



# P6KE SERIES

## GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

**BREAK DOWN VOLTAGE**

**6.8 to 550 Volt**

**DO-15**

Unit : inch(mm)

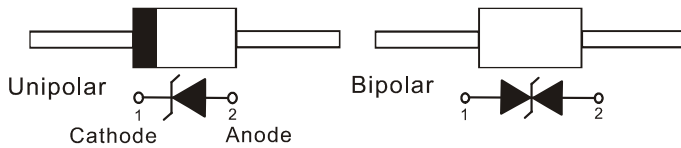
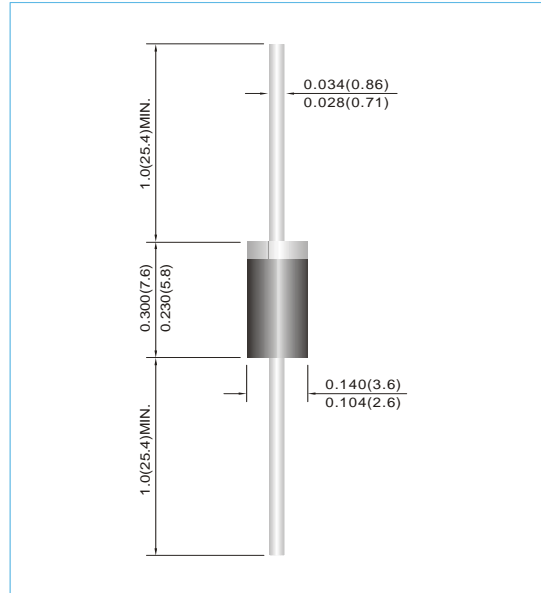
**Recongized File # E210467**

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 600W surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1 ps from 0 volts to BV min
- ESD IEC-61000-4-2 Air  $\pm$  30kV, Contact  $\pm$  30kV
- Lead free in compliance with EU RoHS 2011/65/EU directive

### MECHANICAL DATA

- Case: JEDEC DO-15 Molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.014 ounce, 0.4 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.  
For Capacitive load derate current by 20%.

Rating	Symbol	Value	Units
Power Dissipation on $T_A=25^\circ\text{C}$ , $t_p=1\text{ms}$ (Notes 1)	$P_{PP}$	600	Watts
Typical Thermal Resistance (Notes 2)	$R_{\theta JA}$ $R_{\theta JC}$	70 30	$^\circ\text{C} / \text{W}$
Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1)	$I_{PPM}$	see Table	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3)	$I_{FSM}$	100	Amps
ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact)	$V_{ESD}$	$\pm 30$ $\pm 30$	kV
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-65 to +175	$^\circ\text{C}$

#### NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on 48cm<sup>2</sup> FR-4 PCB.
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.
4. A transient suppressor is selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operating voltage level.



