

5000W Axial Lead Transient Voltage Suppressors - 5.0V-220V

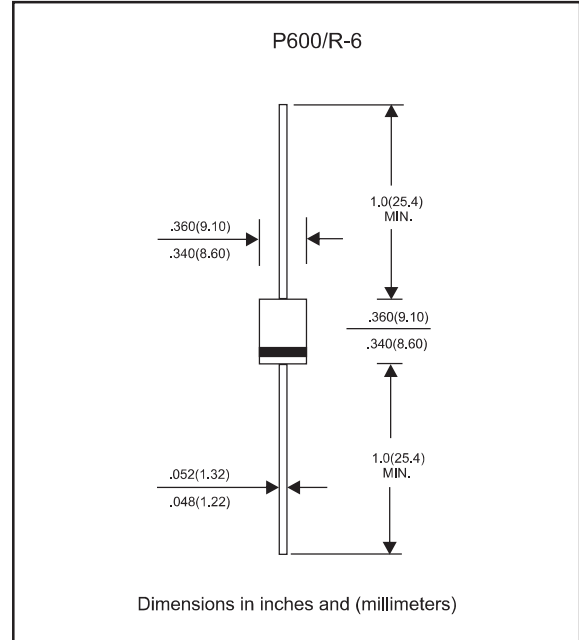
Features

- Axial lead type devices for through hole design.
- 5kW peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time from 0V to V_{BR} , typically less than 1 ps for uni-directional & 5 ns for bi-directional types.
- Glass passivated chip junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, P600/R-6
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any
- Weight : Approximated 2.10 gram

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	VALUE	UNIT
Peak power dissipation	with a 10/1000 us waveform, Note 1 & Fig. 1	P_{PPM}	5000	W
Peak pulse current	with a 10/1000 us waveform	I_{PPM}	See table 1	A
Steady state power dissipation	at $T_L=75^\circ\text{C}$ lead length 0.375" (9.5 mm)	$P_{M(AV)}$	8.0	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rated load (JEDEC Method), note 2	I_{FSM}	400	A
Maximum instantaneous forward voltage	at 100A for uni-directional types only, note 3	V_F	3.5/5.0	V
Operating junction temperature range		T_J	-55~+150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55~+150	$^\circ\text{C}$

- Note 1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2
 2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
 3. $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted) **Table 1**

