

5000W Axial Lead Transient Voltage Suppressors (TVS)

DESCRIPTION

The 5KP series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

- ◆Glass passivated chip junction in R-6 Package
- ◆Low leakage
- ◆Uni and Bidirectional unit
- ◆Excellent clamping capability
- ◆5000W Peak power capability at 10 x 1000us waveform
Repetition rate (duty cycle):0.01%
- ◆Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} min
- ◆Typical I_r less than 5μA above 12V.
- ◆High Temperature soldering: 260°C/40 seconds at terminals
- ◆Typical maximum temperature coefficient ($\Delta V_{BR} = 0.1\% \times V_{BR}$ @25°Cx ΔT)
- ◆Plastic package has Underwriters Laboratory Flammability 94V-0
- ◆Matte tin lead-free Plated
- ◆Halogen free and RoHS compliant
- ◆Typical failure mode is short from over-specified voltage or current
- ◆Whisker test is conducted based on JEDEC JESD201A perits table 4a and 4c
- ◆IEC-61000-4-2 ESD 15kV(Air),8kV (Contact)
- ◆ESD protection of data lines in accordance with IEC 61000-4-2(IEC801-2)
- ◆EFT protection of data lines in accordance with IEC 61000-4-4(IEC801-4)

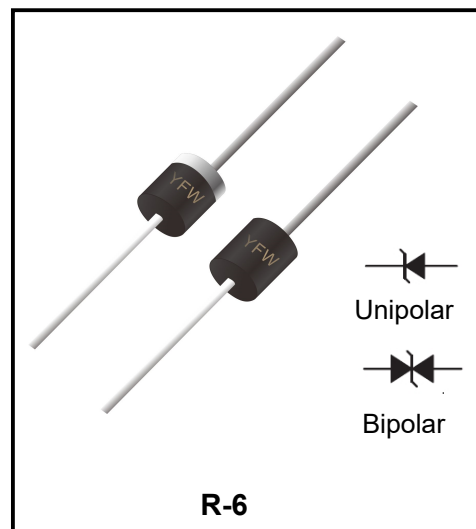
APPLICATIONS

TVS devices are ideal for the protection of I/o interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

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

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000us waveform (Fig.1)(Note1). (Note 2)	P_{PPM}	5000	W
Peak Pulse Current with a 10/1000μs waveform.(Note1, Fig.3)	I_{PPM}	See Next Table	A
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	$P_M (AV)$	8.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	500	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

Notes: 1.Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ 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. $V_F < 3.5\text{V}$ for $V_{BR} < 200\text{V}$ and $V_F < 6.5\text{V}$ for $V_{BR} > 201\text{V}$.



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

Part Number		Reverse Stand-off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP} (V)	Maximum Peak Pulse Current	Maximum Reverse Leakage @ V_{RWM}
Uni	Bi	V_{RWM} (V)	V_{BR} Min(V)	V_{BR} Max(V)	I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μA)
5KP5.0A	5KP5.0CA	5	6.4	7	50	9.2	543.48	1000
5KP6.0A	5KP6.0CA	6	6.67	7.37	50	10.3	485.44	1000
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	446.43	800
5KP7.0A	5KP7.0CA	7	7.78	8.6	50	12	416.67	500
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	387.6	500
5KP8.0A	5KP8.0CA	8	8.89	9.83	5	13.6	367.65	300
5KP8.5A	5KP8.5CA	8.5	9.44	10.4	5	14.4	347.22	300
5KP9.0A	5KP9.0CA	9	10	11.1	5	15.4	324.68	200
5KP10A	5KP10CA	10	11.1	12.3	5	17	294.12	5
5KP11A	5KP11CA	11	12.2	13.5	5	18.2	274.73	5
5KP12A	5KP12CA	12	13.3	14.7	5	19.9	251.26	5
5KP13A	5KP13CA	13	14.4	15.9	5	21.5	232.56	5
5KP14A	5KP14CA	14	15.6	17.2	5	23.2	215.52	5
5KP15A	5KP15CA	15	16.7	18.5	5	24.4	204.92	5
5KP16A	5KP16CA	16	17.8	19.7	5	26	192.31	5
5KP17A	5KP17CA	17	18.9	20.9	5	27.6	181.16	5
5KP18A	5KP18CA	18	20	22.1	5	29.2	171.23	5
5KP19A	5KP19CA	19	21.1	23.3	5	30.8	162.44	5
5KP20A	5KP20CA	20	22.2	24.5	5	32.4	154.32	5
5KP22A	5KP22CA	22	24.4	26.9	5	35.5	140.85	5
5KP24A	5KP24CA	24	26.7	29.5	5	38.9	128.53	5
5KP26A	5KP26CA	26	28.9	31.9	5	42.1	118.76	5
5KP28A	5KP28CA	28	31.1	34.4	5	45.4	110.13	5
5KP30A	5KP30CA	30	33.3	36.8	5	48.4	103.31	5
5KP33A	5KP33CA	33	36.7	40.6	5	53.3	93.81	5
5KP36A	5KP36CA	36	40	44.2	5	58.1	86.06	5
5KP40A	5KP40CA	40	44.4	49.1	5	64.5	77.52	5
5KP43A	5KP43CA	43	47.8	52.8	5	69.4	72.05	5
5KP45A	5KP45CA	45	50	55.3	5	72.7	68.78	5