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Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000µs	Peak Pulse Current 10/1000µs	Marking Code	
			V <sub>BR</sub> @ I <sub>T</sub>			I <sub>R</sub> @ V <sub>RWM</sub>					
			Min.	Max.		UNI	BI				
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI
<b>600W Transient Voltage Suppressor</b>											
P6KE6.8	P6KE6.8C	5.5	6.12	7.48	10	1000	2000	10.8	56	P6KE6.8	P6KE6.8C
P6KE6.8A	P6KE6.8CA	5.8	6.45	7.14	10	1000	2000	10.5	57	P6KE6.8A	P6KE6.8CA
P6KE7.5	P6KE7.5C	6.05	6.75	8.25	10	500	1000	11.7	51	P6KE7.5	P6KE7.5C
P6KE7.5A	P6KE7.5CA	6.4	7.13	7.88	10	500	1000	11.3	53	P6KE7.5A	P6KE7.5CA
P6KE8.2	P6KE8.2C	6.63	7.38	9.02	10	200	400	12.5	48	P6KE8.2	P6KE8.2C
P6KE8.2A	P6KE8.2CA	7.02	7.79	8.61	10	200	400	12.1	50	P6KE8.2A	P6KE8.2CA
P6KE9.1	P6KE9.1C	7.37	8.19	10	1	50	100	13.8	44	P6KE9.1	P6KE9.1C
P6KE9.1A	P6KE9.1CA	7.78	8.65	9.50	1	50	100	13.4	45	P6KE9.1A	P6KE9.1CA
P6KE10	P6KE10C	8.1	9	11	1	10	20	15	40	P6KE10	P6KE10C
P6KE10A	P6KE10CA	8.55	9.5	10.50	1	10	20	14.5	41	P6KE10A	P6KE10CA
P6KE11	P6KE11C	8.92	9.9	12	1	5	10	16.2	37	P6KE11	P6KE11C
P6KE11A	P6KE11CA	9.4	10.5	12	1	5	10	15.6	38	P6KE11A	P6KE11CA
P6KE12	P6KE12C	9.72	10.8	13	1	5	5	17.3	35	P6KE12	P6KE12C
P6KE12A	P6KE12CA	10.2	11.4	13	1	5	5	16.7	36	P6KE12A	P6KE12CA
P6KE13	P6KE13C	10.5	11.7	14	1	1	1	19	32	P6KE13	P6KE13C
P6KE13A	P6KE13CA	11.1	12.4	14	1	1	1	18.2	33	P6KE13A	P6KE13CA
P6KE15	P6KE15C	12.1	13.5	16.5	1	1	1	22	27	P6KE15	P6KE15C
P6KE15A	P6KE15CA	12.8	14.3	15.8	1	1	1	21.2	28	P6KE15A	P6KE15CA
P6KE16	P6KE16C	12.9	14.4	17.6	1	1	1	23.5	26	P6KE16	P6KE16C
P6KE16A	P6KE16CA	13.6	15.2	16.8	1	1	1	22.5	27	P6KE16A	P6KE16CA
P6KE18	P6KE18C	14.5	16.2	19.8	1	1	1	26.5	23	P6KE18	P6KE18C
P6KE18A	P6KE18CA	15.3	17.1	18.9	1	1	1	25.2	24	P6KE18A	P6KE18CA
P6KE20	P6KE20C	16.2	18	22	1	1	1	29.1	21	P6KE20	P6KE20C
P6KE20A	P6KE20CA	17.1	19	21	1	1	1	27.7	22	P6KE20A	P6KE20CA
P6KE22	P6KE22C	17.8	19.8	24.2	1	1	1	31.9	19	P6KE22	P6KE22C
P6KE22A	P6KE22CA	18.8	20.9	23.1	1	1	1	30.6	20	P6KE22A	P6KE22CA
P6KE24	P6KE24C	19.4	21.6	26.4	1	1	1	34.7	17	P6KE24	P6KE24C
P6KE24A	P6KE24CA	20.5	22.8	25.2	1	1	1	33.2	18	P6KE24A	P6KE24CA
P6KE27	P6KE27C	21.8	24.3	29.7	1	1	1	39.1	15	P6KE27	P6KE27C
P6KE27A	P6KE27CA	23.1	25.7	28.4	1	1	1	37.5	16	P6KE27A	P6KE27CA
P6KE30	P6KE30C	24.3	27	33	1	1	1	43.5	14	P6KE30	P6KE30C
P6KE30A	P6KE30CA	25.6	28.5	31.5	1	1	1	41.4	14.4	P6KE30A	P6KE30CA
P6KE33	P6KE33C	26.8	29.7	36.3	1	1	1	47.7	12.6	P6KE33	P6KE33C
P6KE33A	P6KE33CA	28.2	31.4	34.7	1	1	1	45.7	13.2	P6KE33A	P6KE33CA
P6KE36	P6KE36C	29.1	32.4	39.6	1	1	1	52	11.6	P6KE36	P6KE36C
P6KE36A	P6KE36CA	30.8	34.2	37.8	1	1	1	49.9	12	P6KE36A	P6KE36CA
P6KE39	P6KE39C	31.6	35.1	42.9	1	1	1	56.4	10.6	P6KE39	P6KE39C
P6KE39A	P6KE39CA	33.3	37.1	41	1	1	1	53.9	11.2	P6KE39A	P6KE39CA
P6KE43	P6KE43C	34.8	38.7	47.3	1	1	1	61.9	9.6	P6KE43	P6KE43C
P6KE43A	P6KE43CA	36.8	40.9	45.2	1	1	1	59.3	10.1	P6KE43A	P6KE43CA
P6KE47	P6KE47C	38.1	42.3	51.7	1	1	1	67.8	8.9	P6KE47	P6KE47C
P6KE47A	P6KE47CA	40.2	44.7	49.4	1	1	1	64.8	9.3	P6KE47A	P6KE47CA



