



# 3KP SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 3000 Watt

**STAND-OFF VOLTAGE**

**5 to 220 Volt**

**P-600**

Unit : inch(mm)

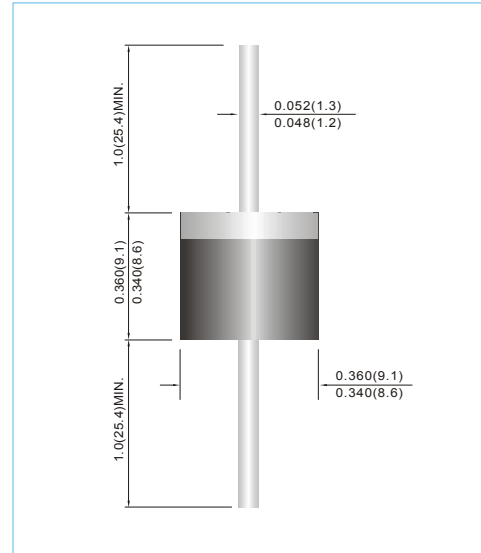
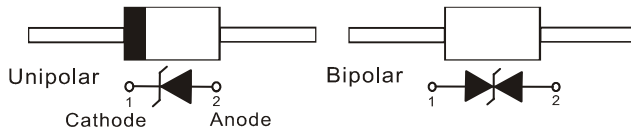
**Recognized File # E210467**

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction in P-600 package
- 3000W Peak Pulse Power capability at on  $t_p=10/1000\mu s$  waveform
- Excellent clamping capability
- Low zener impedance
- Repetition rate(Duty Cycle) : 0.05%
- Fast response time: typically less than 1 ps from 0 volts to BV min
- High temperature soldering guaranteed : 260°C/10 seconds/0.375", (9.5mm) lead length/5lbs., (2.3kg) tension
- 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 P-600 molded plastic
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.072 ounce, 2.04 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 3KP5.0 thru types 3KP220  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Power Dissipation at $T_A=25^\circ C$ , $T_p=1ms$ (Notes 1)	$P_{PP}$	3000	Watts
Typical Thermal Resistance Junction to Air Lead Lengths 0.375", (9.5mm) (Notes 2)	$R_{\theta JA}$	15	$^\circ C / W$
Peak Pulse Current on $T_p=10/1000\mu s$ waveform (Notes 1)	$I_{PPM}$	see Table	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 3)	$I_{FSM}$	300	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	$T_J, T_{STG}$	-55 to +175	$^\circ C$

