

Transient Voltage Suppressors (TVS) Data Sheet

Description

The P6KE series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events

Features

- Low leakage
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 600W peak pulse power capability at 10/1000μs waveform
- Fast response time
- Typical IR less than 1μA above 12V
- High Temperature soldering: 260°C /10 seconds at terminals
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR}@25^{\circ}\text{C} \times \Delta T$
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte tin lead-free Plated
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC 61000-4-2 ESD 30KV(Air),30KV(contact)

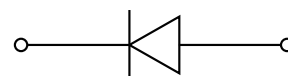
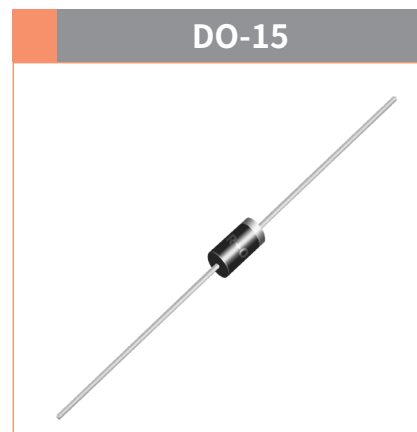
Breakdown Voltage

5.8 to 512 V

Peak Pulse Power

600 W

DO-15



Applications

TVS devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	SYMBOL
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	600	W
Peak Pulse Current with a 10/1000μs waveform.(Note1, Fig.3)	I_{PP}	See Next Table	A
Power Dissipation on Infinite Heat Sink at TL=75° C	$P_{M(AV)}$	5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only(Note 4)	V_F	3.5/5.0	V
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note :

(1) Non-repetitive current pulse, per Fig. 3 and derated above Ta = 25°C per Fig. 2.

(2) Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.

(3) 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

(4) $V_F < 3.5V$ for $V_{BR} < 220V$ and $V_F < 5.0V$ for $V_{BR} > 220V$.

P6KE SERIES

600W AXIAL TRANSIENT VOLTAGE SUPPRESSORS

● Electrical Characteristics (Ta=25°C Unless otherwise specified)