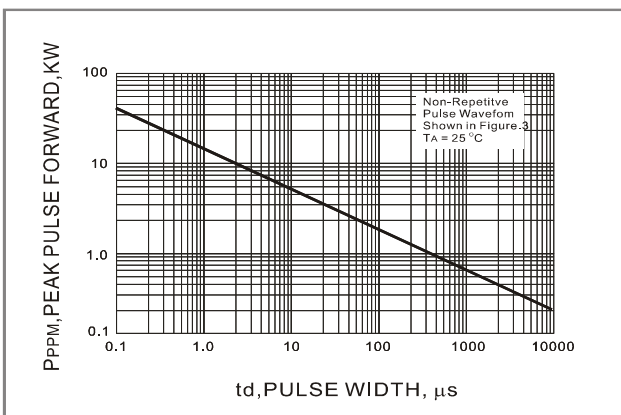
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Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000 $\mu$ s	Peak Pulse Current 10/1000 $\mu$ s	Marking Code	
			$V_{BR} @ I_T$			$I_R @ V_{RWM}$					
UNI	BI	V	Min.	Max.	mA	UNI	BI	V	A	UNI	BI
			V	V		$\mu$ A	$\mu$ A				
<b>600W Transient Voltage Suppressor</b>											
P6KE51	P6KE51C	41.3	45.9	56.1	1	1	1	73.5	8.2	P6KE51	P6KE51C
P6KE51A	P6KE51CA	43.6	48.5	53.6	1	1	1	70.1	8.6	P6KE51A	P6KE51CA
P6KE56	P6KE56C	45.6	50.4	61.6	1	1	1	80.5	7.4	P6KE56	P6KE56C
P6KE56A	P6KE56CA	47.8	53.2	58.8	1	1	1	77	7.8	P6KE56A	P6KE56CA
P6KE62	P6KE62C	50.2	55.8	68.2	1	1	1	89	6.8	P6KE62	P6KE62C
P6KE62A	P6KE62CA	53	58.9	65.1	1	1	1	85	7.1	P6KE62A	P6KE62CA
P6KE68	P6KE68C	55.1	61.2	74.8	1	1	1	98	6.1	P6KE68	P6KE68C
P6KE68A	P6KE68CA	58.1	64.6	71.4	1	1	1	92	6.5	P6KE68A	P6KE68CA
P6KE75	P6KE75C	60.7	67.5	82.5	1	1	1	108	5.5	P6KE75	P6KE75C
P6KE75A	P6KE75CA	64.1	71.3	78.8	1	1	1	103	5.8	P6KE75A	P6KE75CA
P6KE82	P6KE82C	66.4	73.8	90.2	1	1	1	118	5.1	P6KE82	P6KE82C
P6KE82A	P6KE82CA	70.1	77.9	86.1	1	1	1	113	5.3	P6KE82A	P6KE82CA
P6KE91	P6KE91C	73.7	81.9	100	1	1	1	131	4.5	P6KE91	P6KE91C
P6KE91A	P6KE91CA	77.8	86.5	95.5	1	1	1	125	4.8	P6KE91A	P6KE91CA
P6KE100	P6KE100C	81	90	110	1	1	1	144	4.2	P6KE100	P6KE100C
P6KE100A	P6KE100CA	85.5	95	105	1	1	1	137	4.4	P6KE100A	P6KE100CA
P6KE110	P6KE110C	89.2	99	121	1	1	1	158	3.8	P6KE110	P6KE110C
P6KE110A	P6KE110CA	94	105	116	1	1	1	152	4	P6KE110A	P6KE110CA
P6KE120	P6KE120C	97.2	108	132	1	1	1	173	3.5	P6KE120	P6KE120C
