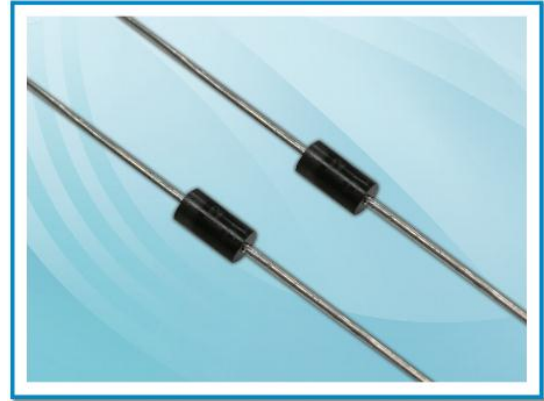


## TVS Diode – P4KE Series

### Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in DO-41 package.
- Excellent voltage clamping capability.
- Low Zener impedance.
- 400W peak pulse power capability on 10/1000 $\mu$ s waveform.
- Typical leakage current less than 1 $\mu$ A above 13V.
- Very fast response time, typically less than 1.0ps from 0 volt to  $V_{BR}$  minimum.
- High temperature soldering guaranteed: 265 $^{\circ}$ C/10 sec.
- MSL: JEDEC-J-STD-020, Level 1

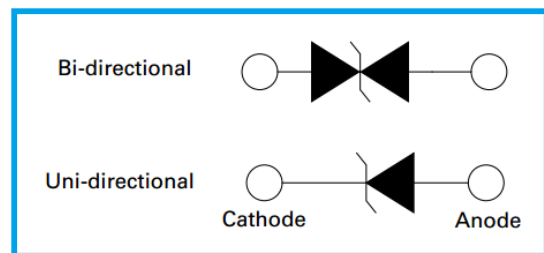


### Applications

- I/O interface,  $V_{CC}$  bus
- Telecom
- Industrial and consumer electronic applications.
- Relay and electromagnetic valve surge absorption.

### Agency Approval

- UL file no.: E474915



### Mechanical and Physical Data

- Case: JEDEC DO-41 molded plastic.
- Axial leaded, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional.

### Maximum Ratings and Thermal Characteristics

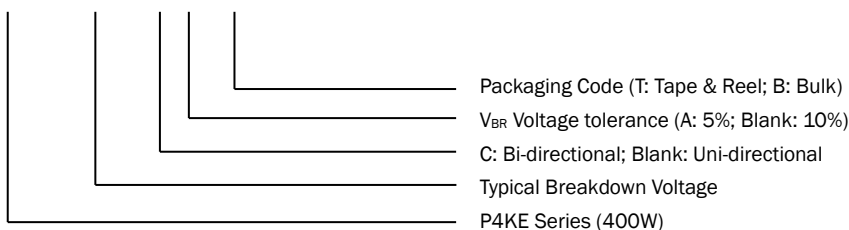
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note 1, Fig.1).	$P_{PPM}$	Min 400	Watt
Peak Pulse Current of 10/1000 $\mu$ s waveform (Note 1, Fig.3).	$I_{PPM}$	See Table	Amp
Steady State Power Dissipation at $T_L = 75^{\circ}$ C, Lead lengths 0.375", (9.5mm) (Fig.5).	$P_{M(AV)}$	1.5	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	$I_{FSM}$	40	Amp
Operating Junction and Storage Temperature Range.	$T_J, T_{STG}$	-55~175	$^{\circ}$ C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^{\circ}$ C per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

### Part Number Code

**P4KE** □□□ **CA** - □



## TVS Diode – P4KE Series

### I-V Curve Characteristics



$I_{PPM}$  Peak Pulse Power Dissipation – Maximum power dissipation

$V_R$  Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

$V_{BR}$  Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current ( $I_T$ )

$V_C$  Clamping Voltage – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (Peak Impulse Current)

