Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- 3000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle):0.01%
- Fast response time
- Typical I_R less than 1μA above 11V.
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020.

Mechanical Data

- Case: JEDEC P600Moulded plastic
- Terminal:solderplated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Mounting Position: Any

Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings and Characteristics

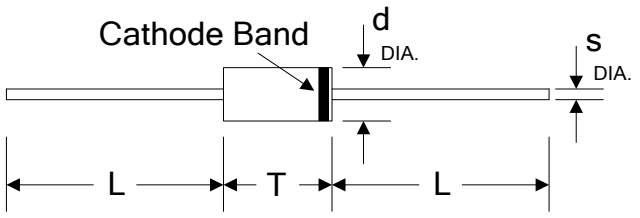
Ratings at 25℃ ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Fig.1)	P_{PPM}	Minimum 3000	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at T_L=75℃ (Fig.4)	$P_{M(AV)}$	7	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2)	I_{FSM}	300	Amps
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-55 to +150	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	8	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	℃/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25℃ per Fig.2.

2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Dimensions (P600)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	25.40	-	1.000	-
T	8.60	9.10	0.340	0.360
d	8.60	9.10	0.340	0.360
s	1.20	1.30	0.047	0.051

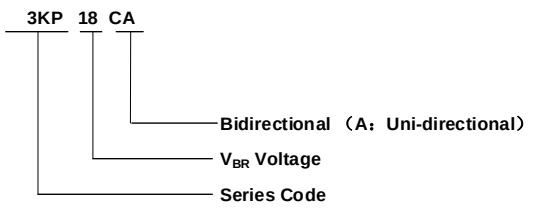
Electrical Characteristics (TA=25℃)

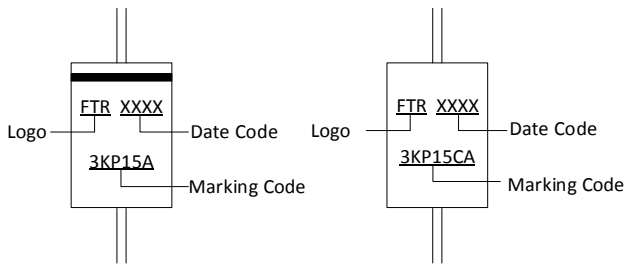
Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @I_T	Test Current	Maximum Clamping Voltage@ I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
Unidirectional	Bidirectional	V_{RWM}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
3KP5.0A	3KP5.0CA	5.0	6.4~7.0	10	9.2	326.1	5000
3KP6.0A	3KP6.0CA	6.0	6.7~7.3	10	10.3	291.3	5000
3KP6.5A	3KP6.5CA	6.5	7.2~8.0	10	11.2	267.9	2000
3KP7.0A	3KP7.0CA	7.0	7.8~8.6	10	12	250	1000
3KP7.5A	3KP7.5CA	7.5	8.3~9.2	1	12.9	232.6	250
3KP8.0A	3KP8.0CA	8.0	8.9~9.8	1	13.6	220.6	150
3KP8.5A	3KP8.5CA	8.5	9.5~10.4	1	14.4	208.3	50
3KP9.0A	3KP9.0CA	9.0	10~11.1	1	15.4	194.8	20
3KP10A	3KP10CA	10.0	11.1~12.3	1	17	176.5	15
3KP11A	3KP11CA	11.0	12.2~13.5	1	18.2	164.8	2
3KP12A	3KP12CA	12.0	13.3~14.7	1	19.9	150.8	2
3KP13A	3KP13CA	13.0	14.4~15.9	1	21.5	139.5	2
3KP14A	3KP14CA	14.0	15.6~17.2	1	23.2	129.3	2
3KP15A	3KP15CA	15.0	16.7~18.5	1	24.4	123	2
3KP16A	3KP16CA	16.0	17.8~19.7	1	26.0	115.4	2
3KP17A	3KP17CA	17.0	18.9~20.9	1	27.6	108.7	2
3KP18A	3KP18CA	18.0	20.0~22.1	1	29.2	102.7	2
3KP20A	3KP20CA	20.0	22.2~24.5	1	32.4	92.6	2
3KP22A	3KP22CA	22.0	24.4~26.9	1	35.5	84.5	2
3KP24A	3KP24CA	24.0	26.7~29.5	1	38.9	77.1	2
3KP26A	3KP26CA	26.0	28.9~31.9	1	42.1	71.3	2
3KP28A	3KP28CA	28.0	31.1~34.4	1	45.4	66.1	2
3KP30A	3KP30CA	30.0	33.3~36.8	1	48.4	62	2
3KP33A	3KP33CA	33.0	36.7~40.6	1	53.3	56.3	2
3KP36A	3KP36CA	36.0	40.0~44.2	1	58.1	51.6	2
3KP40A	3KP40CA	40.0	44.4~49.1	1	64.5	46.5	2
3KP43A	3KP43CA	43.0	47.8~52.8	1	69.4	43.2	2

