

Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- 400W 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.
- AEC-Q101 Qualified

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°C ambient temperature unless otherwise specified.

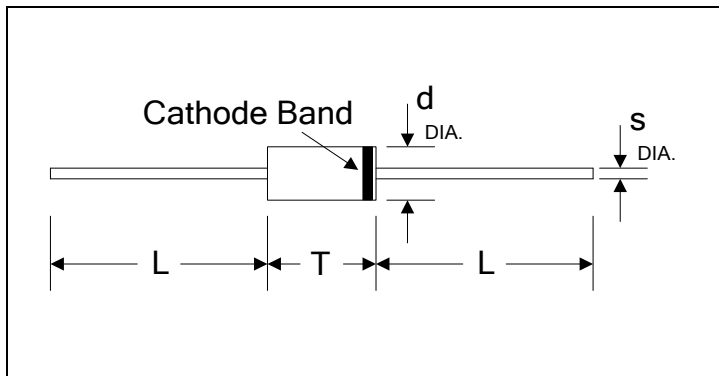
Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Fig.1)	P_{PPM}	Minimum 400	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^{\circ}\text{C}$ (Fig.4)	$P_{M(AV)}$	1.5	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2)	I_{FSM}	40	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	°C
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	°C/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^{\circ}\text{C}$ per Fig.2.

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

Dimensions (DO-204AL/DO-41)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	25.40	-	1.000	-
T	4.10	5.20	0.160	0.205
d	2.00	2.70	0.080	0.107
s	0.70	0.90	0.028	0.035



Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

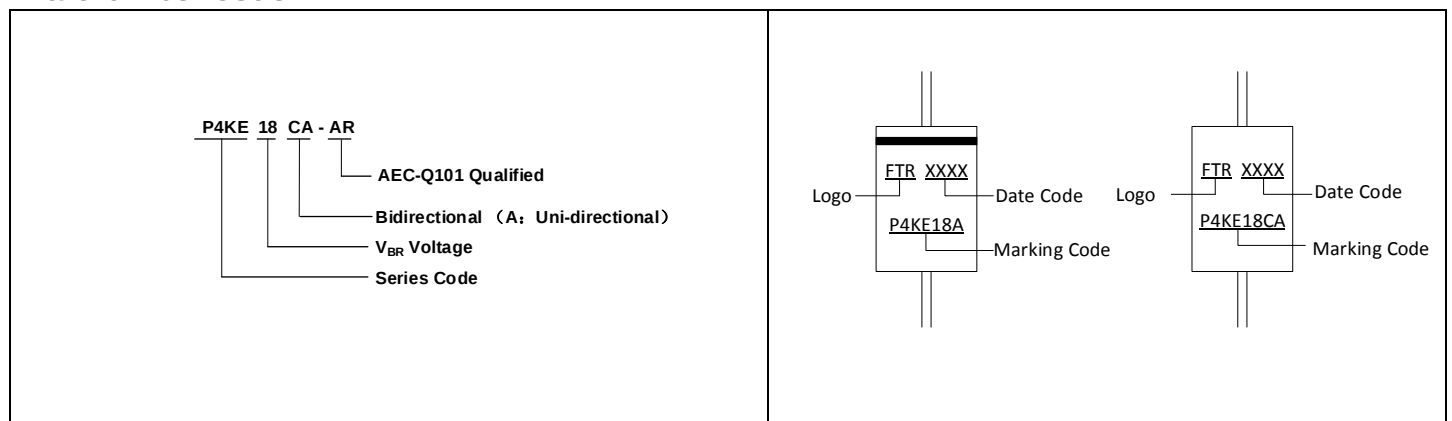
Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4KE6.8A-AR	P4KE6.8CA-AR	5.80	6.45~7.14	10	10.5	39.0	1000
P4KE7.5A-AR	P4KE7.5CA-AR	6.40	7.13~7.88	10	11.3	36.3	500
P4KE8.2A-AR	P4KE8.2CA-AR	7.02	7.79~8.61	10	12.1	33.9	200
P4KE9.1A-AR	P4KE9.1CA-AR	7.78	8.65~9.55	1	13.4	30.6	50
P4KE10A-AR	P4KE10CA-AR	8.55	9.5~10.5	1	14.5	28.3	10
P4KE11A-AR	P4KE11CA-AR	9.40	10.5~11.6	1	15.6	26.3	5
P4KE12A-AR	P4KE12CA-AR	10.2	11.4~12.6	1	16.7	24.6	5
P4KE13A-AR	P4KE13CA-AR	11.1	12.4~13.7	1	18.2	22.5	1
P4KE15A-AR	P4KE15CA-AR	12.8	14.3~15.8	1	21.2	19.3	1
P4KE16A-AR	P4KE16CA-AR	13.6	15.2~16.8	1	22.5	18.2	1
P4KE18A-AR	P4KE18CA-AR	15.3	17.1~18.9	1	25.2	16.1	1
P4KE20A-AR	P4KE20CA-AR	17.1	19.0~21.0	1	27.7	14.8	1
P4KE22A-AR	P4KE22CA-AR	18.8	20.9~23.1	1	30.6	13.4	1
P4KE24A-AR	P4KE24CA-AR	20.5	22.8~25.2	1	33.2	12.3	1
P4KE27A-AR	P4KE27CA-AR	23.1	25.7~28.4	1	37.5	10.9	1
P4KE30A-AR	P4KE30CA-AR	25.6	28.5~31.5	1	41.4	9.9	1
P4KE33A-AR	P4KE33CA-AR	28.2	31.4~34.7	1	45.7	9.0	1
P4KE36A-AR	P4KE36CA-AR	30.8	34.2~37.8	1	49.9	8.2	1
P4KE39A-AR	P4KE39CA-AR	33.3	37.1~41.0	1	53.9	7.6	1
P4KE43A-AR	P4KE43CA-AR	36.8	40.9~45.2	1	59.3	6.9	1
P4KE47A-AR	P4KE47CA-AR	40.2	44.7~49.4	1	64.8	6.3	1
P4KE51A-AR	P4KE51CA-AR	43.6	48.5~53.6	1	70.1	5.8	1
P4KE56A-AR	P4KE56CA-AR	47.8	53.2~58.8	1	77.0	5.3	1