#### NOTES :

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^\circ C$  per Fig. 2.
2. Mounted on Copper Leaf area of  $0.79in^2(20mm^2)$ .
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
3000W Transient Voltage Suppressor											
3KP5.0	3KP5.0C	5	6.4	7.55	10	1000	2000	9.6	312.5	3KP5.0	3KP5.0C
3KP5.0A	3KP5.0CA	5	6.4	7.25	10	1000	2000	9.2	326	3KP5.0A	3KP5.0CA
3KP6.0	3KP6.0C	6	6.67	8.45	10	1000	2000	11.4	263.2	3KP6.0	3KP6.0C
3KP6.0A	3KP6.0CA	6	6.67	7.67	10	1000	2000	10.3	291.3	3KP6.0A	3KP6.0CA
3KP6.5	3KP6.5C	6.5	7.22	9.14	10	500	1000	12.3	243.9	3KP6.5	3KP6.5C
3KP6.5A	3KP6.5CA	6.5	7.22	8.3	10	500	1000	11.2	267.9	3KP6.5A	3KP6.5CA
3KP7.0	3KP7.0C	7	7.78	9.86	10	200	400	13.3	225.6	3KP7.0	3KP7.0C
3KP7.0A	3KP7.0CA	7	7.78	8.95	10	200	400	12	250	3KP7.0A	3KP7.0CA
3KP7.5	3KP7.5C	7.5	8.33	10.67	1	100	200	14.3	209.8	3KP7.5	3KP7.5C
3KP7.5A	3KP7.5CA	7.5	8.33	9.58	1	100	200	12.9	232.6	3KP7.5A	3KP7.5CA
3KP8.0	3KP8.0C	8	8.89	11.3	1	50	100	15	220	3KP8.0	3KP8.0C
3KP8.0A	3KP8.0CA	8	8.89	10.23	1	50	100	13.6	220.6	3KP8.0A	3KP8.0CA
3KP8.5	3KP8.5C	8.5	9.44	11.92	1	25	50	15.9	188.8	3KP8.5	3KP8.5C
3KP8.5A	3KP8.5CA	8.5	9.44	10.82	1	25	50	14.4	208.4	3KP8.5A	3KP8.5CA
3KP9.0	3KP9.0C	9	10	12.6	1	10	20	16.9	177.4	3KP9.0	3KP9.0C
3KP9.0A	3KP9.0CA	9	10	11.5	1	10	20	15.4	194.8	3KP9.0A	3KP9.0CA
3KP10	3KP10C	10	11.1	14.1	1	3	3	18.8	159.6	3KP10	3KP10C
3KP10A	3KP10CA	10	11.1	12.8	1	3	3	17	176.4	3KP10A	3KP10CA
3KP11	3KP11C	11	12.2	15.4	1	3	3	20.1	149.2	3KP11	3KP11C
3KP11A	3KP11CA	11	12.2	14	1	3	3	18.2	184.8	3KP11A	3KP11CA
3KP12	3KP12C	12	13.3	16.9	1	3	3	22	136.4	3KP12	3KP12C
3KP12A	3KP12CA	12	13.3	15.3	1	3	3	19.9	150.6	3KP12A	3KP12CA
3KP13	3KP13C	13	14.4	18.2	1	3	3	23.8	126	3KP13	3KP13C
3KP13A	3KP13CA	13	14.4	16.5	1	3	3	21.5	139.4	3KP13A	3KP13CA
3KP14	3KP14C	14	15.6	19.8	1	3	3	25.8	116.2	3KP14	3KP14C
3KP14A	3KP14CA	14	15.6	17.9	1	3	3	23.2	129.4	3KP14A	3KP14CA
3KP15	3KP15C	15	16.7	21.1	1	3	3	26.9	111.6	3KP15	3KP15C
3KP15A	3KP15CA	15	16.7	19.2	1	3	3	24.4	123	3KP15A	3KP15CA
3KP16	3KP16C	16	17.8	22.6	1	3	3	28.8	104.2	3KP16	3KP16C
3KP16A	3KP16CA	16	17.8	20.5	1	3	3	26	115.4	3KP16A	3KP16CA
3KPJ17	3KPJ17C	17	18.9	23.9	1	3	3	30.5	98.4	3KPJ17	3KPJ17C
3KP17A	3KP17CA	17	18.9	21.7	1	3	3	27.6	106.6	3KP17A	3KP17CA
3KP18	3KP18C	18	20	25.3	1	3	3	32.2	93.2	3KP18	3KP18C
3KP18A	3KP18CA	18	20	23.3	1	3	3	29.2	102.8	3KP18A	3KP18CA
3KP20	3KP20C	20	22.2	28.1	1	3	3	35.8	83.8	3KP20	3KP20C
3KP20A	3KP20CA	20	22.2	25.5	1	3	3	32.4	92.6	3KP20A	3KP20CA
3KP22	3KP22C	22	24.4	30.9	1	3	3	39.4	76.2	3KP22	3KP22C
3KP22A	3KP22CA	22	24.4	28	1	3	3	35.5	84.4	3KP22A	3KP22CA
3KP24	3KP24C	24	26.7	33.8	1	3	3	43	69.8	3KP24	3KP24C
3KP24A	3KP24CA	24	26.7	30.7	1	3	3	38.9	77.2	3KP24A	3KP24CA
3KP26	3KP26C	26	28.9	36.6	1	3	3	46.6	64.4	3KP26	3KP26C
3KP26A	3KP26CA	26	28.9	33.2	1	3	3	42.1	71.2	3KP26A	3KP26CA
3KP28	3KP28C	28	31.1	39.4	1	3	3	50	60	3KP28	3KP28C
3KP28A	3KP28CA	28	31.1	35.8	1	3	3	45.4	66	3KP28A	3KP28CA
3KP30	3KP30C	30	33.3	42.2	1	3	3	53.5	56	3KP30	3KP30C
3KP30A	3KP30CA	30	33.3	38.3	1	3	3	48.4	62	3KP30A	3KP30CA
3KP33	3KP33C	33	36.7	46.5	1	3	3	59	50.4	3KP33	3KP33C
3KP33A	3KP33CA	33	36.7	42.2	1	3	3	53.3	56.2	3KP33A	3KP33CA
3KP36	3KP36C	36	40	50.7	1	3	3	64.3	46.6	3KP36	3KP36C
3KP36A	3KP36CA	36	40	46	1	3	3	58.1	51.6	3KP36A	3KP36CA
3KP40	3KP40C	40	44.4	56.3	1	3	3	71.4	42	3KP40	3KP40C

