Elektronische Bauelemente

5KP SERIES

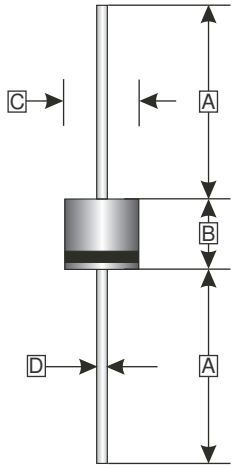
Voltage 5V~190V
5000W Peak Power TVS

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

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

R-6



REF.	Millimeter	
	Min.	Max.
A	25.4 REF	
B	8.6	9.1
C	8.6	9.1
D	1.2	1.3

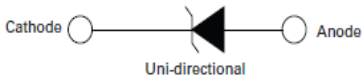
FEATURES

- V_{BR} @T_J = V_{BR}@25℃ x (1+ αT x (T_J - 25))
  (αT:Temperature Coefficient)
- Glass passivated chip junction in P600 package
- 5000W peak pulse capability at 10/1000μs waveform, repetition rate (duty cycles): 0.01%
- Excellent clamping capability
- Typical failure mode is short from over-specified voltage or current
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Whisker test is conducted based on JEDEC JESD201A per its 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)
- Low incremental surge resistance
- Typical I_R less than 2μA above 12V
- High temperature soldering guaranteed: 260℃/40 se conds / 0.375", (9.5mm) lead length, 5 lbs., (2.3kg) tension
- Plastic package has underwriters laboratory flammability classification 94V-O
- Matte tin lead–free plated
- 2nd level interconnect is Pb-free per IPC/JEDEC J-STD-609A.01

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.

Functional Diagram



ORDER INFORMATION

Part Number	Type
5KP SERIES	Lead (Pb)-free
5KP SERIES-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Peak Power Dissipation with a 10/1000μs waveform	P_{PP}	5000	W
Power Dissipation on infinite heatsink @T_L=75℃	P_D	8	W
Peak forward Surge Current @8.3ms single half sine-wave unidirectional only [1]	I_{FSM}	500	A
Operating and Storage Temperature Range	T_J, T_{STG}	-55~150	℃

Note:
1. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

ELECTRICAL CHARACTERISTIC (T_A=25℃ unless otherwise noted)

Part Number		Reverse Standoff Voltage	Breakdown Voltage @I_T		Test Current	Max. Clamping Voltage V_C @I_{PP}	Peak Pulse Current	Reverse Leakage I_R @V_{RRM}
			Min.	Max.				
Directional		V_R	V_{BR}	V_{BR}	I_T	V_C	I_{PP}	I_R
Uni	Bi	V	V	V	mA	V	A	uA
5KP5.0A	5KP5.0CA	5	6.4	7	50	9.2	543.48	5000
5KP6.0A	5KP6.0CA	6	6.67	7.37	50	10.3	485.44	5000
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	446.43	2000
5KP7.0A	5KP7.0CA	7	7.78	8.6	50	12	416.67	1000
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	387.6	250
5KP8.0A	5KP8.0CA	8	8.89	9.83	5	13.6	367.65	150
5KP8.5A	5KP8.5CA	8.5	9.44	10.4	5	14.4	347.22	50
5KP9.0A	5KP9.0CA	9	10	11.1	5	15.4	324.68	20
5KP10A	5KP10CA	10	11.1	12.3	5	17	294.12	15
5KP11A	5KP11CA	11	12.2	13.5	5	18.2	274.73	2
5KP12A	5KP12CA	12	13.3	14.7	5	19.9	251.26	2
5KP13A	5KP13CA	13	14.4	15.9	5	21.5	232.56	2
5KP14A	5KP14CA	14	15.6	17.2	5	23.2	215.52	2
5KP15A	5KP15CA	15	16.7	18.5	5	24.4	204.92	2
5KP16A	5KP16CA	16	17.8	19.7	5	26	192.31	2
5KP17A	5KP17CA	17	18.9	20.9	5	27.6	181.16	2
5KP18A	5KP18CA	18	20	22.1	5	29.2	171.23	2
5KP19A	5KP19CA	19	21.1	23.3	5	30.8	162.44	2
5KP20A	5KP20CA	20	22.2	24.5	5	32.4	154.32	2
5KP22A	5KP22CA	22	24.4	26.9	5	35.5	140.85	2
5KP24A	5KP24CA	24	26.7	29.5	5	38.9	128.53	2
5KP26A	5KP26CA	26	28.9	31.9	5	42.1	118.76	2
5KP28A	5KP28CA	28	31.1	34.4	5	45.4	110.13	2
5KP30A	5KP30CA	30	33.3	36.8	5	48.4	103.31	2
5KP33A	5KP33CA	33	36.7	40.6	5	53.3	93.81	2
5KP36A	5KP36CA	36	40	44.2	5	58.1	86.06	2
5KP40A	5KP40CA	40	44.4	49.1	5	64.5	77.52	2
5KP43A	5KP43CA	43	47.8	52.8	5	69.4	72.05	2
5KP45A	5KP45CA	45	50	55.3	5	72.7	68.78	2
5KP48A	5KP48CA	48	53.3	58.9	5	77.4	64.6	2
5KP51A	5KP51CA	51	56.7	62.7	5	82.4	60.68	2
5KP54A	5KP54CA	54	60	66.3	5	87.1	57.41	2

