济南瑞锝电子有限公司
JiNan RuiDe Electronics Co., Ltd.

TVS 8KP Series — 8000W

R-6

Features

- Available in uni-directional and bi-directional
- 8000 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 260 °C, 40 seconds

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10x1000μs test waveform (Fig.1) (Note 1)	P_{PPM}	8000	W
Steady State Power Dissipation on inifinite heat sink at T_L=75°C (Fig. 5)	P_D	8.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 2)	I_{FSM}	400	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	°C
Typical Thermal Resistance Junction to Lead	R_{uJL}	8.0	°C/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	40	°C/W

Notes:

1. Non-repetitive current pulse , per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.

MECHANICAL DATA

Case: R-6
Epoxy meets UL 94V-0 flammability rating

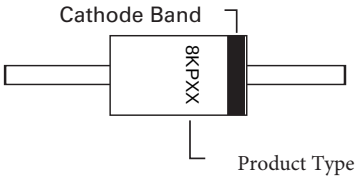
Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types

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 consumer, computer, industrial, automotive and telecommunication.

Part Marking System



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ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)

8KP PART NUMBER		REVERSE STAND-OFF VOLTAGE V_{RWM}(V)	BREAKDOWN VOLTAGE V_{BR}(V) MIN. @I_T	BREAKDOWN VOLTAGE V_{BR}(V) MAX. @I_T	TEST CURRENT I_T (mA)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ V_{RWM} I_R(μA)	MAXIMUN CLAMPING VOLTAGE @I_{PP} V_C (V)
UNI-POLAR	BI-POLAR							
8KP10A	8KP10CA	10.0	11.10	12.30	5	440.2	5000	18.4
8KP12A	8KP12CA	12.0	13.30	14.70	5	393.2	5000	20.6
8KP13A	8KP13CA	13.0	14.40	15.90	5	361.6	5000	22.4
8KP14A	8KP14CA	14.0	15.60	17.20	5	337.5	1000	24.0
8KP16A	8KP16CA	16.0	17.80	19.70	5	297.8	150	27.2
8KP17A	8KP17CA	17.0	18.90	20.90	5	281.2	20	28.8
8KP18A	8KP18CA	18.0	20.00	22.10	5	262.9	20	30.8
8KP20A	8KP20CA	20.0	22.20	24.50	5	238.2	15	34.0
8KP22A	8KP22CA	22.0	24.40	26.90	5	222.5	2	36.4
8KP24A	8KP24CA	24.0	26.70	29.50	5	203.5	2	39.8
8KP26A	8KP26CA	26.0	28.90	31.90	5	188.3	2	43.0
8KP28A	8KP28CA	28.0	31.10	34.40	5	174.5	2	46.4
8KP30A	8KP30CA	30.0	33.30	36.80	5	165.9	2	48.8
8KP33A	8KP33CA	33.0	36.70	40.60	5	152.0	2	53.3
8KP36A	8KP36CA	36.0	40.00	44.20	5	138.7	2	58.4
8KP40A	8KP40CA	40.0	44.40	49.10	5	125.0	2	64.8
8KP43A	8KP43CA	43.0	47.80	52.80	5	116.7	2	69.4
8KP48A	8KP48CA	48.0	53.30	58.90	5	104.1	2	77.8
8KP51A	8KP51CA	51.0	56.70	62.70	5	98.3	2	82.4
8KP54A	8KP54CA	54.0	60.00	66.30	5	93.0	2	87.1
8KP60A	8KP60CA	60.0	66.70	73.70	5	83.7	2	96.8
8KP64A	8KP64CA	64.0	71.10	78.60	5	78.6	2	103.0
8KP70A	8KP70CA	70.0	77.80	86.00	5	71.8	2	113.0
8KP78A	8KP78CA	78.0	86.70	95.80	5	64.3	2	126.0
8KP85A	8KP85CA	85.0	94.40	104.00	5	59.1	2	137.0
8KP90A	8KP90CA	90.0	100.00	111.00	5	55.5	2	146.0
8KP100A	8KP100CA	100.0	110.00	123.00	5	50.0	2	162.0
8KP110A	8KP110CA	110.0	122.00	135.00	5	45.7	2	177.0
8KP120A	8KP120CA	120.0	133.00	147.00	5	42.0	2	193.0
8KP130A	8KP130CA	130.0	144.00	159.00	5	38.7	2	209.0
8KP150A	8KP150CA	150.0	167.00	185.00	5	33.5	2	242.0
8KP160A	8KP160CA	160.0	178.00	197.00	5	31.2	2	259.0
8KP170A	8KP170CA	170.0	189.00	209.00	5	29.6	2	274.0
8KP180A	8KP180CA	180.0	200.00	222.00	5	27.7	2	292.0
8KP200A	8KP200CA	200.0	222.00	246.00	5	25.0	2	324.0
8KP220A	8KP220CA	220.0	244.00	270.00	5	22.9	2	354.0
8KP240A	8KP240CA	240.0	267.40	293.90	5	21.0	2	386.0