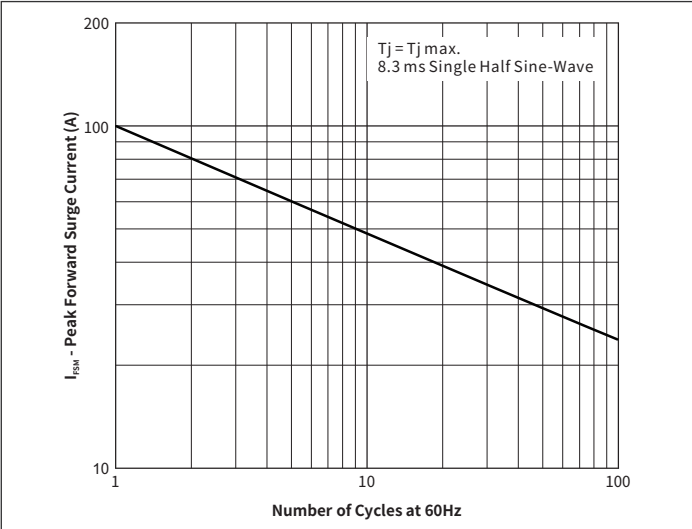
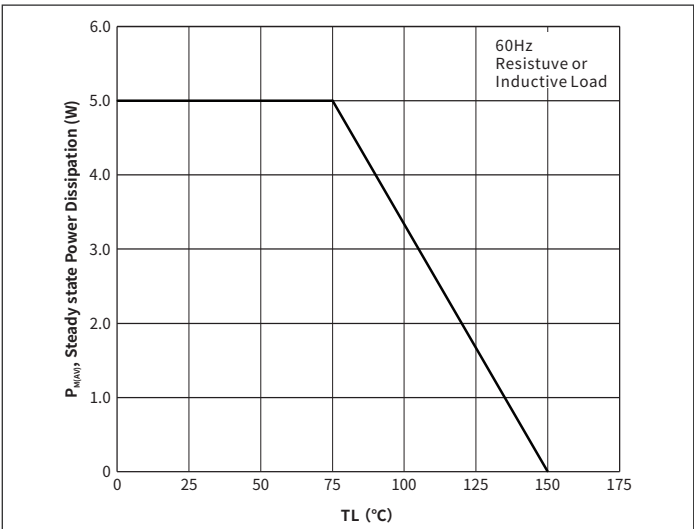
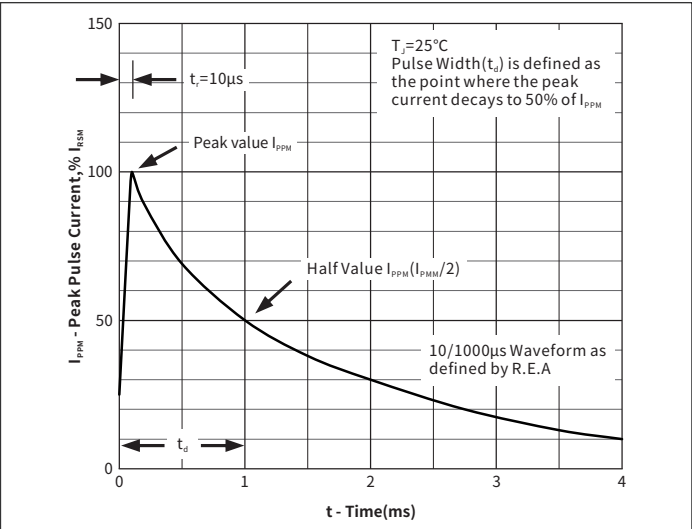
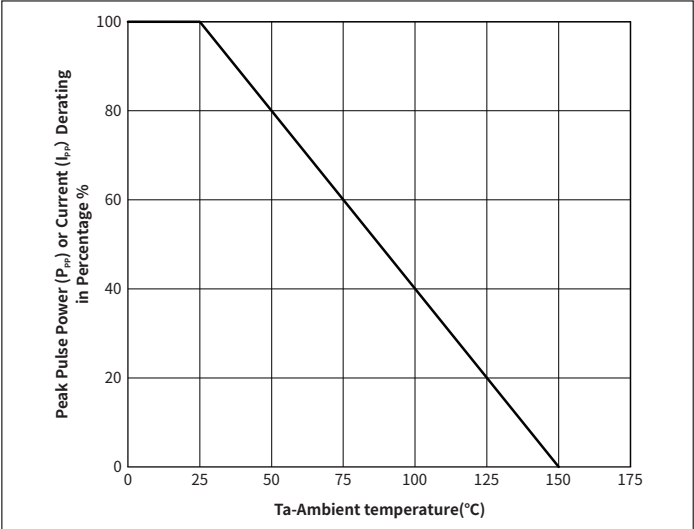
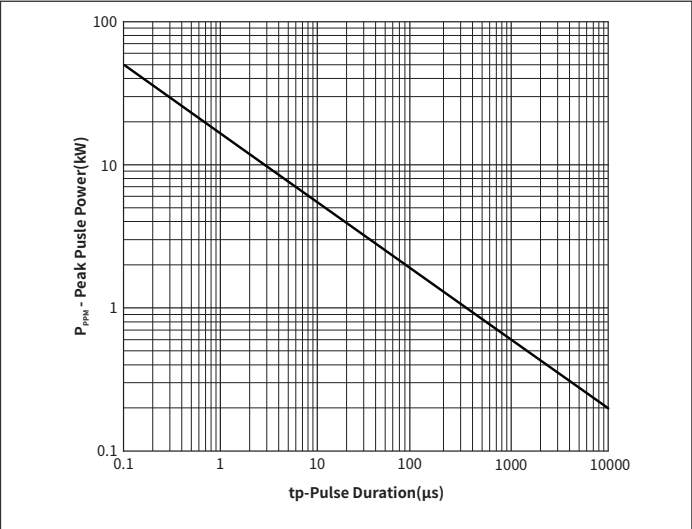
Part Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage V_{BR} (V) @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Uni	Bi	Uni	Bi	V_{RWM} (V)	Min.	Max.	I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μA)
P6KE6.8A	P6KE6.8CA	P6KE6.8A	P6KE6.8CA	5.8	6.45	7.14	10	10.5	58.1	150
P6KE7.5A	P6KE7.5CA	P6KE7.5A	P6KE7.5CA	6.4	7.13	7.88	10	11.3	54	120
P6KE8.2A	P6KE8.2CA	P6KE8.2A	P6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	50
P6KE9.1A	P6KE9.1CA	P6KE9.1A	P6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	20
P6KE10A	P6KE10CA	P6KE10A	P6KE10CA	8.55	9.5	10.5	1	14.5	42.1	10
P6KE11A	P6KE11CA	P6KE11A	P6KE11CA	9.4	10.5	11.6	1	15.6	39.1	5
P6KE12A	P6KE12CA	P6KE12A	P6KE12CA	10.2	11.4	12.6	1	16.7	36.5	2
P6KE13A	P6KE13CA	P6KE13A	P6KE13CA	11.1	12.4	13.7	1	18.2	33.5	1
P6KE15A	P6KE15CA	P6KE15A	P6KE15CA	12.8	14.3	15.8	1	21.2	28.8	1
P6KE16A	P6KE16CA	P6KE16A	P6KE16CA	13.6	15.2	16.8	1	22.5	27.1	1
P6KE18A	P6KE18CA	P6KE18A	P6KE18CA	15.3	17.1	18.9	1	25.2	24.2	1
P6KE20A	P6KE20CA	P6KE20A	P6KE20CA	17.1	19	21	1	27.7	22	1
P6KE22A	P6KE22CA	P6KE22A	P6KE22CA	18.8	20.9	23.1	1	30.6	19.9	1
P6KE24A	P6KE24CA	P6KE24A	P6KE24CA	20.5	22.8	25.2	1	33.2	18.4	1
P6KE27A	P6KE27CA	P6KE27A	P6KE27CA	23.1	25.7	28.4	1	37.5	16.3	1
P6KE30A	P6KE30CA	P6KE30A	P6KE30CA	25.6	28.5	31.5	1	41.4	14.7	1
P6KE33A	P6KE33CA	P6KE33A	P6KE33CA	28.2	31.4	34.7	1	45.7	13.3	1