P4KE62A-AR	P4KE62CA-AR	53.0	58.9~65.1	1	85.0	4.8	1
P4KE68A-AR	P4KE68CA-AR	58.1	64.6~71.4	1	92.0	4.5	1
P4KE75A-AR	P4KE75CA-AR	64.1	71.3~78.8	1	103.0	4.0	1

Electrical Characteristics (T_A=25°C)

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)
P4KE82A-AR	P4KE82CA-AR	70.1	77.9~86.1	1	113.0	3.6	1
P4KE91A-AR	P4KE91CA-AR	77.8	86.5~95.5	1	125.0	3.3	1
P4KE100A-AR	P4KE100CA-AR	85.5	95~105	1	137.0	3.0	1
P4KE110A-AR	P4KE110CA-AR	94.0	105~116	1	152.0	2.7	1
P4KE120A-AR	P4KE120CA-AR	102	114~126	1	165.0	2.5	1
P4KE130A-AR	P4KE130CA-AR	111	124~137	1	179.0	2.3	1
P4KE150A-AR	P4KE150CA-AR	128	143~158	1	207.0	2.0	1
P4KE160A-AR	P4KE160CA-AR	136	152~168	1	219.0	1.9	1
P4KE170A-AR	P4KE170CA-AR	145	162~179	1	234.0	1.8	1
P4KE180A-AR	P4KE180CA-AR	154	171~189	1	246.0	1.7	1
P4KE200A-AR	P4KE200CA-AR	171	190~210	1	274.0	1.5	1
P4KE220A-AR	P4KE220CA-AR	185	209~231	1	328.0	1.3	1
P4KE250A-AR	P4KE250CA-AR	214	237~263	1	344.0	1.2	1
P4KE300A-AR	P4KE300CA-AR	256	285~315	1	414.0	1.0	1
P4KE350A-AR	P4KE350CA-AR	300	333~368	1	482.0	0.9	1
P4KE400A-AR	P4KE400CA-AR	342	380~420	1	548.0	0.8	1
P4KE440A-AR	P4KE440CA-AR	376	418~462	1	602.0	0.7	1
P4KE480A-AR	P4KE480CA-AR	408	456~504	1	658.0	0.6	1
P4KE510A-AR	P4KE510CA-AR	434	485~535	1	698.0	0.6	1
P4KE530A-AR	P4KE530CA-AR	450	503.5~556.5	1	725.0	0.6	1
P4KE540A-AR	P4KE540CA-AR	459	513~567	1	740.0	0.5	1
P4KE550A-AR	P4KE550CA-AR	467	522.5~557.5	1	760.0	0.5	1