For bidirectional type having V_R of 30 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is + 0% and Vc is 5% higher than with A parts

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Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

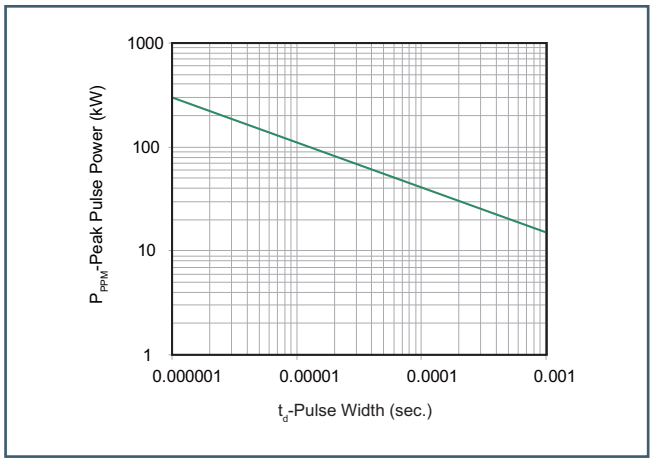


Figure 2 - Pulse Derating Curve

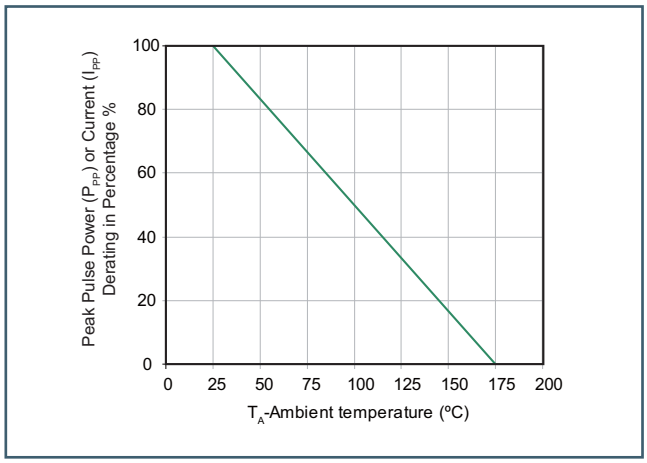


Figure 3 - Pulse Waveform

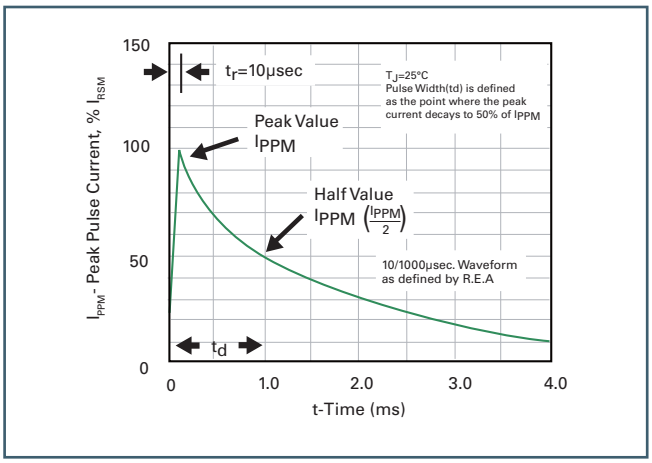


Figure 4 - Typical Junction Capacitance

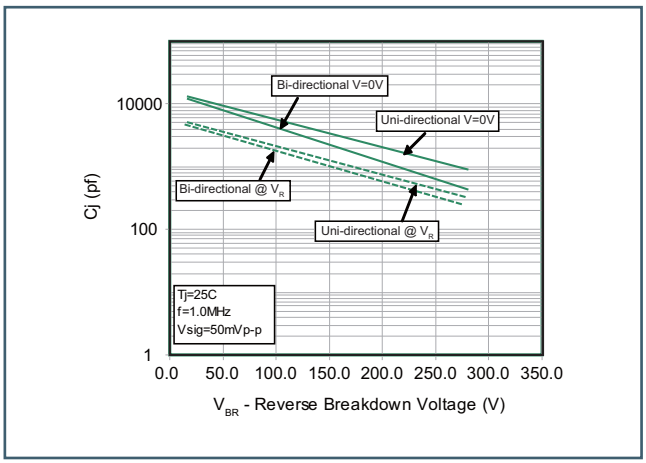