$I_R$  Reverse Leakage Current – Current measured at  $V_R$

$V_F$  Forward Voltage Drop for Uni-directional

### Electrical Characteristics

Part Number		Reverse Stand Off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR}$ (V) @ $I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ (V) @ $I_{PP}$	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ ( $\mu$ A) @ $V_R$
Uni	Bi		Min.	Max.				
P4KE6.8A	P4KE6.8CA	5.80	6.45	7.14	10	10.5	39.0	1000
P4KE7.5A	P4KE7.5CA	6.40	7.13	7.88	10	11.3	36.9	500
P4KE8.2A	P4KE8.2CA	7.02	7.79	8.61	10	12.1	33.9	200
P4KE9.1A	P4KE9.1CA	7.78	8.65	9.55	1	13.4	30.6	50
P4KE10A	P4KE10CA	8.55	9.50	10.5	1	14.5	28.3	10
P4KE11A	P4KE11CA	9.40	10.5	11.6	1	15.6	26.3	5
P4KE12A	P4KE12CA	10.2	11.4	12.6	1	16.7	24.6	5
P4KE13A	P4KE13CA	11.1	12.4	13.7	1	18.2	22.5	1
P4KE15A	P4KE15CA	12.8	14.3	15.8	1	21.2	19.3	1
P4KE16A	P4KE16CA	13.6	15.2	16.8	1	22.5	18.2	1
P4KE18A	P4KE18CA	15.3	17.1	18.9	1	25.5	16.1	1
P4KE20A	P4KE20CA	17.1	19.0	21.0	1	27.7	14.8	1
P4KE22A	P4KE22CA	18.8	20.9	23.1	1	30.6	13.4	1
P4KE24A	P4KE24CA	20.5	22.8	25.2	1	33.2	12.3	1
P4KE27A	P4KE27CA	23.1	25.7	28.4	1	37.5	10.9	1
P4KE30A	P4KE30CA	25.6	28.5	31.5	1	41.4	9.90	1
P4KE33A	P4KE33CA	28.2	31.4	34.7	1	45.7	9.00	1

## TVS Diode – P4KE Series

Part Number		Reverse Stand Off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR}$ (V) @ $I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ (V) @ $I_{PP}$	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ ( $\mu$ A) @ $V_R$
Uni	Bi		Min.	Max.				
P4KE36A	P4KE36CA	30.8	34.2	37.8	1	49.9	8.20	1
P4KE39A	P4KE39CA	33.3	37.1	41.0	1	53.9	7.60	1
P4KE43A	P4KE43CA	36.8	40.9	45.2	1	59.3	6.90	1
P4KE47A	P4KE47CA	40.2	44.7	49.4	1	64.8	6.30	1
P4KE51A	P4KE51CA	43.6	48.5	53.6	1	70.1	5.80	1
P4KE56A	P4KE56CA	47.8	53.2	58.8	1	77.0	5.30	1
P4KE62A	P4KE62CA	53.0	58.9	65.1	1	85.0	4.80	1
P4KE68A	P4KE68CA	58.1	64.6	71.4	1	92.0	4.50	1
P4KE75A	P4KE75CA	64.1	71.3	78.8	1	103.0	4.00	1
P4KE82A	P4KE82CA	70.1	77.9	86.1	1	113.0	3.60	1
P4KE91A	P4KE91CA	77.8	86.5	95.5	1	125.0	3.30	1
P4KE100A	P4KE100CA	85.5	95.0	105.0	1	137.0	3.00	1
P4KE110A	P4KE110CA	94.0	105.0	116.0	1	152.0	2.70	1
P4KE120A	P4KE120CA	102.0	114.0	126.0	1	165.0	2.50	1
P4KE130A	P4KE130CA	111.0	124.0	137.0	1	179.0	2.30	1
P4KE150A	P4KE150CA	128.0	143.0	158.0	1	207.0	2.00	1
P4KE160A	P4KE160CA	136.0	152.0	168.0	1	219.0	1.90	1
P4KE170A	P4KE170CA	145.0	162.0	179.0	1	234.0	1.80	1
P4KE180A	P4KE180CA	154.0	171.0	189.0	1	246.0	1.70	1
P4KE200A	P4KE200CA	171.0	190.0	210.0	1	274.0	1.50	1
P4KE220A	P4KE220CA	185.0	209.0	231.0	1	328.0	1.30	1
P4KE250A	P4KE250CA	214.0	237.0	263.0	1	344.0	1.20	1
P4KE300A	P4KE300CA	256.0	285.0	315.0	1	414.0	1.00	1
P4KE350A	P4KE350CA	300.0	332.0	368.0	1	482.0	0.85	1
P4KE400A	P4KE400CA	342.0	380.0	420.0	1	548.0	0.75	1
P4KE440A	P4KE440CA	376.0	418.0	462.0	1	602.0	0.68	1
P4KE480A	P4KE480CA	408.0	456.0	504.0	1	658.0	0.61	1
P4KE510A	P4KE510CA	434.0	485.0	535.0	1	698.0	0.57	1
P4KE530A	P4KE530CA	451.0	503.5	556.5	1	725.0	0.55	1
P4KE540A	P4KE540CA	459.0	513.0	567.0	1	740.0	0.54	1
P4KE550A	P4KE550CA	468.0	522.5	577.5	1	760.0	0.52	1
P4KE600A	P4KE600CA	510.0	570.0	630.0	1	828.0	0.48	1