P6KE36A	P6KE36CA	P6KE36A	P6KE36CA	30.8	34.2	37.8	1	49.9	12.2	1
P6KE39A	P6KE39CA	P6KE39A	P6KE39CA	33.3	37.1	41	1	53.9	11.3	1
P6KE43A	P6KE43CA	P6KE43A	P6KE43CA	36.8	40.9	45.2	1	59.3	10.3	1
P6KE47A	P6KE47CA	P6KE47A	P6KE47CA	40.2	44.7	49.4	1	64.8	9.4	1
P6KE51A	P6KE51CA	P6KE51A	P6KE51CA	43.6	48.5	53.6	1	70.1	8.7	1
P6KE56A	P6KE56CA	P6KE56A	P6KE56CA	47.8	53.2	58.8	1	77	7.9	1
P6KE62A	P6KE62CA	P6KE62A	P6KE62CA	53	58.9	65.1	1	85	7.9	1
P6KE68A	P6KE68CA	P6KE68A	P6KE68CA	58.1	64.6	71.4	1	92	6.6	1
P6KE75A	P6KE75CA	P6KE75A	P6KE75CA	64.1	71.3	78.8	1	103	5.9	1
P6KE82A	P6KE82CA	P6KE82A	P6KE82CA	70.1	77.9	86.1	1	113	5.4	1
P6KE91A	P6KE91CA	P6KE91A	P6KE91CA	77.8	86.5	95.5	1	125	4.9	1
P6KE100A	P6KE100CA	P6KE100A	P6KE100CA	85.5	95	105	1	137	4.5	1
P6KE110A	P6KE110CA	P6KE110A	P6KE110CA	94	105	116	1	152	4.0	1
P6KE120A	P6KE120CA	P6KE120A	P6KE120CA	102	114	126	1	165	3.7	1
P6KE130A	P6KE130CA	P6KE130A	P6KE130CA	111	124	137	1	179	3.4	1
P6KE150A	P6KE150CA	P6KE150A	P6KE150CA	128	143	158	1	207	2.9	1
P6KE160A	P6KE160CA	P6KE160A	P6KE160CA	136	152	168	1	219	2.8	1
P6KE170A	P6KE170CA	P6KE170A	P6KE170CA	145	162	179	1	234	2.6	1
P6KE180A	P6KE180CA	P6KE180A	P6KE180CA	154	171	189	1	246	2.5	1
P6KE200A	P6KE200CA	P6KE200A	P6KE200CA	171	190	210	1	274	2.2	1
P6KE220A	P6KE220CA	P6KE220A	P6KE220CA	185	209	231	1	328	1.9	1
P6KE250A	P6KE250CA	P6KE250A	P6KE250CA	214	237	263	1	344	1.8	1
P6KE300A	P6KE300CA	P6KE300A	P6KE300CA	256	285	315	1	414	1.5	1
P6KE350A	P6KE350CA	P6KE350A	P6KE350CA	300	332	368	1	482	1.3	1
P6KE400A	P6KE400CA	P6KE400A	P6KE400CA	342	380	420	1	548	1.1	1
P6KE440A	P6KE440CA	P6KE440A	P6KE440CA	376	418	462	1	602	1	1