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Part Number		Reverse Standoff Voltage	Breakdown Voltage @I_T		Test Current	Max. Clamping Voltage V_C @I_{PP}	Peak Pulse Current	Reverse Leakage I_R @V_{RRM}
			Min.	Max.				
Directional		V_R	V_{BR}	V_{BR}	I_T	V_C	I_{PP}	I_R
Uni	Bi	V	V	V	mA	V	A	uA
5KP58A	5KP58CA	58	64.4	71.2	5	93.6	53.42	2
5KP60A	5KP60CA	60	66.7	73.7	5	96.8	51.65	2
5KP64A	5KP64CA	64	71.1	78.6	5	103	48.54	2
5KP70A	5KP70CA	70	77.8	86	5	113	44.25	2
5KP75A	5KP75CA	75	83.3	92.1	5	121	41.32	2
5KP78A	5KP78CA	78	86.7	95.8	5	126	39.68	2
5KP80A	5KP80CA	80	88.8	97.6	5	129.6	38.58	2
5KP85A	5KP85CA	85	94.4	104	5	137	36.5	2
5KP90A	5KP90CA	90	100	111	5	146	34.25	2
5KP100A	5KP100CA	100	111	123	5	162	30.86	2
5KP110A	5KP110CA	110	122	135	5	177	28.25	2
5KP120A	5KP120CA	120	133	147	5	193	25.91	2
5KP130A	5KP130CA	130	144	159	5	209	23.92	2
5KP140A	5KP140CA	140	155	171	5	226.8	22.05	2
5KP150A	5KP150CA	150	167	185	5	243	20.58	2
5KP160A	5KP160CA	160	178	197	5	259	19.31	2
5KP170A	5KP170CA	170	189	209	5	275	18.18	2
5KP180A	5KP180CA	180	200	220	5	291.6	17.15	2
5KP190A	5KP190CA	190	211	232	5	307.8	16.24	2

Notes:

