Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- 600W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle):0.01%
- Fast response time
- Typical I_R less than 1μA above 13V.
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020.

Mechanical Data

- Case: JEDEC DO-15Moulded plastic
- Terminal: Axial leads, 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.

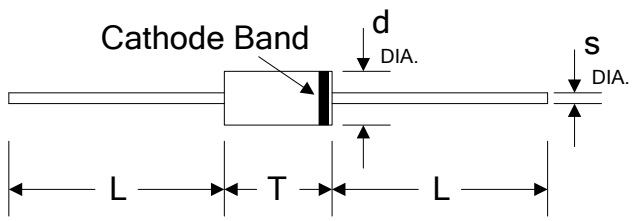
Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Fig.1)	P_{PPM}	Minimum 600	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at T_L=75℃ (Fig.4)	$P_{M(AV)}$	5.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2)	I_{FSM}	100	Amps
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-55 to +150	℃
Maximum instantaneous forward voltage @ 50A forunidirectional only (Note3)	V_F	3.5/5.0	V
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	℃/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.

3. V_F =3.5 V for devices of V (BR) < 220V, and V_F =5.0 Volt max. for devices of V (BR) >220V

Dimensions (DO-204AC/DO-15)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	25.40	-	1.000	-
T	5.80	7.60	0.230	0.300
d	2.60	3.60	0.104	0.140
s	0.70	0.90	0.028	0.035

Electrical Characteristics (T_A=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)
P6KE6.8A	P6KE6.8CA	5.80	6.45~7.14	10	10.5	57.1	1000
P6KE7.5A	P6KE7.5CA	6.40	7.13~7.88	10	11.3	53.1	500
P6KE8.2A	P6KE8.2CA	7.02	7.79~8.61	10	12.1	49.6	200
P6KE9.1A	P6KE9.1CA	7.78	8.65~9.55	1	13.4	44.8	50
P6KE10A	P6KE10CA	8.55	9.5~10.5	1	14.5	41.1	10
P6KE11A	P6KE11CA	9.40	10.5~11.6	1	15.6	38.5	5
P6KE12A	P6KE12CA	10.2	11.4~12.6	1	16.7	35.9	5
P6KE13A	P6KE13CA	11.1	12.4~13.7	1	18.2	33.0	1
P6KE15A	P6KE15CA	12.8	14.3~15.8	1	21.2	28.3	1
P6KE16A	P6KE16CA	13.6	15.2~16.8	1	22.5	26.7	1
P6KE18A	P6KE18CA	15.3	17.1~18.9	1	25.2	23.8	1
P6KE20A	P6KE20CA	17.1	19.0~21.0	1	27.7	21.7	1
P6KE22A	P6KE22CA	18.8	20.9~23.1	1	30.6	19.6	1
P6KE24A	P6KE24CA	20.5	22.8~25.2	1	33.2	18.1	1
P6KE27A	P6KE27CA	23.1	25.7~28.4	1	37.5	16.0	1
P6KE30A	P6KE30CA	25.6	28.5~31.5	1	41.4	14.5	1
P6KE33A	P6KE33CA	28.2	31.4~34.7	1	45.7	13.1	1
P6KE36A	P6KE36CA	30.8	34.2~37.8	1	49.9	12	1
P6KE39A	P6KE39CA	33.3	37.1~41.0	1	53.9	11.1	1
P6KE43A	P6KE43CA	36.8	40.9~45.2	1	59.3	10.1	1
P6KE47A	P6KE47CA	40.2	44.7~49.4	1	64.8	9.4	1
P6KE51A	P6KE51CA	43.6	48.5~53.6	1	70.1	8.6	1
P6KE56A	P6KE56CA	47.8	53.2~58.8	1	77.0	7.8	1
P6KE62A	P6KE62CA	53.0	58.9~65.1	1	85.0	7.1	1
P6KE68A	P6KE68CA	58.1	64.6~71.4	1	92.0	6.5	1
P6KE75A	P6KE75CA	64.1	71.3~78.8	1	103.0	5.8	1

Electrical Characteristics (T_A=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)
P6KE82A	P6KE82CA	70.1	77.9~86.1	1	113.0	5.3	1
P6KE91A	P6KE91CA	77.8	86.5~95.5	1	125.0	4.8	1
P6KE100A	P6KE100CA	85.5	95~105	1	137.0	4.4	1
P6KE110A	P6KE110CA	94.0	105~116	1	152.0	3.9	1
P6KE120A	P6KE120CA	102	114~126	1	165.0	3.6	1
P6KE130A	P6KE130CA	111	124~137	1	179.0	3.4	1
P6KE150A	P6KE150CA	128	143~158	1	207.0	2.9	1
P6KE160A	P6KE160CA	136	152~168	1	219.0	2.7	1
P6KE170A	P6KE170CA	145	162~179	1	234.0	2.6	1
P6KE180A	P6KE180CA	154	171~189	1	246.0	2.4	1
P6KE200A	P6KE200CA	171	190~210	1	274.0	2.2	1
P6KE220A	P6KE220CA	185	209~231	1	328.0	1.8	1
P6KE250A	P6KE250CA	214	237~263	1	344.0	1.7	1
P6KE300A	P6KE300CA	256	285~315	1	414.0	1.4	1
P6KE350A	P6KE350CA	300	333~368	1	482.0	1.2	1
P6KE400A	P6KE400CA	342	380~420	1	548.0	1.1	1
P6KE440A	P6KE440CA	376	418~462	1	602.0	1.0	1