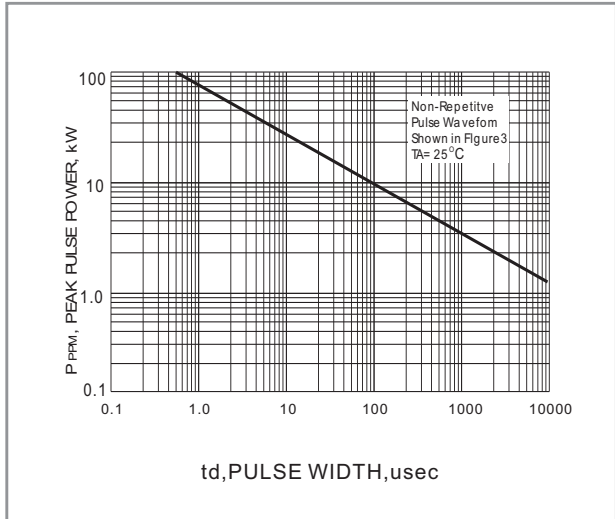


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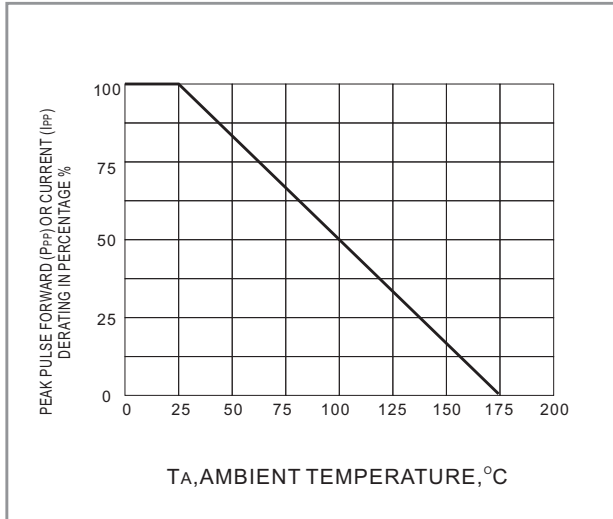
Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage 10/1000µs	Peak Pulse Current 10/1000µs	Marking Code	
			V <sub>BR</sub> @ I <sub>T</sub>			I <sub>R</sub> @ V <sub>RWM</sub>					
UNI	BI	V	Min. V	Max. V	mA	UNI µA	BI µA	V	A	UNI	BI
3000W Transient Voltage Suppressor											
3KP40A	3KP40CA	40	44.4	51.1	1	3	3	64.5	46.4	3KP40A	3KP40CA
3KP43	3KP43C	43.00	47.8	60.5	1	3	3	76.7	39.2	3KP43	3KP43C
3KP43A	3KP43CA	43	47.8	54.9	1	3	3	69.4	43.2	3KP43A	3KP43CA
3KP45	3KP45C	45	50	63.3	1	3	3	80.3	37.4	3KP45	3KP45C
3KP45A	3KP45CA	45	50	57.5	1	3	3	72.7	41.2	3KP45A	3KP45CA
3KP48	3KP48C	48	53.3	67.5	1	3	3	85.5	35	3KP48	3KP48C
3KP48A	3KP48CA	48	53.3	61.3	1	3	3	77.4	38.8	3KP48A	3KP48CA
3KP51	3KP51C	51	56.7	71.8	1	3	3	91.1	37	3KP51	3KP51C
3KP51A	3KP51CA	51	56.7	65.2	1	3	3	82.4	36.4	3KP51A	3KP51CA
3KP54	3KP54C	54	60	76	1	3	3	96.3	31.2	3KP54	3KP54C
3KP54A	3KP54CA	54	60	69	1	3	3	87.1	34.4	3KP54A	3KP54CA
3KP58	3KP58C	58	64.4	81.6	1	3	3	103	29.2	3KP58	3KP58C
3KP58A	3KP58CA	58	64.4	74.1	1	3	3	93.6	32	3KP58A	3KP58CA
3KP60	3KP60C	60	66.7	84.5	1	3	3	107	28	3KP60	3KP60C
3KP60A	3KP60CA	60	66.7	76.7	1	3	3	96.8	31	3KP60A	3KP60CA
3KP64	3KP64C	64	71.1	90.1	1	3	3	114	26.4	3KP64	3KP64C
3KP64A	3KP64CA	64	71.1	81.8	1	3	3	103	29.2	3KP64A	3KP64CA
3KP70	3KP70C	70	77.8	98.6	1	3	3	125	24	3KP70	3KP70C
3KP70A	3KP70CA	70	77.8	89.5	1	3	3	113	26.6	3KP70A	3KP70CA
3KP75	3KP75C	75	83.3	105.7	1	3	3	134	22.4	3KP75	3KP75C
3KP75A	3KP75CA	75	83.3	95.8	1	3	3	121	24.8	3KP75A	3KP75CA
3KP78	3KP78C	78	86.7	109.8	1	3	3	139	21.6	3KP78	3KP78C
3KP78A	3KP78CA	78	86.7	99.7	1	3	3	126	22.8	3KP78A	3KP78CA