Electrical Characteristics (T_A=25°C unless otherwise noted)

		Reverse Stand-Off Voltage	Breakdown Voltage @I _T		Test Current	Maximum Clamping Voltage @I _{PP} (V)	Maximum Peak Pulse Current	Maximum Reverse Leakage @V _{RWM}
Uni	Bi	V _{RWM} (V)	V _{BR} Min(V)	V _{BR} Max(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
5KP48A	5KP48CA	48	53.3	58.9	5	77.4	64.6	5
5KP51A	5KP51CA	51	56.7	62.7	5	82.4	60.68	5
5KP54A	5KP54CA	54	60	66.3	5	87.1	57.41	5
5KP58A	5KP58CA	58	64.4	71.2	5	93.6	53.42	5
5KP60A	5KP60CA	60	66.7	73.7	5	96.8	51.65	5
5KP64A	5KP64CA	64	71.1	78.6	5	103	48.54	5
5KP70A	5KP70CA	70	77.8	86	5	113	44.25	5
5KP75A	5KP75CA	75	83.3	92.1	5	121	41.32	5
5KP78A	5KP78CA	78	86.7	95.8	5	126	39.68	5
5KP80A	5KP80CA	80	88.8	97.6	5	129.6	38.58	5
5KP85A	5KP85CA	85	94.4	104	5	137	36.5	5
5KP90A	5KP90CA	90	100	111	5	146	34.25	5
5KP100A	5KP100CA	100	111	123	5	162	30.86	5
5KP110A	5KP110CA	110	122	135	5	177	28.25	5
5KP120A	5KP120CA	120	133	147	5	193	25.91	5
5KP130A	5KP130CA	130	144	159	5	209	23.92	5
5KP140A	5KP140CA	140	155	171	5	226.8	22.05	5
5KP150A	5KP150CA	150	167	185	5	243	20.58	5
5KP160A	5KP160CA	160	178	197	5	259	19.31	5
5KP170A	5KP170CA	170	189	209	5	275	18.18	5
5KP180A	5KP180CA	180	201	220	5	291.6	17.15	5
5KP190A	5KP190CA	190	211	232	5	307.8	16.24	5
5KP200A	5KP200CA	200	224	247	5	324	15.43	5
5KP210A	5KP210CA	210	233	258	5	349.5	14.31	5
5KP220A	5KP220CA	220	246	272	5	356	14.04	5
5KP250A	5KP250CA	250	279	309	5	405	12.35	5
5KP300A	5KP300CA	300	335	371	5	486	10.29	5
5KP350A	5KP350CA	350	391	432	5	567	8.82	5
5KP400A	5KP400CA	400	447	494	5	648	7.72	5
5KP440A	5KP440CA	440	492	543	5	713	7.01	5