Figure 5 - Steady State Power Dissipation Derating Curve

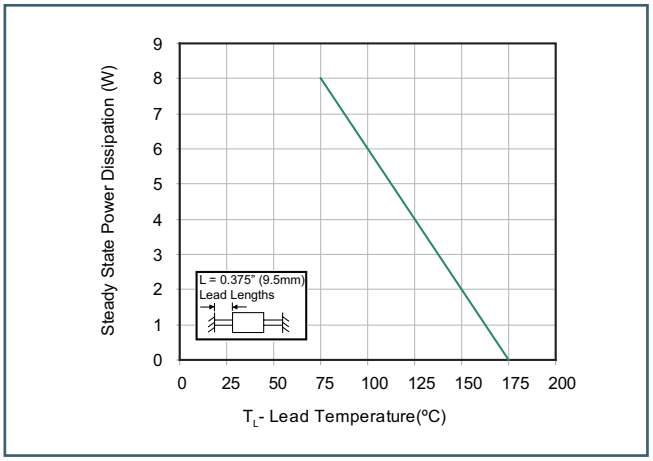
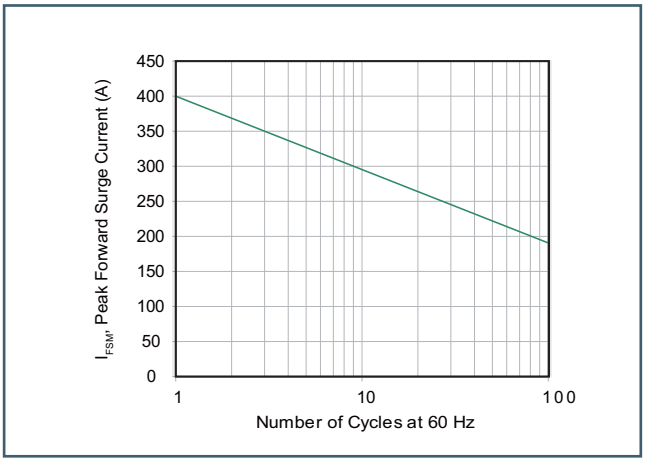
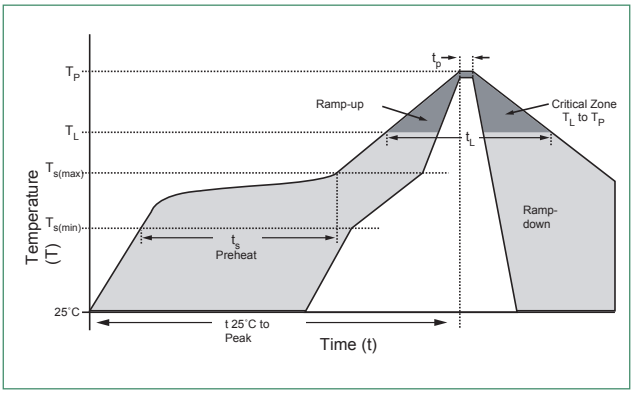


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



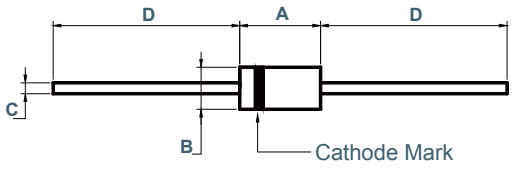
Soldering Parameters

Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Dimensions

R-6



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.340	0.360	8.60	9.10	
B	0.340	0.360	8.60	9.10	Φ
C	0.048	0.052	1.20	1.30	Φ
D	1.000	—	25.4	—	