Note:

1. For bi-directional type having  $V_R$  of 10 volts and less, the  $I_R$  limit is double.

## TVS Diode – P4KE Series

### Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

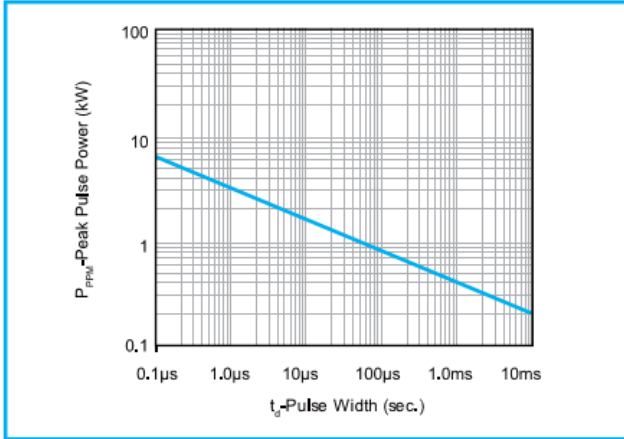


Fig 2 - Pulse Derating Curve

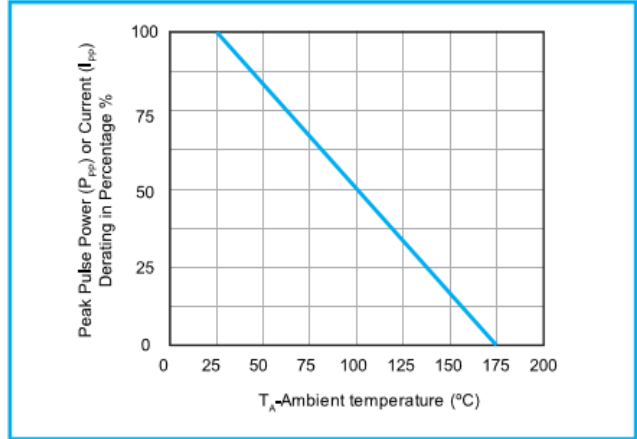


Fig 3 - Pulse Waveform

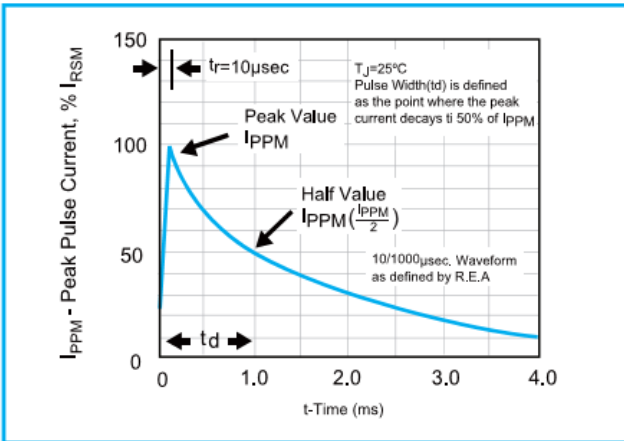


Fig 4 - Typical Junction Capacitance Uni-directional

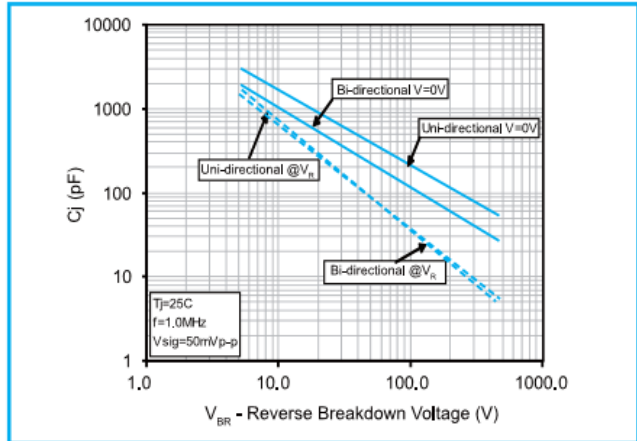


Fig 5 - Steady State Power Dissipation Derating Curve

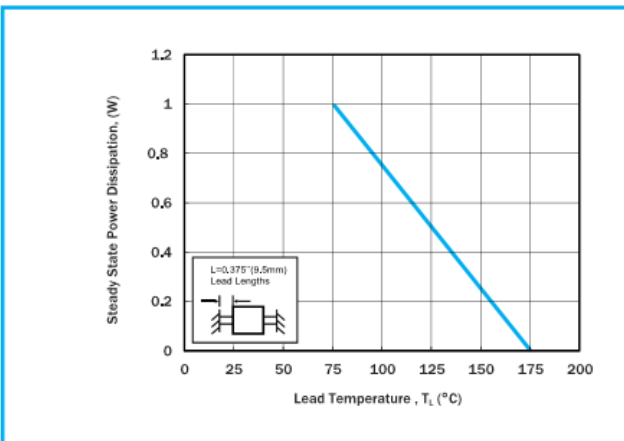
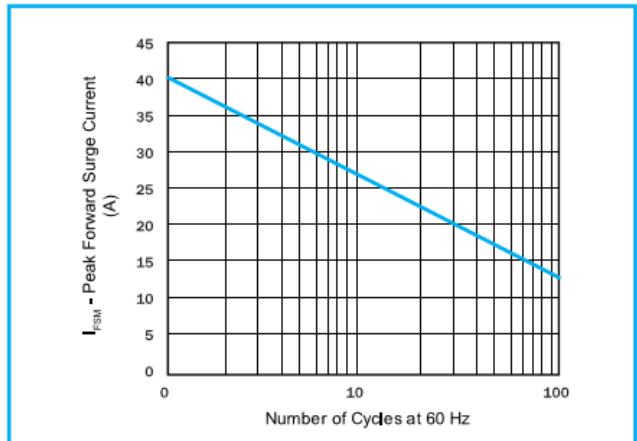
