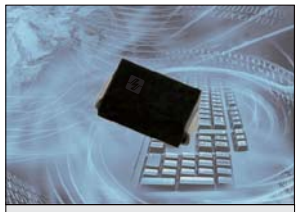
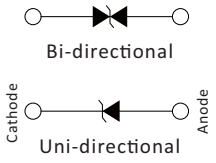
DESCRIPTION

The TP5.0SMDJ High Reliability series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.



DO-214AB PACKAGE



SCHEMATIC SYMBOL

FEATURES

> Glass passivated chip
> 5000 W peak pulse power capability with a
> 10/1000 μs 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

MAXIMUM RATINGS(T_A=25°C HERWISE NOTED)

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	5000	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 75°C	P_D	6.5	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only(2)	I_{FSM}	300	A
Maximum instantaneous forward voltage at 50 A for unidirectional only	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +150	°C

Note:
(1)Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °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

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)
TP5.0SMDJ10A	TP5.0SMDJ10CA	5SAE	5DAE	11.10	12.30	1	1	10.0	294.12	17.00
TP5.0SMDJ11A	TP5.0SMDJ11CA	5SAF	5DAF	12.20	13.50	1	1	11.0	275.00	18.20
TP5.0SMDJ12A	TP5.0SMDJ12CA	5SAG	5DAG	13.30	14.70	1	1	12.0	252.00	19.90
TP5.0SMDJ13A	TP5.0SMDJ13CA	5SAK	5DAK	14.40	15.90	1	1	13.0	233.00	21.50
TP5.0SMDJ14A	TP5.0SMDJ14CA	5SAM	5DAM	15.60	17.20	1	1	14.0	216.00	23.20
TP5.0SMDJ15A	TP5.0SMDJ15CA	5SAP	5DAP	16.70	18.50	1	1	15.0	205.00	24.40
TP5.0SMDJ16A	TP5.0SMDJ16CA	5SAR	5DAR	17.80	19.70	1	1	16.0	193.00	26.00
TP5.0SMDJ18A	TP5.0SMDJ18CA	5SAV	5DAV	20.00	22.10	1	1	18.0	172.00	29.20
TP5.0SMDJ20A	TP5.0SMDJ20CA	5SAZ	5DAZ	22.20	24.50	1	1	20.0	155.00	32.40
TP5.0SMDJ22A	TP5.0SMDJ22CA	5SBE	5DBE	24.40	26.90	1	1	22.0	141.00	35.50
TP5.0SMDJ24A	TP5.0SMDJ24CA	5SBF	5DBF	26.70	29.50	1	1	24.0	129.00	38.90
TP5.0SMDJ26A	TP5.0SMDJ26CA	5SBG	5DBG	28.90	31.90	1	1	26.0	119.00	42.10
TP5.0SMDJ28A	TP5.0SMDJ28CA	5SBK	5DBK	31.10	34.40	1	1	28.0	110.00	45.40
TP5.0SMDJ30A	TP5.0SMDJ30CA	5SBM	5DBM	33.30	36.80	1	1	30.0	103.00	48.40
TP5.0SMDJ33A	TP5.0SMDJ33CA	5SBP	5DBP	36.70	40.60	1	1	33.0	93.90	53.30
TP5.0SMDJ36A	TP5.0SMDJ36CA	5SBR	5DBR	40.00	44.20	1	1	36.0	86.10	58.10
TP5.0SMDJ40A	TP5.0SMDJ40CA	5SBT	5DBT	44.40	49.10	1	1	40.0	77.60	64.50
TP5.0SMDJ43A	TP5.0SMDJ43CA	5SBV	5DBV	47.80	52.80	1	1	43.0	72.10	69.40
TP5.0SMDJ45A	TP5.0SMDJ45CA	5SBX	5DBX	50.00	55.30	1	1	45.0	68.80	72.70
TP5.0SMDJ48A	TP5.0SMDJ48CA	5SBZ	5DBZ	53.30	58.90	1	1	48.0	64.70	77.40
TP5.0SMDJ51A	TP5.0SMDJ51CA	5SCE	5DCE	56.70	62.70	1	1	51.0	60.70	82.40
TP5.0SMDJ54A	TP5.0SMDJ54CA	5SCF	5DCF	60.00	66.30	1	1	54.0	57.50	87.10
TP5.0SMDJ58A	TP5.0SMDJ58CA	5SCG	5DCG	64.40	71.20	1	1	58.0	53.50	93.60

