

DESCRIPTION

The TPSMAJ High Reliability series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

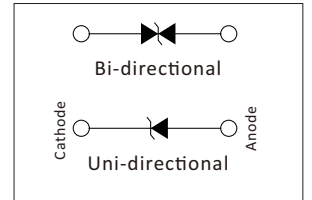
- > Glass passivated chip
- > 400 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- > High reliability application and automotive grade
- > AEC Q101 qualified
- > Low leakage
- > Uni and Bidirectional unit
- > Excellent clamping capability
- > Very fast response time
- > RoHS compliant

MECHANICAL DATA

- > Case: Molded plastic
- > Epoxy: UL 94V-0 rate flame retardant
- > Lead: Solderable per MIL-STD-750, method 2026
- > Polarity: Color band denotes cathode end except Bipolar
- > Mounting position: Any



DO-214AC PACKAGE



SCHEMATIC SYMBOL

MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$ HERWISE NOTED)

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	400	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_l = 75^{\circ}\text{C}$	P_D	1.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note:

- (1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^{\circ}\text{C}$ per Fig.1
 (2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
 (3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$



ELECTRICAL CHARACTERISTICS

PART NUMBER		DEVICE MARKING CODE		BREAKDOWN VOLTAGE $V_{BR}@I_T$			MAXIMUM REVERSE LEAKAGE	WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM CLAMPING VOLTAGE
UNI	BI	UNI	BI	Min.(V)	Max.(V)	I_T (mA)	$I_R@V_{RWM}$ (uA)	V_{RWM} (V)	I_{PP} (A)	$V_C@I_{PP}$ (V)
TPSMAJ11A	TPSMAJ11CA	AZA	WZA	12.20	13.50	1	1	11.0	21.98	18.20
TPSMAJ12A	TPSMAJ12CA	BEA	XEA	13.30	14.70	1	1	12.0	20.10	19.90
TPSMAJ13A	TPSMAJ13CA	BGA	XGA	14.40	15.90	1	1	13.0	18.60	21.50
TPSMAJ14A	TPSMAJ14CA	BKA	XKA	15.60	17.20	1	1	14.0	17.24	23.20
TPSMAJ15A	TPSMAJ15CA	BMA	XMA	16.70	18.50	1	1	15.0	16.39	24.40
TPSMAJ16A	TPSMAJ16CA	BPA	XPA	17.80	19.70	1	1	16.0	15.38	26.00
TPSMAJ18A	TPSMAJ18CA	BTA	XTA	20.00	22.10	1	1	18.0	13.70	29.20
TPSMAJ20A	TPSMAJ20CA	BVA	XVA	22.20	24.50	1	1	20.0	12.35	32.40
TPSMAJ22A	TPSMAJ22CA	BXA	XXA	24.40	26.90	1	1	22.0	11.27	35.50
TPSMAJ24A	TPSMAJ24CA	BZA	XZA	26.70	29.50	1	1	24.0	10.28	38.90
TPSMAJ26A	TPSMAJ26CA	CEA	YEA	28.90	31.90	1	1	26.0	9.50	42.10
TPSMAJ28A	TPSMAJ28CA	CGA	YGA	31.10	34.40	1	1	28.0	8.81	45.40
TPSMAJ30A	TPSMAJ30CA	CKA	YKA	33.30	36.80	1	1	30.0	8.26	48.40
TPSMAJ33A	TPSMAJ33CA	CMA	YMA	36.70	40.60	1	1	33.0	7.50	53.30
TPSMAJ36A	TPSMAJ36CA	CPA	YPA	40.00	44.20	1	1	36.0	6.88	58.10
TPSMAJ40A	TPSMAJ40CA	CRA	YRA	44.40	49.10	1	1	40.0	6.20	64.50
TPSMAJ43A	TPSMAJ43CA	CTA	YTA	47.80	52.80	1	1	43.0	5.76	69.40
TPSMAJ45A	TPSMAJ45CA	CVA	YVA	50.00	55.30	1	1	45.0	5.50	72.70
TPSMAJ48A	TPSMAJ48CA	CXA	YXA	53.30	58.90	1	1	48.0	5.17	77.40
TPSMAJ51A	TPSMAJ51CA	CZA	YZA	56.70	62.70	1	1	51.0	4.85	82.40
TPSMAJ54A	TPSMAJ54CA	REA	ZEA	60.00	66.30	1	1	54.0	4.59	87.10
TPSMAJ58A	TPSMAJ58CA	RGGA	ZGA	64.40	71.20	1	1	58.0	4.27	93.60
TPSMAJ60A	TPSMAJ60CA	RKA	ZKA	66.70	73.70	1	1	60.0	4.13	96.80
TPSMAJ64A	TPSMAJ64CA	RMA	ZMA	71.10	78.60	1	1	64.0	3.88	103.0
TPSMAJ70A	TPSMAJ70CA	RPA	ZPA	77.80	86.00	1	1	70.0	3.54	113.0
TPSMAJ75A	TPSMAJ75CA	RRA	ZRA	83.30	92.10	1	1	75.0	3.31	121.0
TPSMAJ78A	TPSMAJ78CA	RTA	ZTA	86.70	95.80	1	1	78.0	3.17	126.0
TPSMAJ85A	TPSMAJ85CA	RVA	ZVA	94.40	92.10	1	1	85.0	2.92	137.0