P6KE120A	P6KE120CA	102	114	126	1	1	1	165	3.6	P6KE120A	P6KE120CA
P6KE130	P6KE130C	105	117	143	1	1	1	187	3.2	P6KE130	P6KE130C
P6KE130A	P6KE130CA	111	124	137	1	1	1	179	3.3	P6KE130A	P6KE130CA
P6KE150	P6KE150C	121	135	165	1	1	1	215	2.8	P6KE150	P6KE150C
P6KE150A	P6KE150CA	128	143	158	1	1	1	207	2.9	P6KE150A	P6KE150CA
P6KE160	P6KE160C	130	144	176	1	1	1	230	2.6	P6KE160	P6KE160C
P6KE160A	P6KE160CA	136	152	168	1	1	1	219	2.7	P6KE160A	P6KE160CA
P6KE170	P6KE170C	138	153	187	1	1	1	244	2.5	P6KE170	P6KE170C
P6KE170A	P6KE170CA	145	162	179	1	1	1	234	2.6	P6KE170A	P6KE170CA
P6KE180	P6KE180C	146	162	198	1	1	1	258	2.3	P6KE180	P6KE180C
P6KE180A	P6KE180CA	154	171	189	1	1	1	246	2.4	P6KE180A	P6KE180CA
P6KE200	P6KE200C	162	180	220	1	1	1	287	2.1	P6KE200	P6KE200C
P6KE200A	P6KE200CA	171	190	210	1	1	1	274	2.2	P6KE200A	P6KE200CA
P6KE220	P6KE220C	175	198	242	1	1	1	344	1.8	P6KE220	P6KE220C
P6KE220A	P6KE220CA	185	209	231	1	1	1	328	1.9	P6KE220A	P6KE220CA
P6KE250	P6KE250C	202	225	275	1	1	1	360	1.7	P6KE250	P6KE250C
P6KE250A	P6KE250CA	214	237	263	1	1	1	344	1.8	P6KE250A	P6KE250CA
P6KE300	P6KE300C	243	270	330	1	1	1	430	1.4	P6KE300	P6KE300C
P6KE300A	P6KE300CA	256	285	315	1	1	1	414	1.5	P6KE300A	P6KE300CA
P6KE350	P6KE350C	284	315	385	1	1	1	504	1.2	P6KE350	P6KE350C
P6KE350A	P6KE350CA	300	332	368	1	1	1	482	1.3	P6KE350A	P6KE350CA
P6KE400	P6KE400C	324	360	440	1	1	1	574	1.05	P6KE400	P6KE400C
P6KE400A	P6KE400CA	342	380	420	1	1	1	548	1.1	P6KE400A	P6KE400CA
P6KE440	P6KE440C	356	396	484	1	1	1	631	0.99	P6KE440	P6KE440C
P6KE440A	P6KE440CA	376	418	462	1	1	1	600	1.04	P6KE440A	P6KE440CA