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage@ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	V_{RWM}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
3KP45A	3KP45CA	45.0	50.0~55.3	1	72.7	41.3	2
3KP48A	3KP48CA	48.0	53.3~58.9	1	77.4	38.8	2
3KP51A	3KP51CA	51.0	56.7~62.7	1	82.4	36.4	2
3KP54A	3KP54CA	54.0	60.0~66.3	1	87.1	34.4	2
3KP58A	3KP58CA	58.0	64.4~71.2	1	93.6	32.1	2
3KP60A	3KP60CA	60.0	66.7~73.7	1	96.8	31	2
3KP64A	3KP64CA	64.0	71.1~78.6	1	103.0	29.1	2
3KP70A	3KP70CA	70.0	77.8~86.0	1	113.0	26.5	2
3KP75A	3KP75CA	75.0	83.3~92.1	1	121.0	24.8	2
3KP78A	3KP78CA	78.0	86.7~95.8	1	126.0	23.8	2
3KP85A	3KP85CA	85.0	94.4~104	1	137.0	21.9	2
3KP90A	3KP90CA	90.0	100~111	1	146.0	20.5	2
3KP100A	3KP100CA	100.0	111~123	1	162.0	18.5	2
3KP110A	3KP110CA	110.0	122~135	1	177.0	16.9	2
3KP120A	3KP120CA	120.0	133~147	1	193.0	15.5	2
3KP130A	3KP130CA	130.0	144~159	1	209.0	14.4	2
3KP150A	3KP150CA	150.0	167~185	1	243.0	12.3	2
3KP160A	3KP160CA	160.0	178~197	1	259.0	11.6	2
3KP170A	3KP170CA	170.0	189~209	1	275.0	10.9	2
3KP180A	3KP180CA	180.0	200~221	1	292.0	10.3	2
3KP190A	3KP190CA	190.0	211~233	1	310.0	9.7	2
3KP200A	3KP200CA	200.0	222~246	1	329.2	9.3	2
3KP210A	3KP210CA	210.0	233~258	1	349.5	8.8	2
3KP220A	3KP220CA	220.0	244~270	1	371.1	8.4	2

Notes: For bidirectional type having VRWM of 10V and less, the IR limit is double.