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

Partnumber code



Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

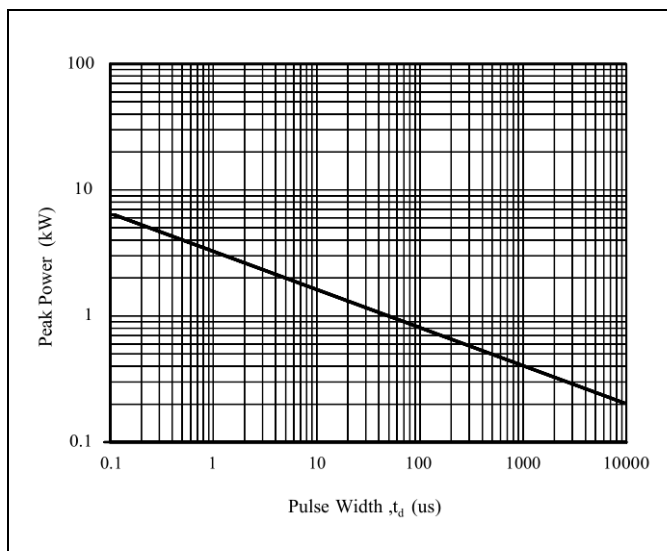


Figure 2. Pulse Derating Curve

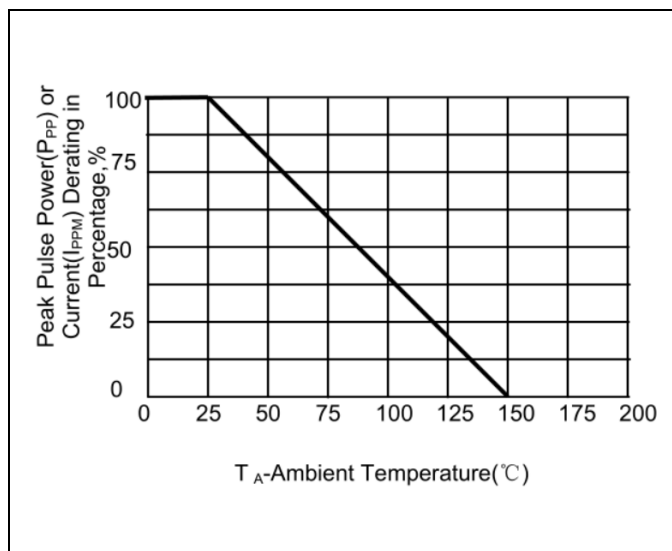


Figure 3. Pulse Waveform

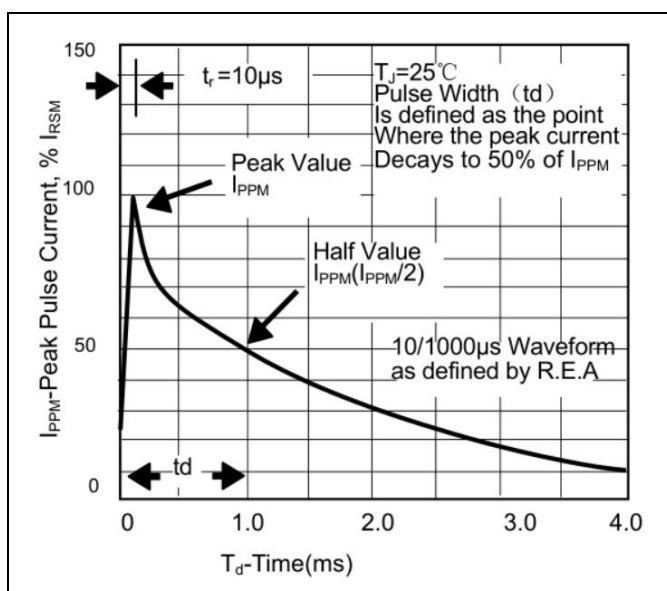
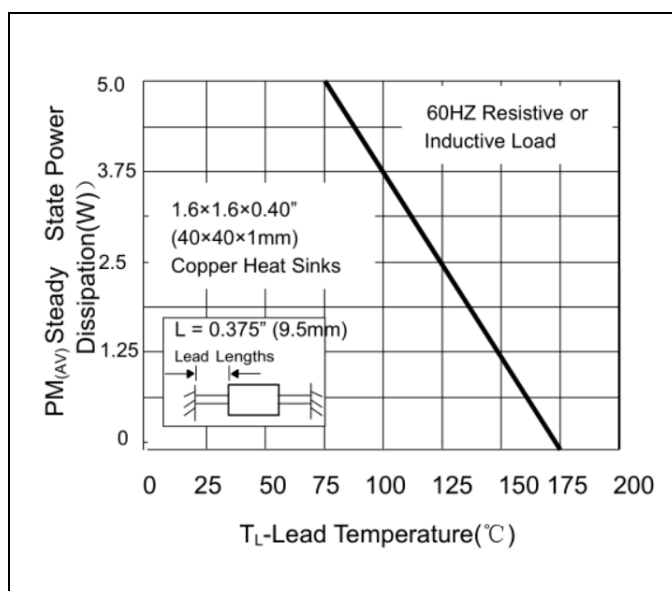
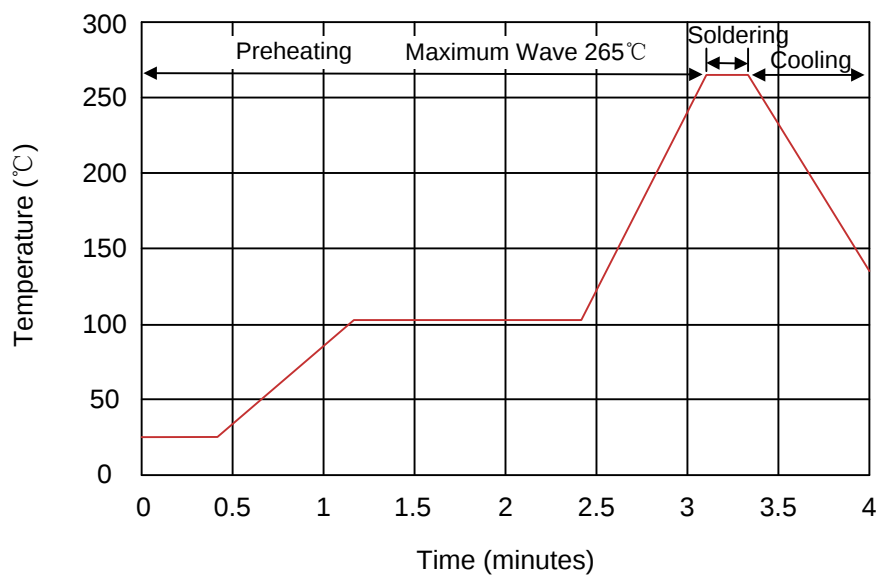


Figure 4. Steady State Power Dissipation Derating Curve



Recommended Soldering Conditions

Wave Soldering



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

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: 3000PCS		