Figure 1-Peak Pulse Power Rating Curve

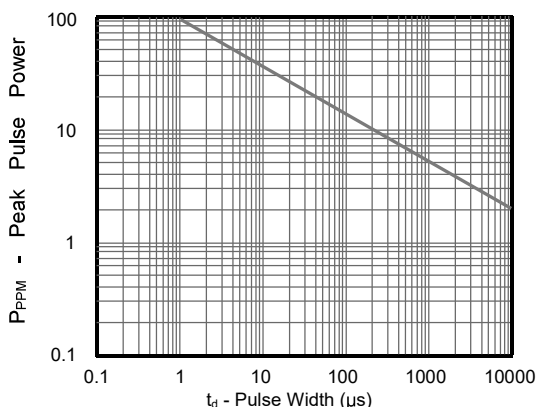


Figure 2-Pulse Derating Curve

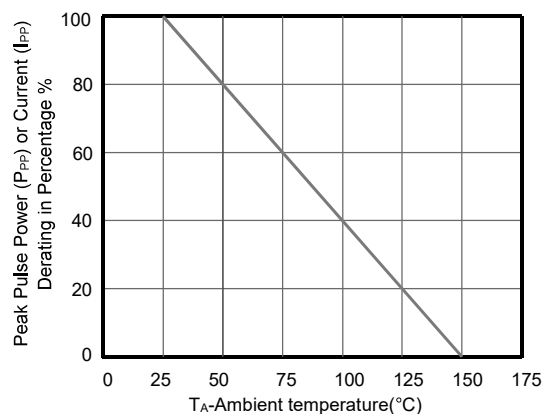


Figure 3-Pulse Waveform

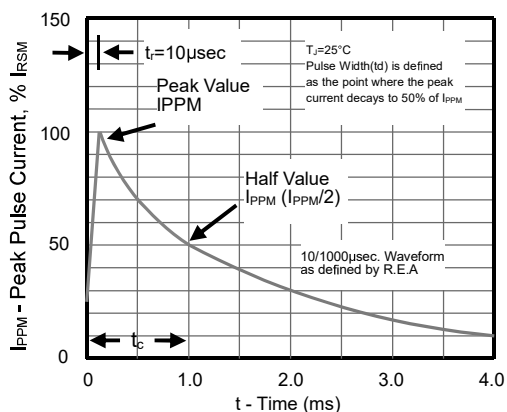


Figure 4-Typical Junction Capacitance

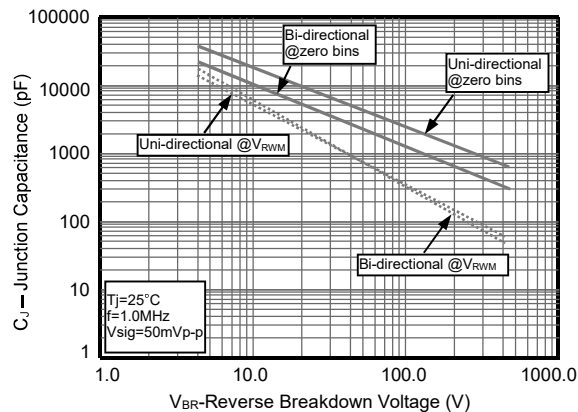


Figure 5-Steady State Power Derating Curve

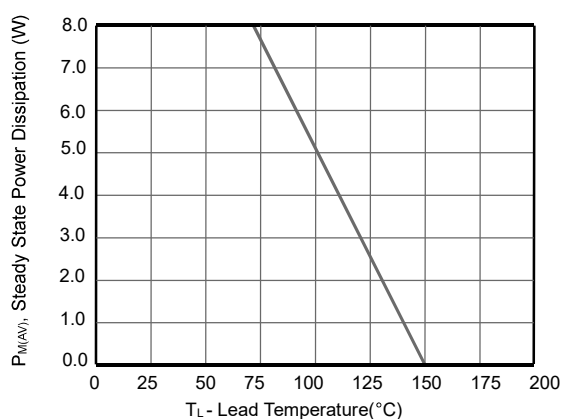
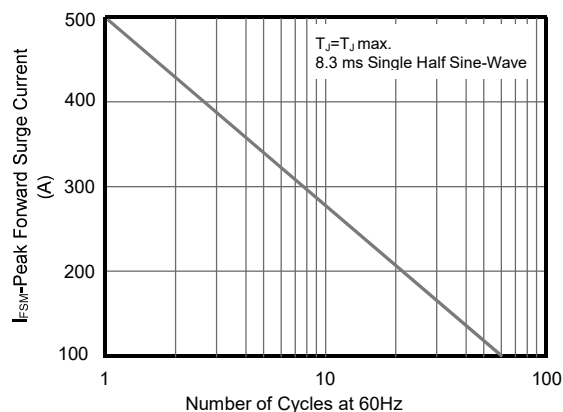


Figure 6-Maximum Non-Repetitive Surge Current



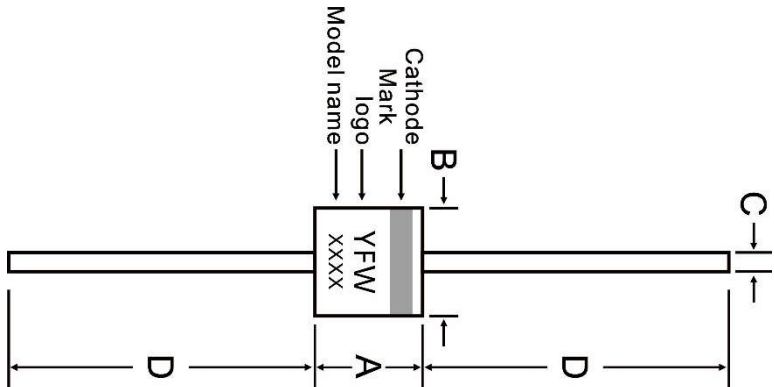
Ordering information

Package	Packing Description	Packing Quantity
R-6	bulk	100PCS/Inner Box 5000PCS/Carton
	ammo pack	500PCS/Box 5000PCS/Carton

Package Dimensions

R-6

Dim.	Millimeter(mm)		INCHES	
	Min.	Max.	Min.	Max.
A	8.60	9.10	0.340	0.360
B	8.60	9.10	0.340	0.360
C	1.20	1.30	0.048	0.052
D	25.40	-	1.00	-



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