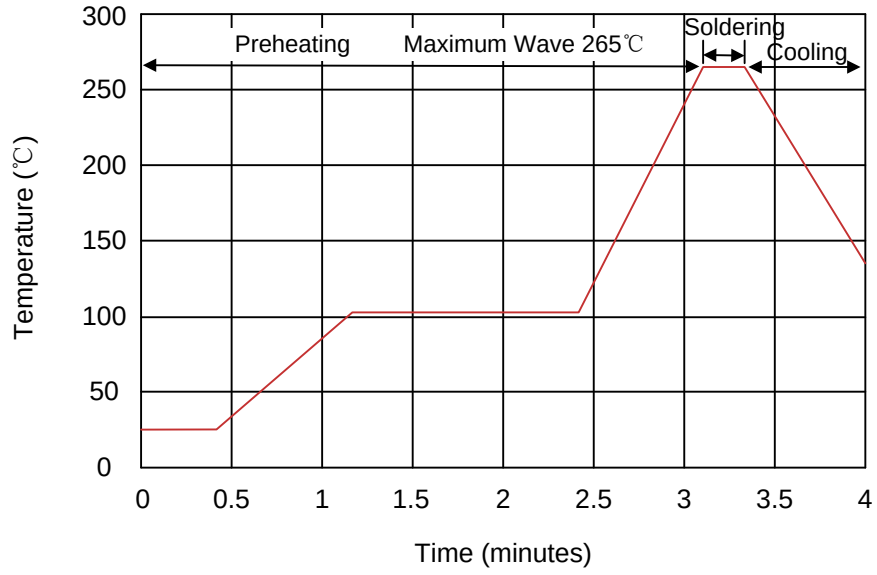
Partnumber code





Recommended Soldering Conditions

Wave Soldering



Item	Conditions
Peak Temperature	265℃
Dipping Time	10 seconds
Soldering	1 time

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

Figure 1. Peak Pulse Power Rating Curve

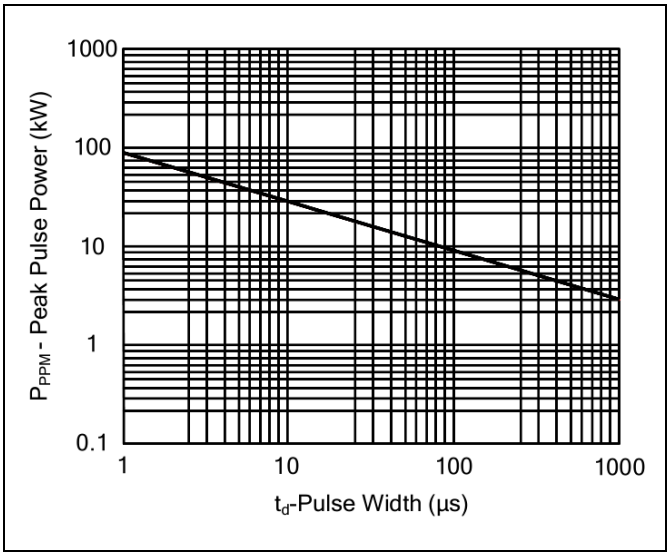


Figure 2. Pulse Derating Curve

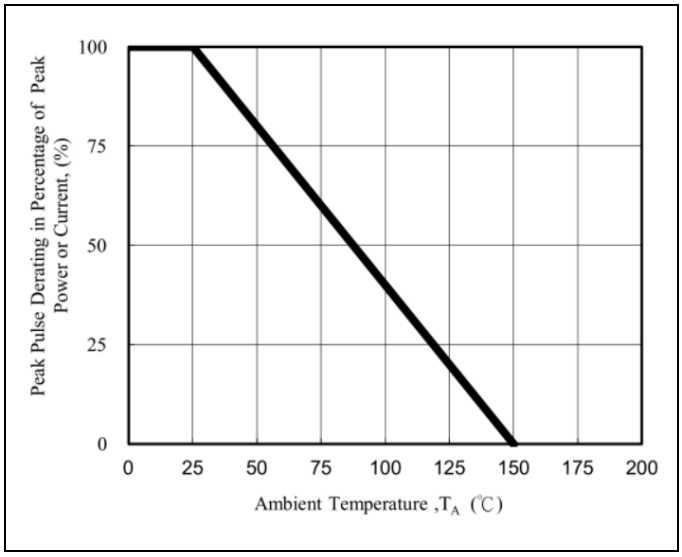