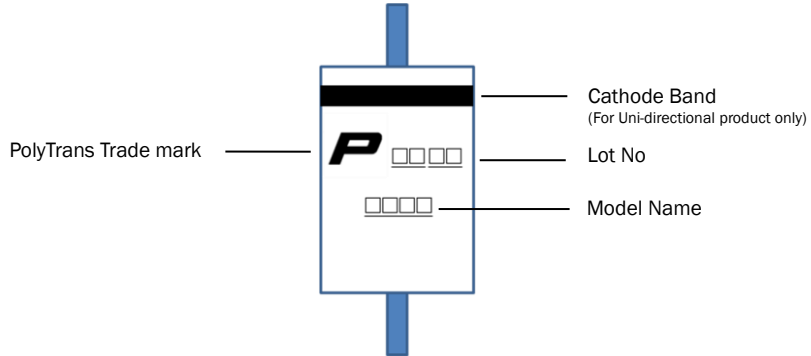


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

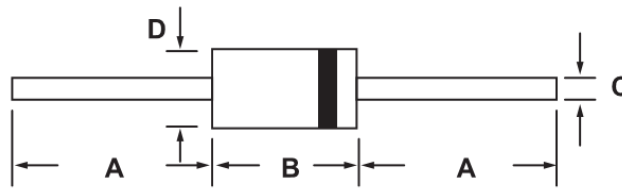


## TVS Diode – P4KE Series

### Marking Definitions



### Physical Dimensions



DO-204AL (DO-41)

Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	25.4	-	1.000	-
B	4.10	5.20	0.160	0.205
C	0.71	0.86	0.028	0.034
D	2.00	2.70	0.080	0.107

## TVS Diode – P4KE Series

### Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
P4KE Series	T	DO-41	5000	Tape & Reel	EIA STD RS-296
P4KE Series	B	DO-41	500	Bulk	-

### Tape and Reel Specifications