Part No. (Uni)	Part No. (Bi)	Reverse Stand-off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}		Maximum Reverse Leakage Current	Marking Code	
		V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	V_c	I_{PP}	$I_{R@V_{RWM}}$	Uni	Bi
		Volts	Volts	Volts	mA	Volts	A	μA		
5KP5.0A	5KP5.0CA	5.0	6.40	7.00	50	9.2	543	5000	5KP5.0A	5KP5.0CA
5KP6.0A	5KP6.0CA	6.0	6.67	7.37	50	10.3	485	5000	5KP6.0A	5KP6.0CA
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	447	2000	5KP6.5A	5KP6.5CA
5KP7.0A	5KP7.0CA	7.0	7.78	8.60	50	12.0	417	1000	5KP7.0A	5KP7.0CA
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5.0	12.9	388	250	5KP7.5A	5KP7.5CA
5KP8.0A	5KP8.0CA	8.0	8.89	9.83	5.0	13.6	367	150	5KP8.0A	5KP8.0CA
5KP8.5A	5KP8.5CA	8.5	9.44	10.4	5.0	14.4	347	50	5KP8.5A	5KP8.5CA
5KP9.0A	5KP9.0CA	9.0	10.0	11.1	5.0	15.4	325	20	5KP9.0A	5KP9.0CA
5KP10A	5KP10CA	10.0	11.1	12.3	5.0	17.0	294	10	5KP10A	5KP10CA
5KP11A	5KP11CA	11.0	12.2	13.5	5.0	18.2	274	10	5KP11A	5KP11CA
5KP12A	5KP12CA	12.0	13.3	14.7	5.0	19.9	251	10	5KP12A	5KP12CA
5KP13A	5KP13CA	13.0	14.4	15.9	5.0	21.5	232	10	5KP13A	5KP13CA
5KP14A	5KP14CA	14.0	15.6	17.2	5.0	23.2	215	10	5KP14A	5KP14CA
5KP15A	5KP15CA	15.0	16.7	18.5	5.0	24.4	206	10	5KP15A	5KP15CA
5KP16A	5KP16CA	16.0	17.8	19.7	5.0	26.0	192	10	5KP16A	5KP16CA
5KP17A	5KP17CA	17.0	18.9	20.9	5.0	27.6	181	10	5KP17A	5KP17CA
5KP18A	5KP18CA	18.0	20.0	22.1	5.0	29.2	172	10	5KP18A	5KP18CA
5KP20A	5KP20CA	20.0	22.2	24.5	5.0	32.4	154	10	5KP20A	5KP20CA
5KP22A	5KP22CA	22.0	24.0	26.9	5.0	35.5	144	10	5KP22A	5KP22CA
5KP24A	5KP24CA	24.0	26.7	29.5	5.0	38.9	128	10	5KP24A	5KP24CA
5KP26A	5KP26CA	26.0	28.9	31.9	5.0	42.1	119	10	5KP26A	5KP26CA
5KP28A	5KP28CA	28.0	31.1	34.4	5.0	45.4	110	10	5KP28A	5KP28CA
5KP30A	5KP30CA	30.0	33.3	36.8	5.0	48.4	103	10	5KP30A	5KP30CA
5KP33A	5KP33CA	33.0	36.7	40.6	5.0	53.3	94	10	5KP33A	5KP33CA
5KP36A	5KP36CA	36.0	40.0	44.2	5.0	58.1	86	10	5KP36A	5KP36CA
5KP40A	5KP40CA	40.0	44.4	49.1	5.0	64.5	78	10	5KP40A	5KP40CA
5KP43A	5KP43CA	43.0	47.8	52.8	5.0	69.4	72	10	5KP43A	5KP43CA
5KP45A	5KP45CA	45.0	50.0	55.3	5.0	72.7	69	10	5KP45A	5KP45CA
5KP48A	5KP48CA	48.0	53.3	58.9	5.0	77.4	65	10	5KP48A	5KP48CA
5KP51A	5KP51CA	51.0	56.7	62.7	5.0	82.4	61	10	5KP51A	5KP51CA
5KP54A	5KP54CA	54.0	60.0	66.3	5.0	87.1	57	10	5KP54A	5KP54CA
5KP58A	5KP58CA	58.0	64.4	71.2	5.0	93.6	53	10	5KP58A	5KP58CA
5KP60A	5KP60CA	60.0	66.7	73.7	5.0	96.8	52	10	5KP60A	5KP60CA
5KP64A	5KP64CA	64.0	71.1	78.6	5.0	103.0	49	10	5KP64A	5KP64CA
5KP70A	5KP70CA	70.0	77.8	86.0	5.0	113.0	44	10	5KP70A	5KP70CA
5KP75A	5KP75CA	75.0	83.3	92.1	5.0	121.0	41	10	5KP75A	5KP75CA
5KP78A	5KP78CA	78.0	86.7	95.8	5.0	126.0	40	10	5KP78A	5KP78CA
5KP85A	5KP85CA	85.0	94.4	104.0	5.0	137.0	36	10	5KP85A	5KP85CA
5KP90A	5KP90CA	90.0	100.0	111.0	5.0	146.0	34	10	5KP90A	5KP90CA
5KP100A	5KP100CA	100.0	110.0	123.0	5.0	162.0	31	10	5KP100A	5KP100CA
5KP110A	5KP110CA	110.0	122.0	135.0	5.0	177.0	28	10	5KP110A	5KP110CA
5KP120A	5KP120CA	120.0	133.0	147.0	5.0	193.0	26	10	5KP120A	5KP120CA

Note 1. V_{BR} measured after I_T applied for 300us, I_T =square wave pulse or equivalent
 2. Surge current waveform per Fig. 3 and derated per Fig. 2
 3. For bi-directional types having V_{RWM} of 10 volts and less, the $I_{R@V_{RWM}}$ limit is doubled
 4. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
 5. All terms and symbols are consistent with ANS/IEEE C62.35



Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Table 1

Part No. (Uni)	Part No. (Bi)	Reverse Stand-off Voltage	Breakdown Voltage @ I_T			Test Current	Maximum Clamping Voltage @ I_{PP}		Maximum Reverse Leakage Current	Marking Code	
		V_{RWM}	$V_{BR Min}$	$V_{BR Max}$	I_T	V_C	I_{PP}	$I_R@V_{RWM}$	Uni	Bi	
		Volts	Volts	Volts	mA	Volts	A	μA			
5KP130A	5KP130CA	130	144	159	5.0	209	24	10	5KP130A	5KP130CA	
5KP150A	5KP150CA	150	167	185	5.0	243	21	10	5KP150A	5KP150CA	
5KP160A	5KP160CA	160	178	197	5.0	259	19	10	5KP160A	5KP160CA	
5KP170A	5KP170CA	170	189	209	5.0	275	18	10	5KP170A	5KP170CA	
5KP180A	5KP180CA	180	200	220	5.0	292	17	10	5KP180A	5KP180CA	
5KP190A	5KP190CA	190	211	232	5.0	310	16	10	5KP190A	5KP190CA	
5KP200A	5KP200CA	200	224	247	5.0	329	15	10	5KP200A	5KP200CA	
5KP210A	5KP210CA	210	233	258	5.0	350	15	10	5KP210A	5KP210CA	
5KP220A	5KP220CA	220	246	272	5.0	371	14	10	5KP220A	5KP220CA	

- Note 1. V_{BR} measured after I_T applied for 300 μs , I_T =square wave pulse or equivalent
 2. Surge current waveform per Fig. 3 and derated per Fig. 2
 3. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled
 4. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
 5. All terms and symbols are consistent with ANS/IEEE C62.35

Fig. A - Transients of several thousand volts can be clamped to a safe level by the TVS