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

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

Figure 1. Peak Pulse Power Rating Curve

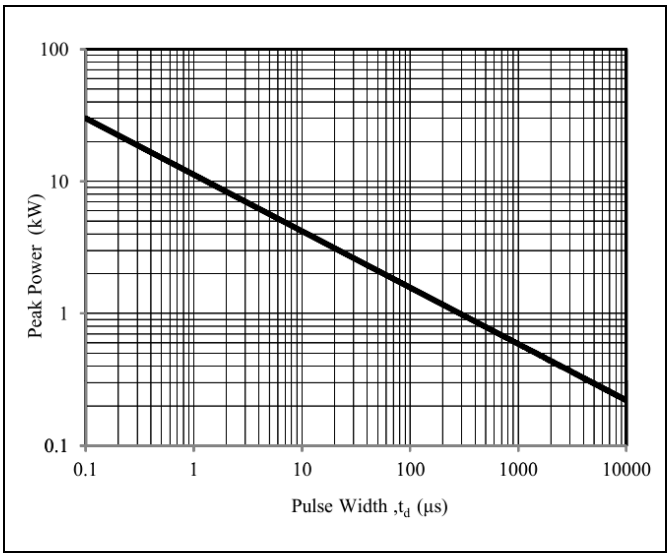
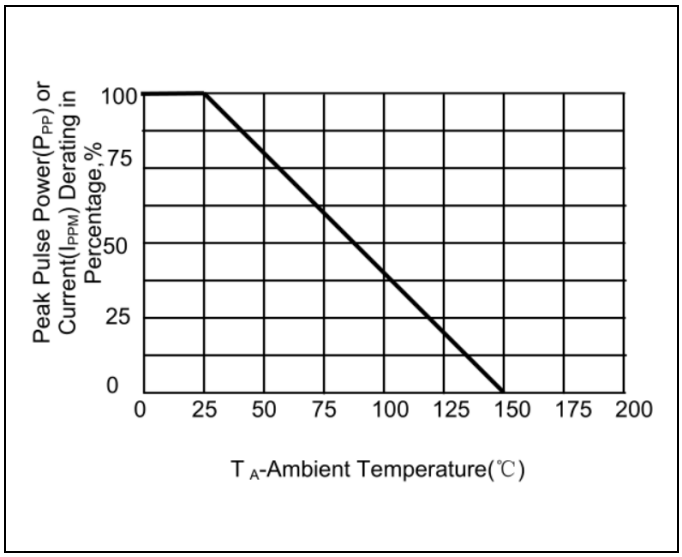