Note:

1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
2. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double



RATINGS AND CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

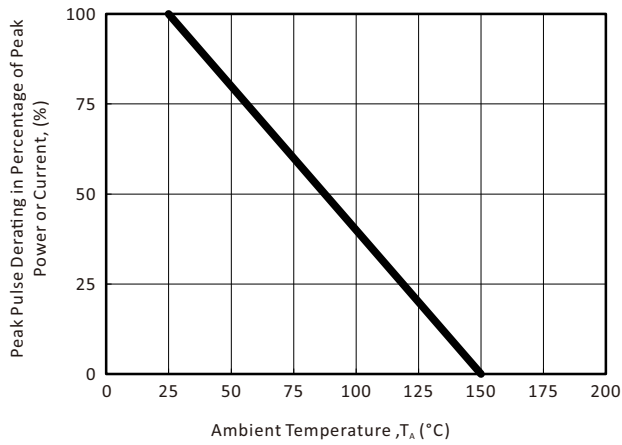


Fig. 1 - Pulse Derating Curve

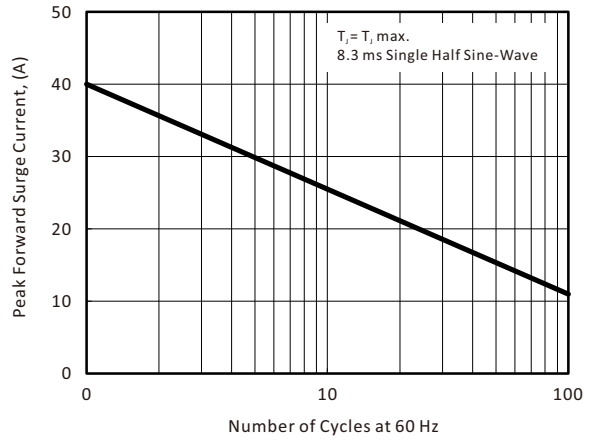


Fig. 2 - Maximum Non-Repetitive Surge Current

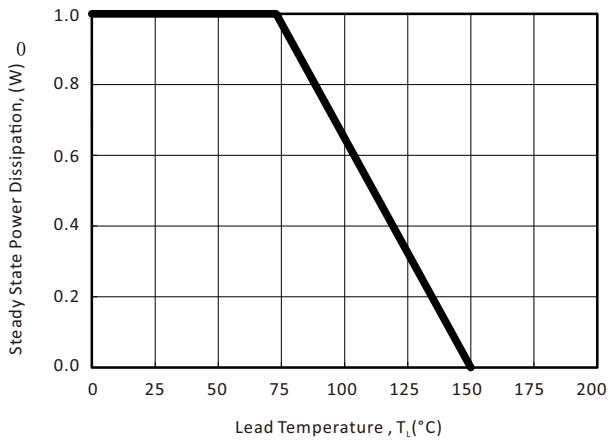


Fig. 3 - Steady State Power Derating Curve

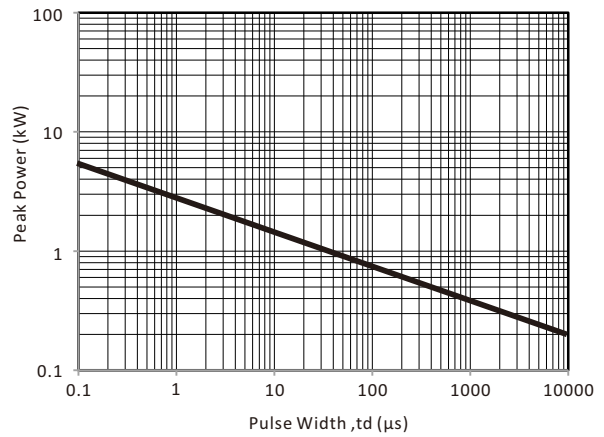


Fig. 4 - Peak Pulse Power Rating Curve

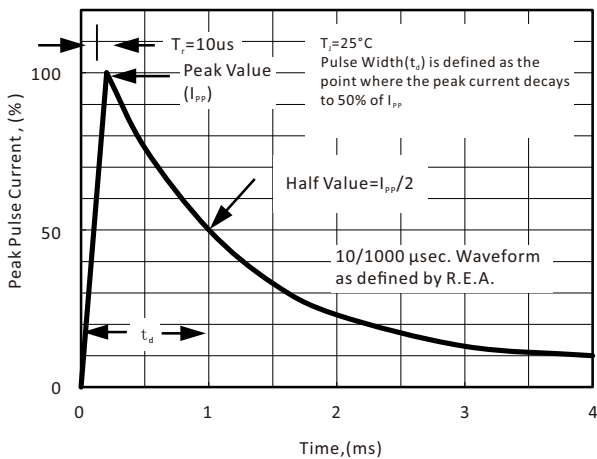


Fig. 5 - Pulse Waveform

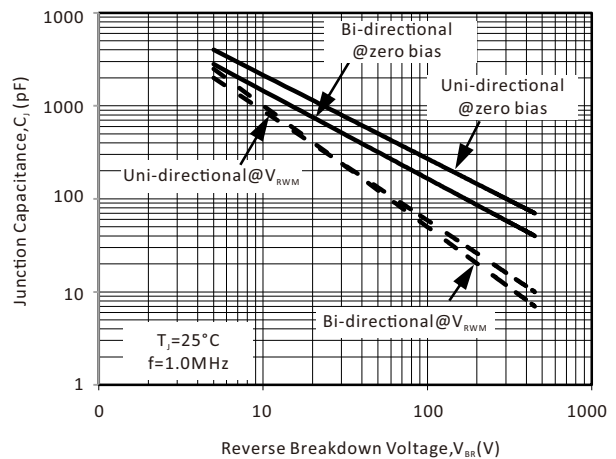


Fig. 6 - Typical Junction Capacitance



DO-214AC(SMA) PACKAGE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	Min.	Max.	Min.	Max.
A	1.23	1.63	0.048	0.064
B	4.10	4.55	0.161	0.179
C	2.60	2.80	0.102	0.110
D	2.15	2.35	0.085	0.093
E	0.75	1.51	0.030	0.059
F	0.02	0.20	0.001	0.008
G	4.87	5.22	0.192	0.206
H	0.15	0.30	0.006	0.012

NOTES:

1. Dimensions are exclusive of mold flash and metal burrs
2. Polarity Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	Min.	Max.	Min.	Max.
A	1.63	-	0.064	-
B	1.45	-	0.057	-
C	-	2.28	-	0.090
D	1.45	-	0.057	-
E	5.25 REF		0.208 REF	



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