.05	150	500	34.2	11.7
TPSMA7.5A	AGP	7.13	7.88	10	6.40	150	500	35.4	11.3
TPSMA8.2	AHP	7.38	9.02	10	6.63	50	200	32.0	12.5
TPSMA8.2A	AKP	7.79	8.61	10	7.02	50	200	33.1	12.1
TPSMA9.1	ALP	8.19	10.00	1.0	7.37	10	50	29.0	13.8
TPSMA9.1A	AMP	8.65	9.55	1.0	7.78	10	50	29.9	13.0
TPSMA10	ANP	9.00	11.00	1.0	8.10	5.0	20	26.7	15.0
TPSMA10A	APP	9.50	10.50	1.0	8.65	5.0	20	27.6	14.5
TPSMA11	AQP	9.90	12.10	1.0	8.92	1.0	5.0	24.7	16.2
TPSMA11A	ARP	10.50	11.60	1.0	9.40	1.0	5.0	25.6	15.6
TPSMA12	ASP	10.80	13.20	1.0	9.72	1.0	5.0	23.1	17.3
TPSMA12A	ATP	11.40	12.60	1.0	10.20	1.0	5.0	24.0	16.7
TPSMA13	AUP	11.70	14.30	1.0	10.50	1.0	5.0	21.1	19.0
TPSMA13A	AVP	12.40	13.70	1.0	11.10	1.0	5.0	22.0	18.2
TPSMA15	AWP	13.50	16.30	1.0	12.10	1.0	5.0	18.2	22.0
TPSMA15A	AXP	14.30	15.80	1.0	12.80	1.0	5.0	18.9	21.2
TPSMA16	AYP	14.40	17.60	1.0	12.90	1.0	5.0	17.0	23.5
TPSMA16A	AZP	15.20	16.80	1.0	13.60	1.0	5.0	17.8	22.0
TPSMA18	BDP	16.20	19.80	1.0	14.50	1.0	5.0	15.1	26.5
TPSMA18A	BEP	17.10	18.90	1.0	15.30	1.0	5.0	15.9	25.5
TPSMA20	BFP	18.00	22.00	1.0	16.20	1.0	5.0	13.7	29.1
TPSMA20A	BGP	19.00	21.00	1.0	17.10	1.0	5.0	14.4	27.7
TPSMA22	BHP	19.80	24.20	1.0	17.80	1.0	5.0	12.5	31.9
TPSMA22A	BKP	20.90	23.10	1.0	18.80	1.0	5.0	13.1	30.6
TPSMA24	BLP	21.60	26.40	1.0	19.40	1.0	5.0	11.5	34.7
TPSMA24A	BMP	22.80	25.20	1.0	20.50	1.0	5.0	12.0	33.2
TPSMA27	BNP	24.30	29.70	1.0	21.80	1.0	5.0	10.2	39.1
TPSMA27A	BPP	25.70	28.40	1.0	23.10	1.0	5.0	10.7	37.5
TPSMA30	BQP	27.00	33.00	1.0	24.30	1.0	5.0	9.2	43.5
TPSMA30A	BRP	28.50	31.50	1.0	25.60	1.0	5.0	9.7	41.4
TPSMA33	BSP	29.70	36.30	1.0	26.80	1.0	5.0	8.4	47.0
TPSMA33A	BTP	31.40	34.70	1.0	28.20	1.0	5.0	8.8	45.7
TPSMA36	BUP	32.40	39.60	1.0	29.10	1.0	5.0	7.7	52.0
TPSMA36A	BVP	34.20	37.80	1.0	30.80	1.0	5.0	8.0	49.9
TPSMA39	BWP	35.10	42.90	1.0	31.60	1.0	5.0	7.1	56.4
TPSMA39A	BXP	37.10	41.00	1.0	33.30	1.0	5.0	7.4	53.9
TPSMA43	BYP	38.70	47.30	1.0	34.80	1.0	5.0	6.5	61.9
TPSMA43A	BZP	40.90	45.20	1.0	36.80	1.0	5.0	6.7	59.3

**Notes**

(1)  $V_{BR}$  measured after  $I_T$  applied for 300  $\mu\text{s}$ ,  $I_T$  = square wave pulse or equivalent