Figure 3. Pulse Waveform

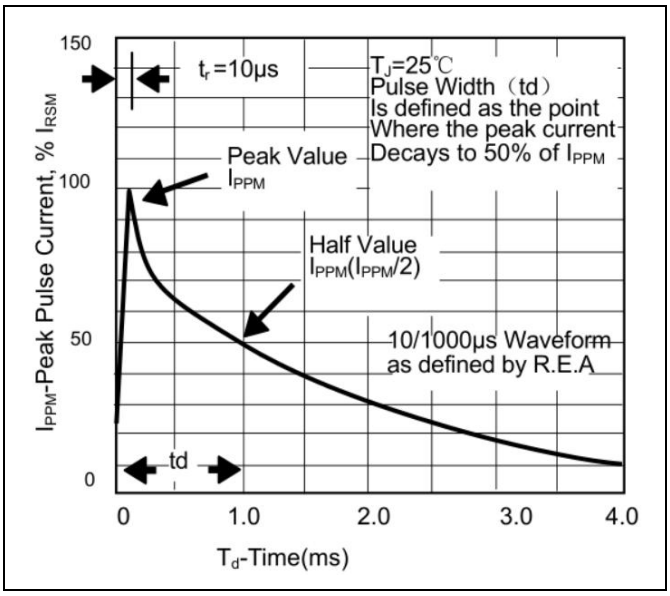
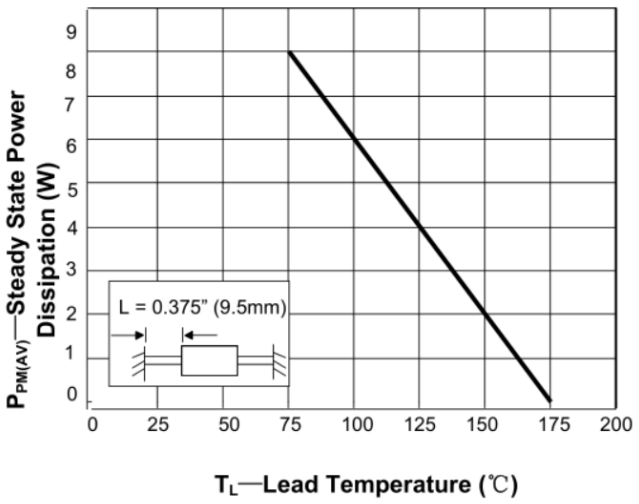
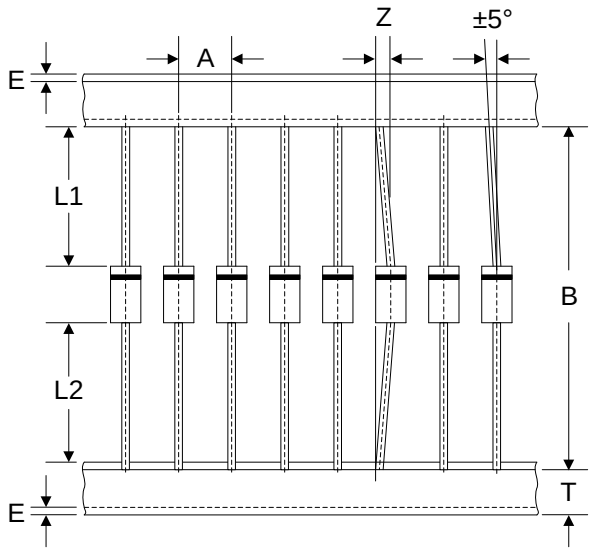


Figure 4. Steady State Power Dissipation Derating Curve



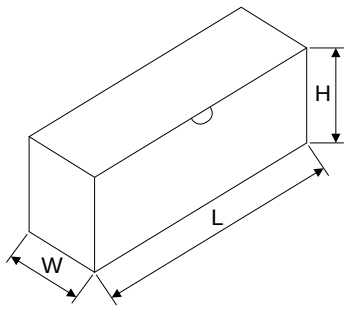
Packaging

Tape



Symbol	Dimension (mm)
A	10.0±0.5
B	53.0±1.0
Z	1.2Max.
T	6.0±0.4
E	0.8Max.
L1-L2	1.0Max.

Box



L	260.0±5.0
W	75.0±5.0
H	145.0±5.0
Quantity: 300PCS	