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°C UNLESS OTHERWISE NOTED)

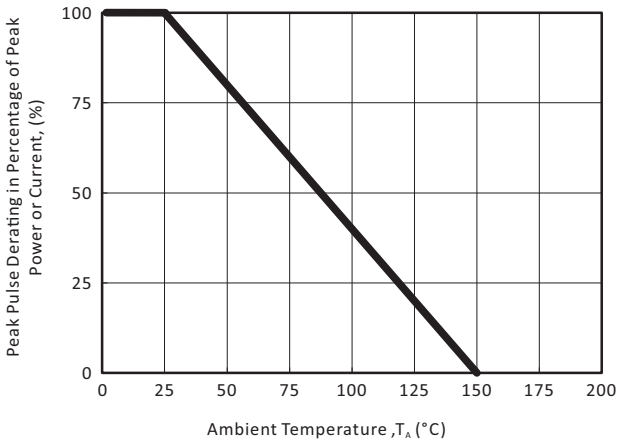


Fig. 1 - Pulse Derating Curve

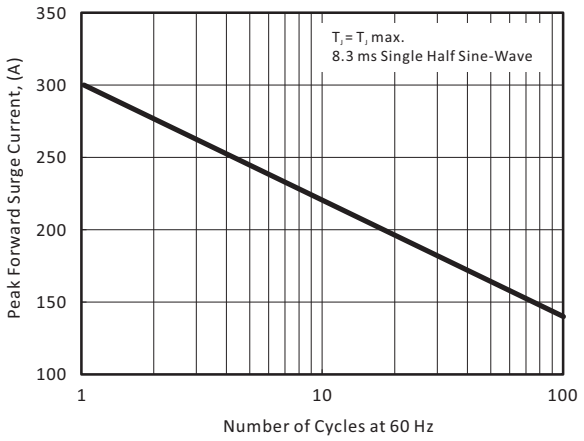


Fig. 2 - Maximum Non-Repetitive Surge Current

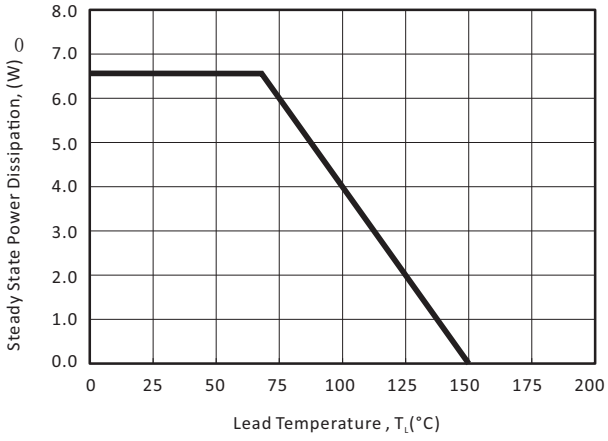


Fig. 3 - Steady State Power Derating Curve

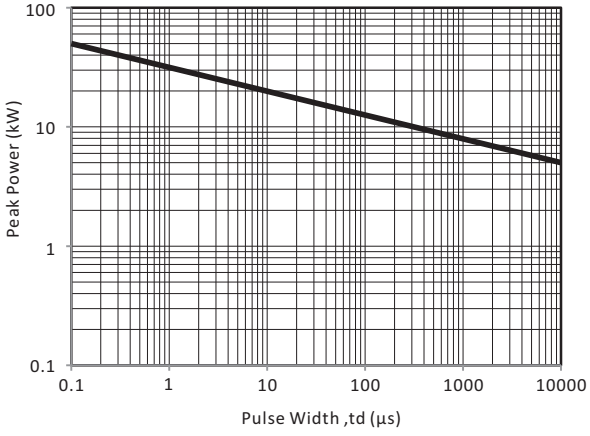


Fig. 4 - Peak Pulse Power Rating Curve

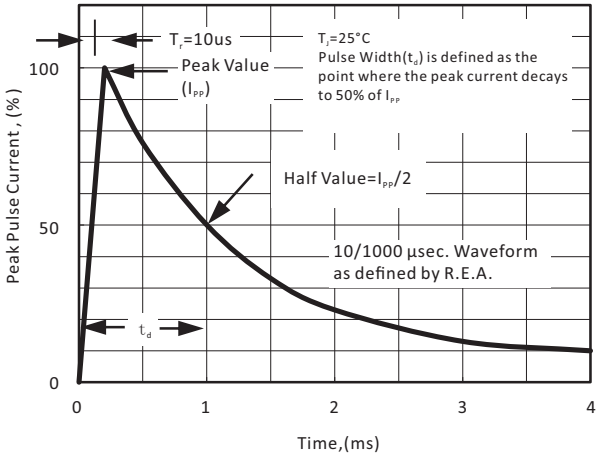


Fig. 5 - Pulse Waveform

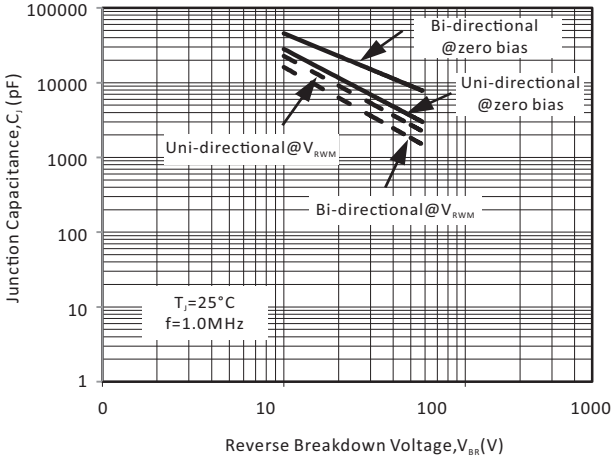
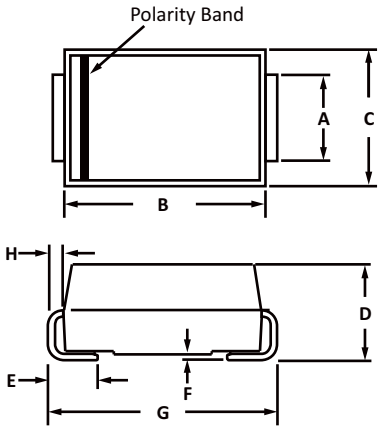


Fig. 6 - Typical Junction Capacitance

DO-214AB(SMC) PACKAGE DIMENSIONS

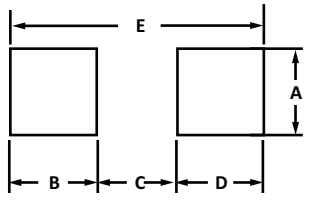


DIM	MILLIMETERS		INCHES	
	Min.	Max.	Min.	Max.
A	2.90	3.20	0.114	0.126
B	6.60	7.15	0.260	0.281
C	5.55	6.04	0.219	0.238
D	1.98	2.53	0.078	0.100
E	0.75	1.51	0.030	0.059
F	0.00	0.20	0.000	0.008
G	7.75	7.95	0.305	0.313
H	0.15	0.30	0.006	0.012

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	3.30	-	0.129	-
B	2.40	-	0.094	-
C	-	4.20	-	0.165
D	2.40	-	0.094	-
E	8.13 REF		0.320 REF	

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