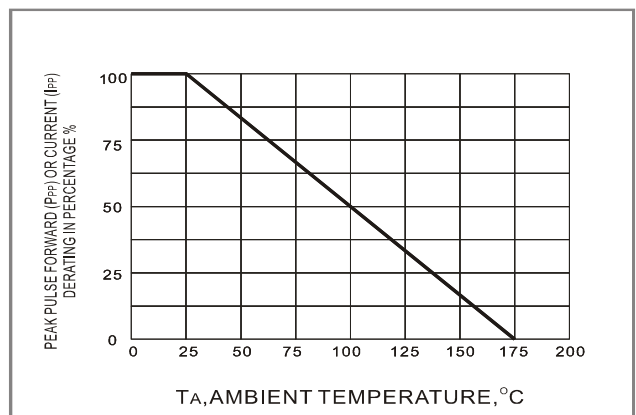


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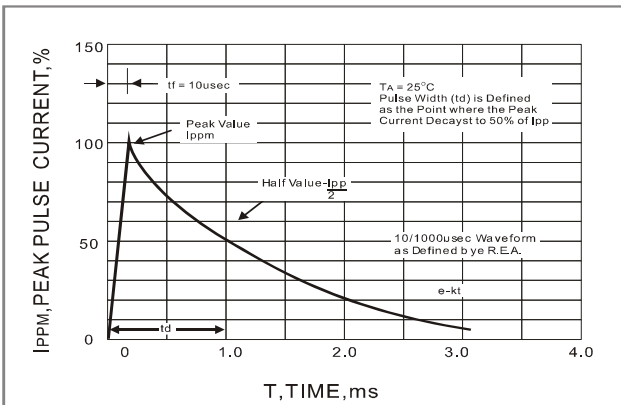
Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000 $\mu$ s	Peak Pulse Current 10/1000 $\mu$ s	Marking Code	
			$V_{BR} @ I_T$			$I_R @ V_{RWM}$					
UNI	BI	V	Min.	Max.	mA	$\mu$ A	$\mu$ A	V	A	UNI	BI
			V	V		$\mu$ A	$\mu$ A				
<b>600W Transient Voltage Suppressor</b>											
P6KE480	P6KE480C	389	432	528	1	1	1	691	0.87	P6KE480	P6KE480C
P6KE480A	P6KE480CA	408	456	504	1	1	1	658	0.91	P6KE480A	P6KE480CA
P6KE550	P6KE550C	445.5	495	605	1	1	1	792	0.76	P6KE550	P6KE550C
P6KE550A	P6KE550CA	467.5	522.5	577.5	1	1	1	753.5	0.8	P6KE550A	P6KE550CA



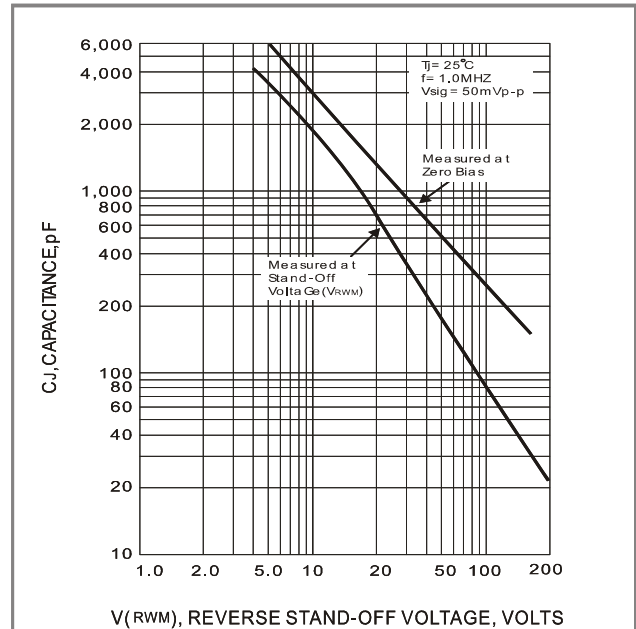
**Fig.1 PEAK PULSE POWER RATING PULSE TIME CURVE**



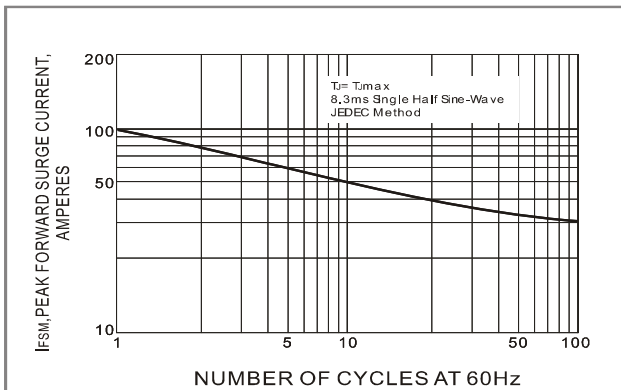
**Fig.2 PULSE DERATING CURVE**



**Fig.3 PULSE WAVEFORM**



**Fig.4 TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL**



**Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



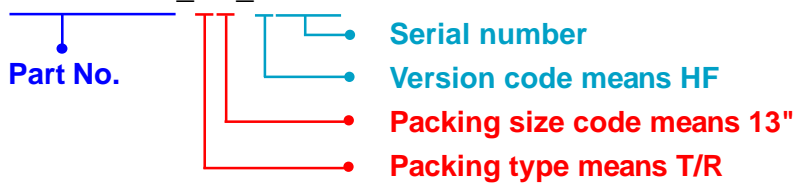
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### Part No\_packing code\_Version

P6KE6.8\_AY\_00001  
 P6KE6.8\_AY\_10001  
 P6KE6.8\_B0\_00001  
 P6KE6.8\_B0\_10001  
 P6KE6.8\_R2\_00001  
 P6KE6.8\_R2\_10001

For example :

**RB500V-40\_R2\_00001**



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



## P6KE SERIES

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