Figure 2. Pulse Derating Curve



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

Figure 3. Pulse Waveform

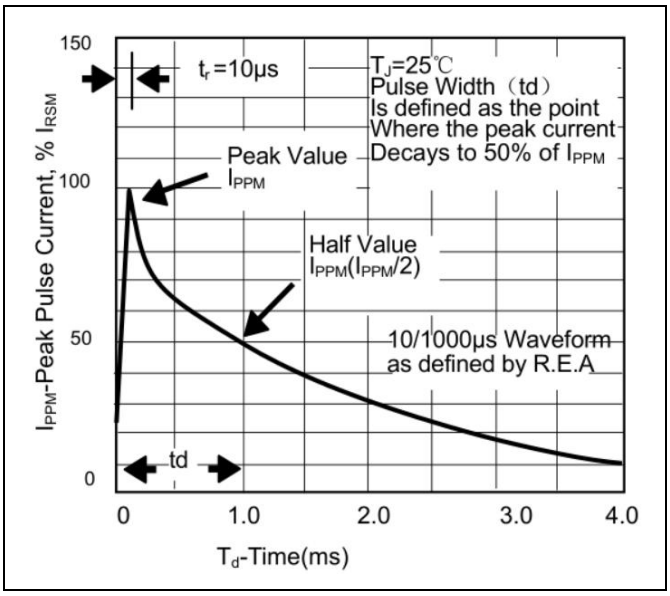
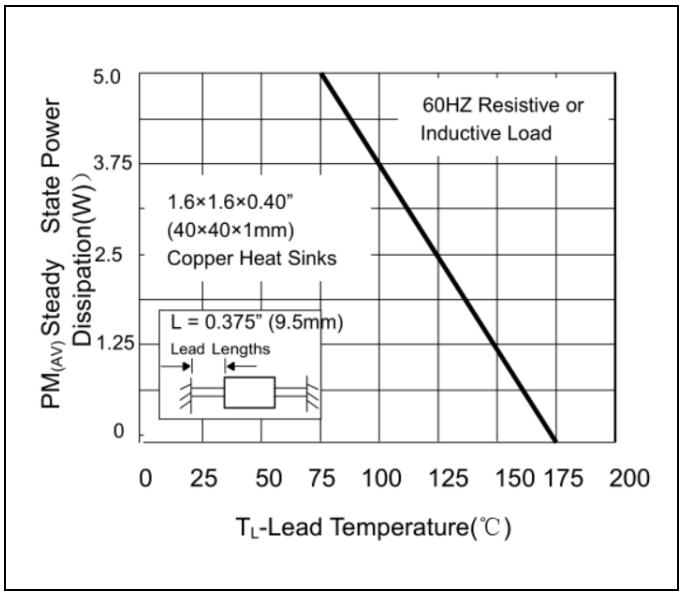
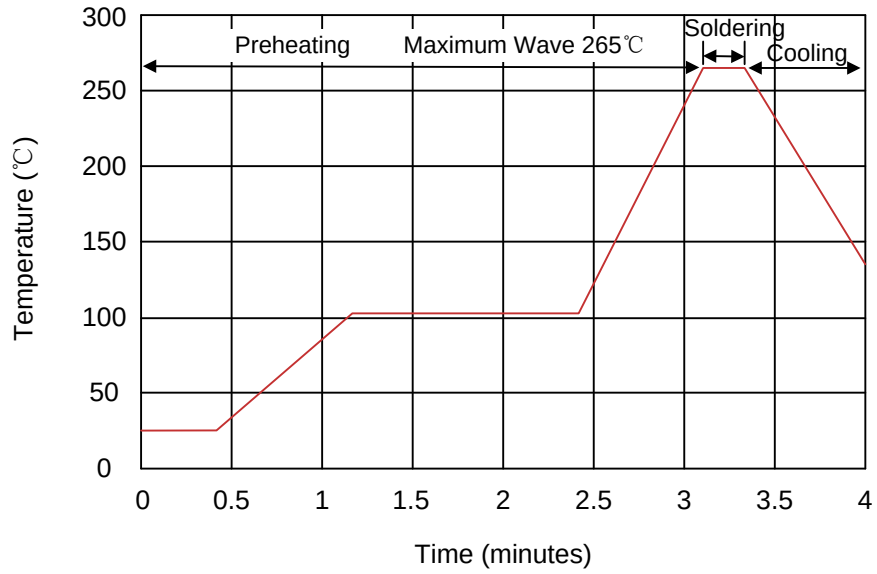


Figure 4. Steady State Power Dissipation Derating Curve



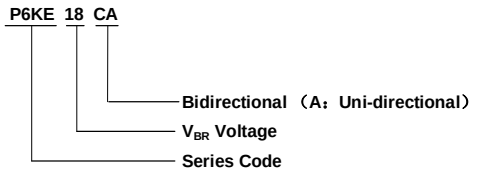
Recommended Soldering Conditions

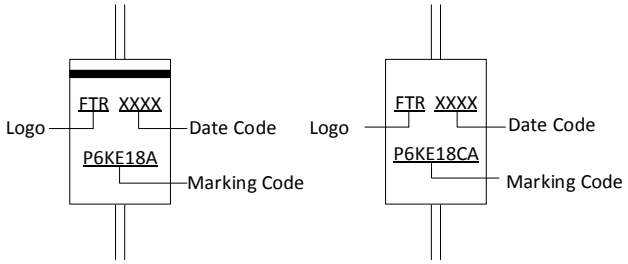
Wave Soldering



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

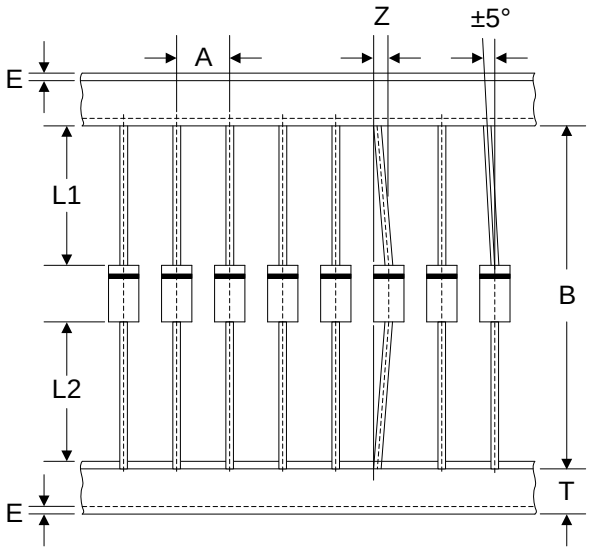
Partnumber code





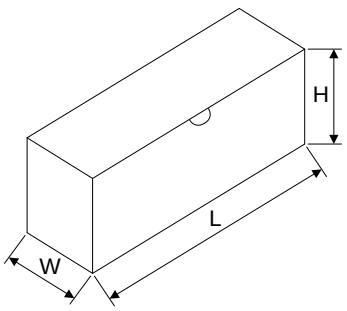
Packaging

Tape



Symbol	Dimension (mm)
A	5.0±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	114.0±5.0
Quantity: 2000PCS	