(2) Surge current waveform per fig. 3 and derated per fig. 2

(3) All terms and symbols are consistent with ANSI/IEEE C62.35

## RATINGS AND CHARACTERISTICS CURVES

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

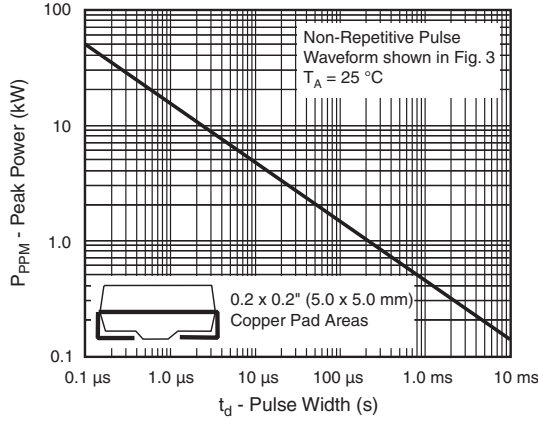


Figure 1. Peak Pulse Power Rating Curve

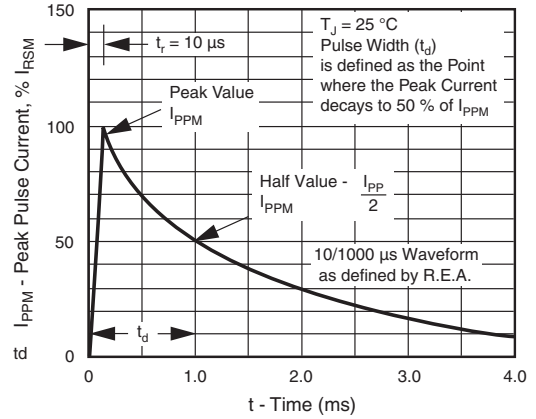


Figure 3. Pulse Waveform

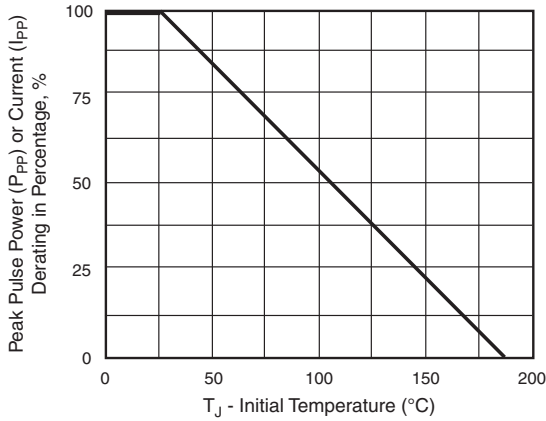


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

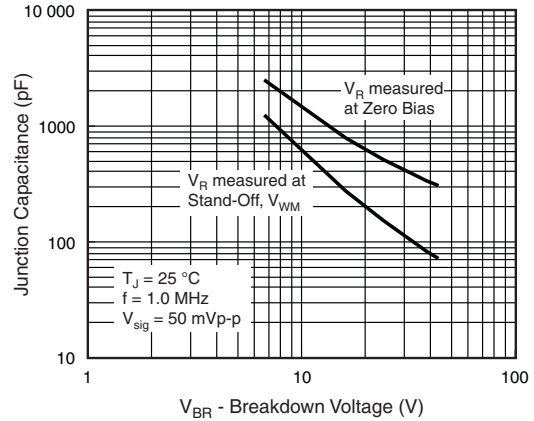


Figure 4. Typical Junction Capacitance

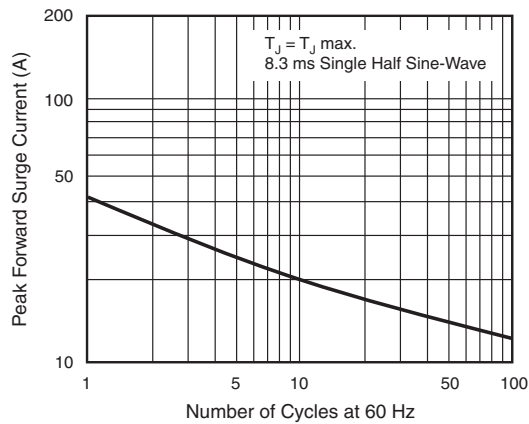


Figure 5. Maximum Non-Repetitive Peak Forward Surge Current