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

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TYPICAL CHARACTERISTICS

Fig. 1 - Pulse Derating Curve

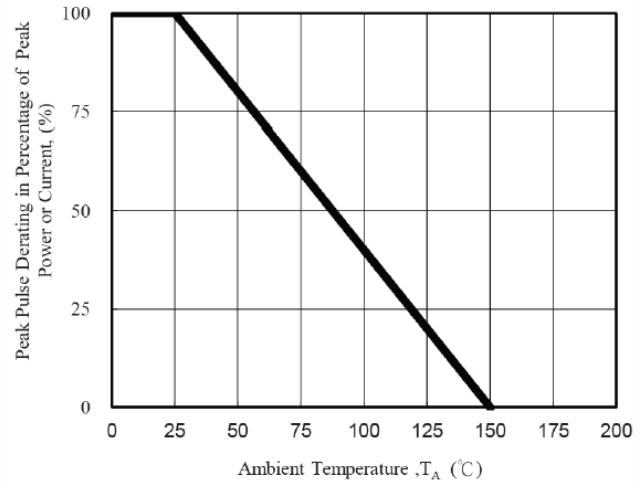

Fig. 2 - Maximum Non-Repetitive Surge Current

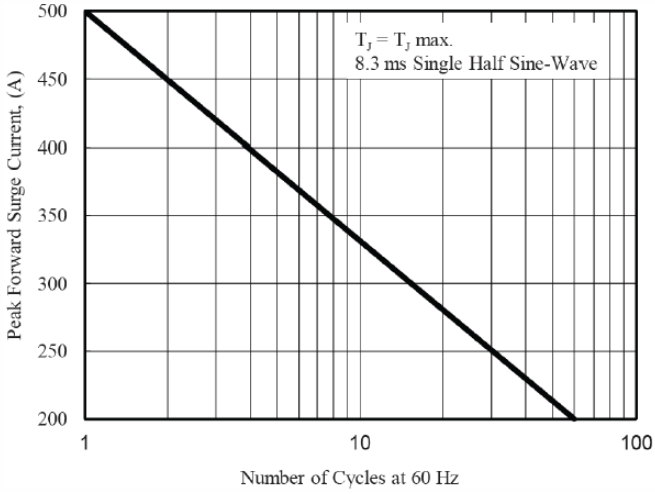

Fig. 3 - Steady State Power Derating Curve

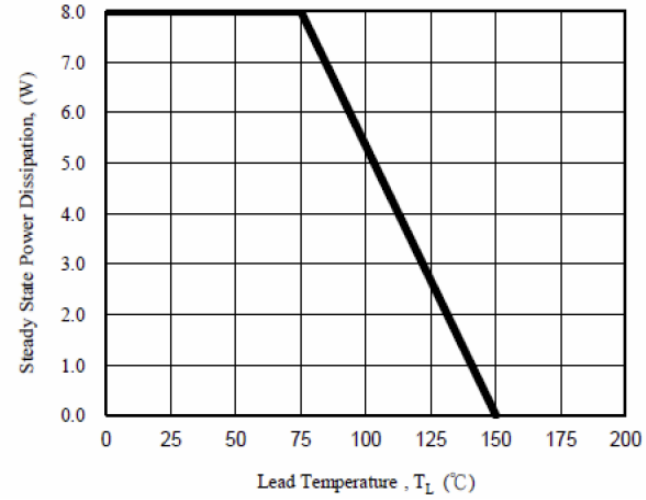

Fig. 4 - Peak Pulse Power Rating Curve

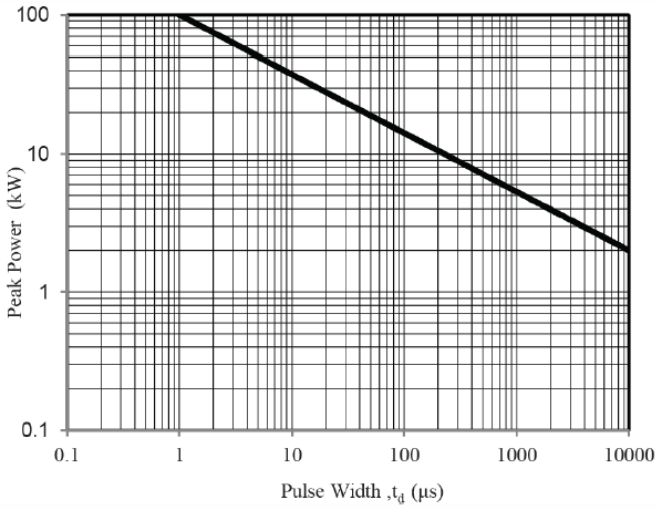

Fig. 5 - Pulse Waveform

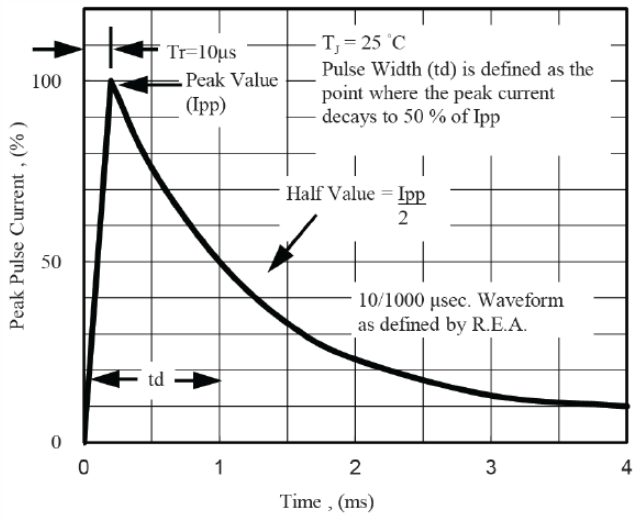

Fig. 6 - Typical juncition Capacitance