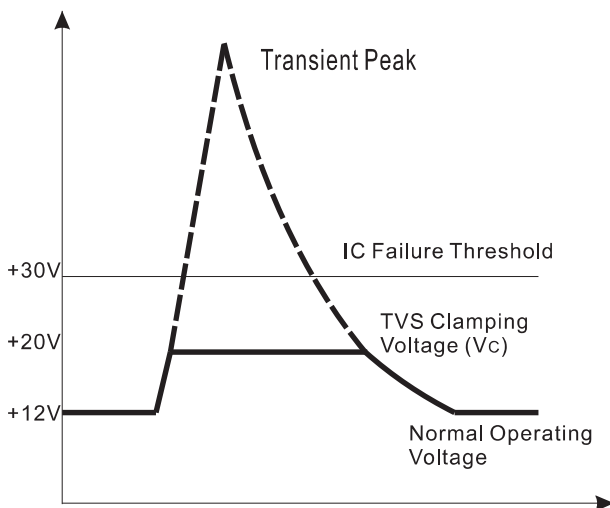
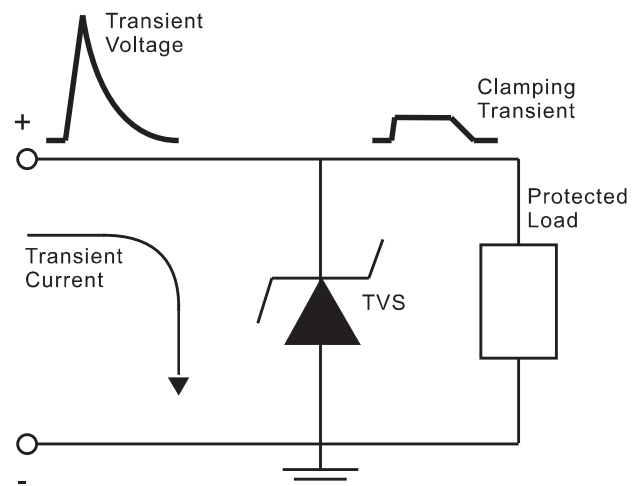
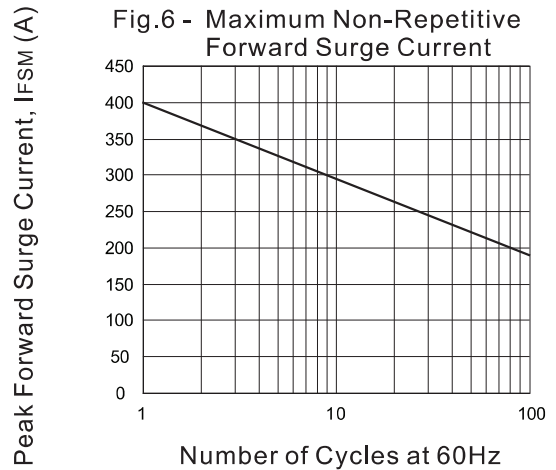
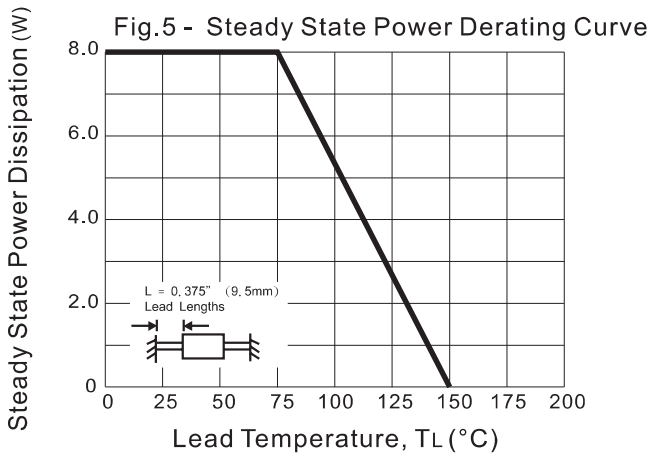
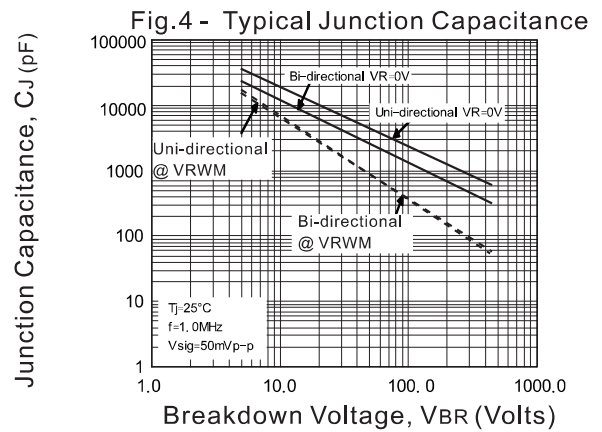
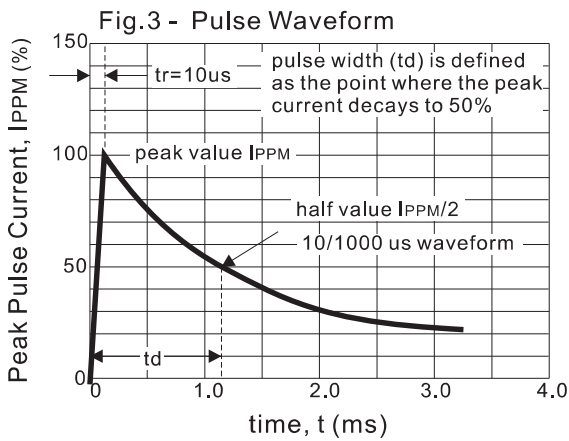
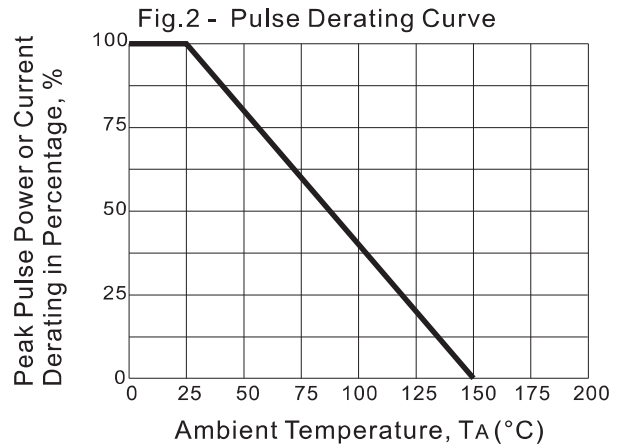
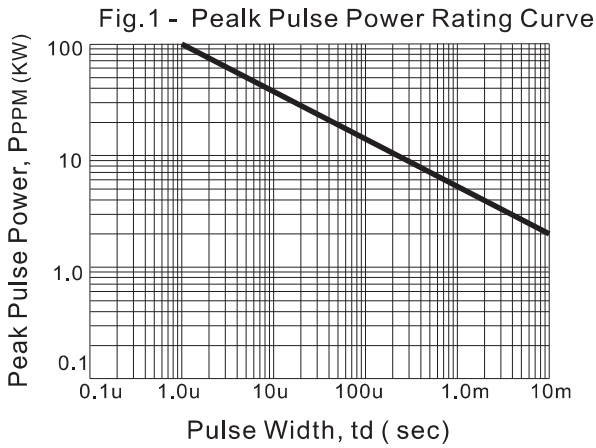






Fig. B - Transient current is diverted to ground thru TVS; the voltage seen by the protected load is limited to the clamping voltage level



Rating and characteristic curves (5KP SERIES)



Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

Taping specifications for AXIAL devices