● **Electrical Characteristics** (Ta=25°C Unless otherwise specified)

Part Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage V_{BR} (V) @ I_T		Test Current	Maximum Clamping Voltage@ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Uni	Bi	Uni	Bi	V_{RWM} (V)	Min.	Max.	I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μ A)
P6KE480A	P6KE480CA	P6KE480A	P6KE480CA	408	456	504	1	658	0.9	1
P6KE510A	P6KE510CA	P6KE510A	P6KE510CA	434	485	535	1	698	0.9	1
P6KE540A	P6KE540CA	P6KE540A	P6KE540CA	460	513	567	1	740	0.8	1
P6KE550A	P6KE550CA	P6KE550A	P6KE550CA	468	522.5	577.5	1	760	0.8	1
P6KE600A	P6KE600CA	P6KE600A	P6KE600CA	512	570	630	1	828	0.75	1

Note :
(1)Suffix 'A ' denotes 5% tolerance device.
(2)Add suffix ' CA ' after part number to specify Bi-directional devices.
(3)For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

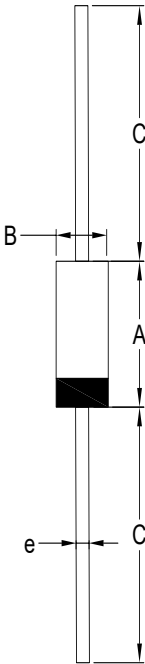
● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Ordering Information

PACKAGE	UNIT WEIGHT(g)	BOX(pcs)	CARTON(pcs)
DO-15	0.389	3000	30000

● Package Outline Dimensions (DO-15)

	Symbol	Dimensions			
		Millimeters		Inches	
		Min.	Max.	Min.	Max.
	A	5.800	7.600	0.300	0.230
	B	2.600	3.600	0.104	0.140
	C	25.400	-	1.000	-
	e	0.700	0.900	0.028	0.034

● Part Numbering

