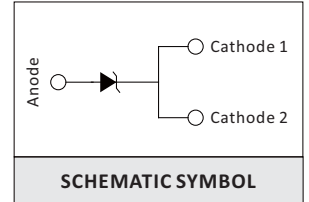


TYPICAL APPLICATIONS

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

FEATURES

- > Glass passivated chip
- > 1500 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
- > Unidirectional unit
- > Excellent clamping capability
- > Very fast response time
- > RoHS compliant



MAXIMUM RATINGS($T_A=25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform(Fig.3) ⁽¹⁾⁽²⁾	P_{PPM}	1500	W
Peak pulse current with a 10/1000 μ s waveform(Fig.1) ⁽¹⁾	I_{PPM}	See Next Table	A
Peak forward surge current, 8.3 ms single half sine-wave ⁽²⁾	I_{FSM}	200	A
Maximum instantaneous forward voltage at 100 A ⁽³⁾	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note:
 (1) Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25^\circ\text{C}$ per fig. 2
 (2) Measured on 8.3 ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute maximum
 (3) Pulse test: 300 μ s pulse width, 1 % duty cycle



ELECTRICAL CHARACTERISTICS (T_A=25°C UNLESS OTHERWISE SPECIFIED)

PART NUMBER	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V _{BR} @ I _T			MAXIMUM REVERSE LEAKAGE I _R @V _{RWM} (uA)	WORKING PEAK REVERSE VOLTAGE V _{RWM} (V)	MAXIMUM REVERSE SURGE CURRENT I _{PP} (A)	MAXIMUM CLAMPING VOLTAGE V _C @I _{PP} (V)
		Min. (V)	Max. (V)	I _T (mA)				
TPC6.8A	DEP	6.45	7.14	1	1500	5.80	143.0	10.5
TPC7.5A	DGP	7.13	7.88	1	500	6.40	133.0	11.3
TPC8.2A	DKP	7.79	8.61	1	200	7.02	124.0	12.1
TPC9.1A	DMP	8.65	9.55	1	50	7.78	112.0	13.4
TPC10A	DPP	9.50	10.50	1	20	8.55	103.0	14.5
TPC11A	DRP	10.50	11.60	1	5	9.40	96.2	15.6
TPC12A	DTP	11.40	12.60	1	2	10.2	89.8	16.7
TPC13A	DVP	12.40	13.70	1	2	11.1	82.4	18.2
TPC15A	DXP	14.30	15.80	1	1	12.8	70.8	21.2
TPC16A	DZP	15.20	16.80	1	1	13.6	66.7	22.5
TPC18A	EEP	17.10	18.90	1	1	15.3	59.5	25.2
TPC20A	EGP	19.00	21.00	1	1	17.1	54.2	27.7
TPC22A	EKP	20.90	23.10	1	1	18.8	49.0	30.6
TPC24A	EMP	22.80	25.20	1	1	20.5	45.2	33.2
TPC27A	EPP	25.70	28.40	1	1	23.1	40.0	37.5
TPC30A	ERP	28.50	31.50	1	1	25.6	36.2	41.4
TPC33A	ETP	31.40	34.70	1	1	28.2	32.8	45.7
TPC36A	EVP	34.20	37.80	1	1	30.8	30.1	49.9
TPC39A	EXP	37.10	41.00	1	1	33.3	27.8	53.9
TPC43A	EZP	40.90	45.20	1	1	36.8	25.3	59.3
TPC47A	FEP	44.70	49.40	1	1	40.2	23.1	64.8
TPC51A	FGP	48.50	53.60	1	1	43.6	21.4	70.1

Note:

- (1) V_{BR} measured after I_T applied for 300 μs, I_T = square wave pulse or equivalent
- (2) Surge current waveform per fig. 3 and derated per fig. 2
- (3) To calculate V_{BR} vs. junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C x (1 + αT x (T_J - 25))