3KP85	3KP85C	85	94.4	119.2	1	3	3	151	19.8	3KP85	3KP85C
3KP85A	3KP85CA	85	94.4	108.2	1	3	3	137	20.8	3KP85A	3KP85CA
3KP90	3KP90C	90	100	126.5	1	3	3	160	18.8	3KP90	3KP90C
3KP90A	3KP90CA	90	100	115.5	1	3	3	146	20.6	3KP90A	3KP90CA
3KP100	3KP100C	100	111	141	1	3	3	179	16.6	3KP100	3KP100C
3KP100A	3KP100CA	100	111	128	1	3	3	162	18.6	3KP100A	3KP100CA
3KP110	3KP110C	110	122	154.5	1	3	3	196	15.4	3KP110	3KP110C
3KP110A	3KP110CA	110	122	140.5	1	3	3	177	16.8	3KP110A	3KP110CA
3KP120	3KP120C	120	133	169	1	3	3	214	14	3KP120	3KP120C
3KP120A	3KP120CA	120	133	153	1	3	3	193	15.6	3KP120A	3KP120CA
3KP130	3KP130C	130	144	182.5	1	3	3	231	13	3KP130	3KP130C
3KP130A	3KP130CA	130	144	165.5	1	3	3	209	14.4	3KP130A	3KP130CA
3KP150	3KP150C	150	167	211.5	1	3	3	268	11.2	3KP150	3KP150C
3KP150A	3KP150CA	150	167	192.5	1	3	3	243	12.4	3KP150A	3KP150CA
3KP160	3KP160C	160	178	226	1	3	3	287	10.4	3KP160	3KP160C
3KP160A	3KP160CA	160	178	205	1	3	3	259	11.6	3KP160A	3KP160CA
3KP170	3KP170C	170	189	239.5	1	3	3	304	9.8	3KP170	3KP170C
3KP170A	3KP170CA	170	189	217.5	1	3	3	275	11	3KP170A	3KP170CA
3KP180	3KP180C	180	198	253.8	1	3	3	322	9.3	3KP180	3KP180C
3KP180A	3KP180CA	180	198	230.4	1	3	3	292	10.3	3KP180A	3KP180CA
3KP190	3KP190C	190	209	267.9	1	3	3	340	8.8	3KP190	3KP190C
3KP190A	3KP190CA	190	209	243.2	1	3	3	308	9.7	3KP190A	3KP190CA
3KP200	3KP200C	200	220	282	1	3	3	358	8.4	3KP200	3KP200C
3KP200A	3KP200CA	200	220	256	1	3	3	324	9.3	3KP200A	3KP200CA
3KP210	3KP210C	210	231	296.1	1	3	3	376	7.8	3KP210	3KP210C
3KP210A	3KP210CA	210	231	268.8	1	3	3	340	8.8	3KP210A	3KP210CA
3KP220	3KP220C	220	242	310.2	1	3	3	394	7.6	3KP220	3KP220C
3KP220A	3KP220CA	220	242	281.6	1	3	3	356	8.4	3KP220A	3KP220CA



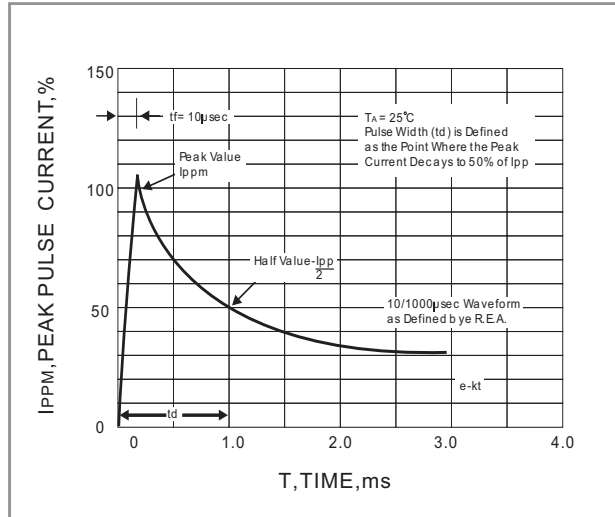
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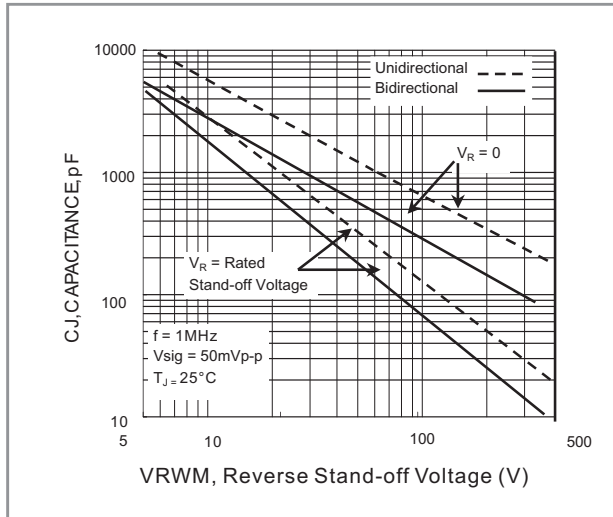
**Fig. 1 PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE**



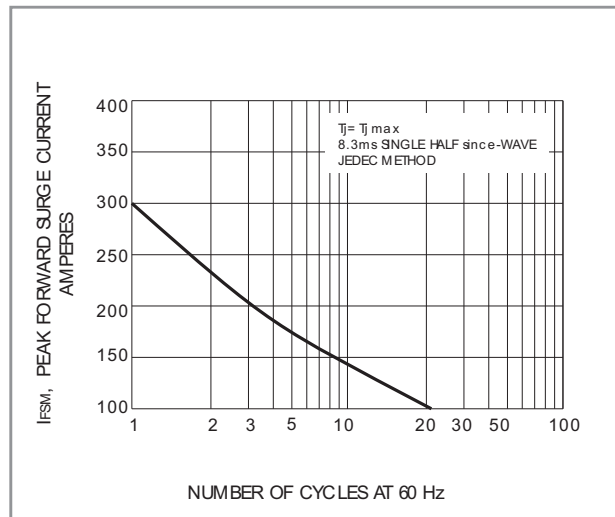
**Fig. 2 PULSE DERATING CURVE**



**Fig. 3 PULSE WAVEFORM**



**Fig. 4 TYPICAL JUNCTION CAPACITANCE**



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



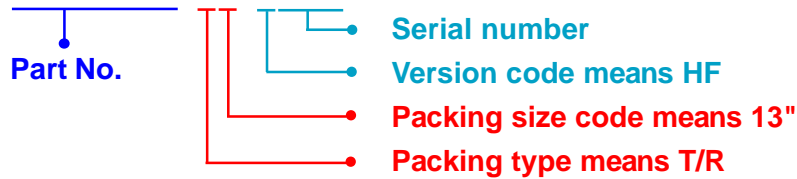
## 3KP SERIES

### Part No\_packing code\_Version

3KP5.0\_AY\_00001  
 3KP5.0\_AY\_10001  
 3KP5.0\_B0\_00001  
 3KP5.0\_B0\_10001  
 3KP5.0\_R2\_00001  
 3KP5.0\_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)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



## 3KP SERIES

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