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

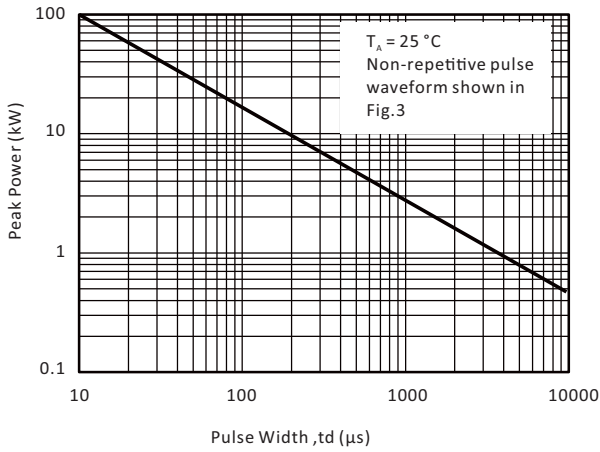


Fig. 1 - Peak Pulse Power Rating Curve

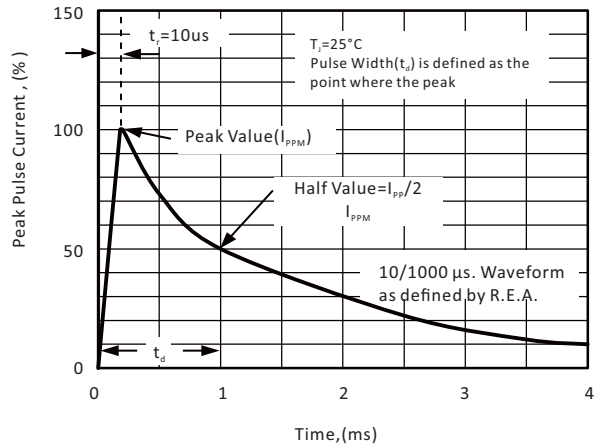


Fig. 3 - Pulse Waveform

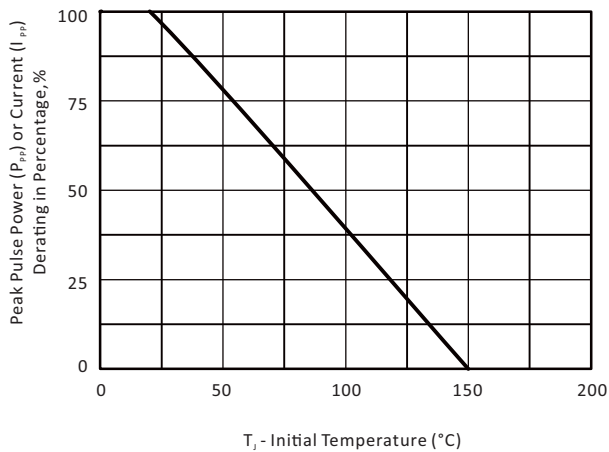


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

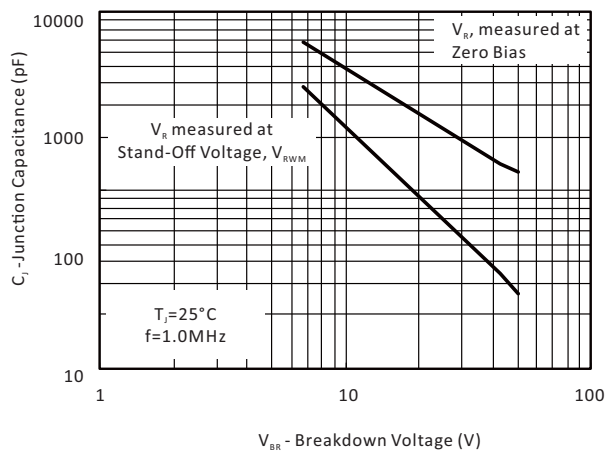
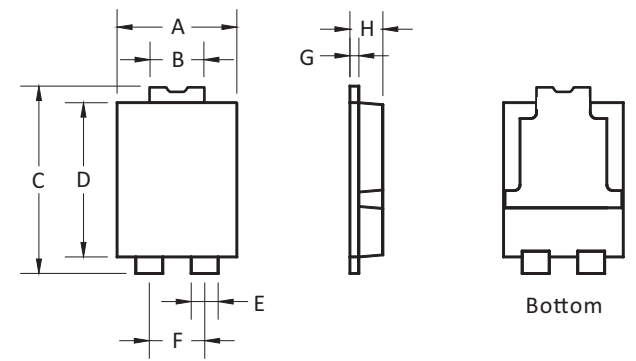


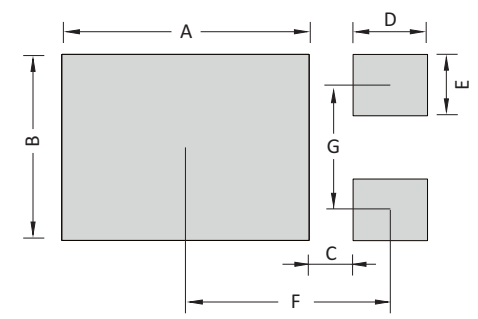
Fig. 4 - Typical Junction Capacitance



TO-277B PACKAGE DIMENSIONS

	DIM	MILLIMETERS		INCHES	
		Min.	Max.	Min.	Max.
A	4.25	4.35	0.167	0.172	
B	3.25	3.45	0.128	0.136	
C	6.85	7.15	0.269	0.282	
D	6.05	6.15	0.238	0.243	
E	1.10	1.30	0.044	0.052	
F	2.10 Typ.		0.083 Typ.		
G	0.25	0.35	0.009	0.014	
H	1.00	1.20	0.039	0.048	

RECOMMENDED PAD LAYOUT DIMENSIONS

	DIM	MILLIMETERS	INCHES
		Typ.	Typ.
A	5.35	0.211	
B	3.60	0.142	
C	0.70	0.028	
D	1.85	0.073	
E	1.50	0.059	
F	4.30	0.169	
G	2.10	0.083	

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
TPCxxA-13	TO-277B	6500PCS	13"
TPCxxA-7	TO-277B	1500PCS	7"



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