

5KP Transient Voltage Suppressor Diode Series

General Information

The 5KP series is designed to protect voltage sensitive components from high voltage, high energy transients. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. The 5KP series is supplied in YINT Semiconductor's exclusive, cost-effective, highly reliable and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer Applications.



Features

- P600 glass passivated chip junction
- Plastic package
- Polarity: Color band denoted positive end (cathode) except Bidirectional.
- 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.
- High Temperature soldering: 260°C/10 seconds at terminals.
- Solder dip 275 °C max. 10 s, per JESD 22-B106

Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive, and telecommunication.

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 μ s waveform	P_{PK}	5000	Watts
Peak pulse current with a 10/1000 μ s waveform	I_{FSM}	See next table	Amps
Power dissipation on infinite heat sink at $T_L = 75^\circ\text{C}$	P_D	8	Watts
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	400	Amps
Instantaneous forward voltage at 100 A for Unidirectional only	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

Notes :

(1) Non-repetitive current pulse, per fig. 6 and derated above $T_A = 25^\circ\text{C}$ per fig. 2

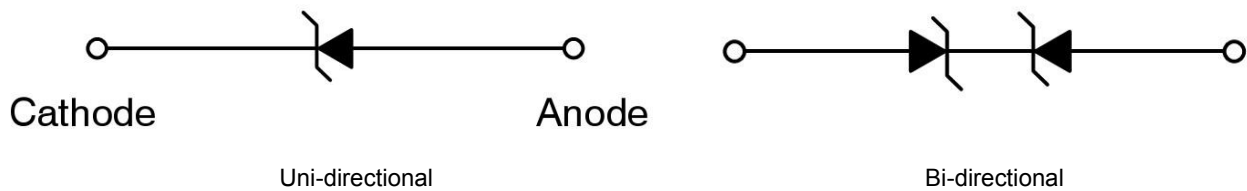
(2) Measured 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

Electrical Characteristics

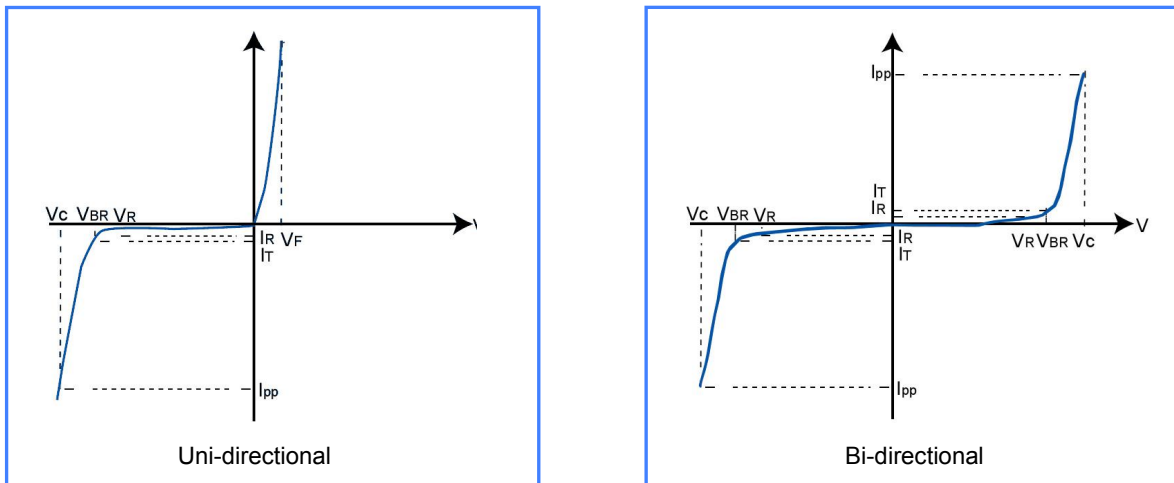
Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@ I_T		Test Current I_T (mA)	Maximum Reverse Leakage I_R @ V_R (μ A)	Maximum Peak Pulse Current I_{pp} (A)	Maximum Clamping Voltage V_C @ I_{pp} (V)
			Min .V	Max .V				
5KP5.0CA	5KP5.0A	5.00	6.40	7.00	50	5000	554.3	9.2
5KP6.0CA	5KP6.0A	6.00	6.67	7.37	50	5000	495.1	10.3
5KP6.5CA	5KP6.5A	6.50	7.22	7.98	50	2000	455.4	11.2
5KP7.0CA	5KP7.0A	7.00	7.78	8.60	50	1000	425.0	12.0
5KP7.5CA	5KP7.5A	7.50	8.33	9.21	5	250	395.3	12.9
5KP8.0CA	5KP8.0A	8.00	8.99	10.23	5	150	375.0	13.6
5KP8.5CA	5KP8.5A	8.50	9.44	10.40	5	500	354.2	14.4
5KP9.0CA	5KP9.0A	9.00	10.00	11.1.	5	20	331.2	15.4
5KP10CA	5KP10A	10.0	11.10	12.30	5	15	300.0	17.0
5KP11CA	5KP11A	11.0	12.20	13.50	5	2	280.2	18.2
5KP12CA	5KP12A	12.0	13.30	14.70	5	2	256.3	19.9
5KP13CA	5KP13A	13.0	14.40	15.90	5	2	237.2	21.5
5KP14CA	5KP14A	14.0	15.60	17.20	5	2	219.8	23.2
5KP15CA	5KP15A	15.0	16.70	18.50	5	2	209.0	24.4
5KP16CA	5KP16A	16.0	17.80	19.70	5	2	196.2	26.0
5KP17CA	5KP17A	17.0	18.90	20.90	5	2	184.8	27.6
5KP18CA	5KP18A	18.0	20.00	22.10	5	2	174.7	29.2
5KP20CA	5KP20A	20.0	22.20	24.50	5	2	157.4	32.4
5KP22CA	5KP22A	22.0	24.40	26.90	5	2	143.7	35.5
5KP24CA	5KP24A	24.0	26.70	29.50	5	2	131.1	38.9
5KP26CA	5KP26A	26.0	28.90	31.90	5	2	121.1	42.1
5KP28CA	5KP28A	28.0	31.10	34.40	5	2	112.3	45.4
5KP30CA	5KP30A	30.0	33.30	36.80	5	2	105.4	48.4
5KP33CA	5KP33A	33.0	36.70	40.60	5	2	95.7	56.3
5KP36CA	5KP36A	36.0	40.00	44.20	5	2	87.8	58.1
5KP40CA	5KP40A	40.0	44.40	49.10	5	2	79.1	64.5
5KP43CA	5KP43A	43.0	47.80	52.80	5	2	73.5	69.4
5KP45CA	5KP45A	45.0	50.00	55.30	5	2	70.2	72.7
5KP48CA	5KP48A	48.0	53.30	58.90	5	2	65.9	77.4
5KP51CA	5KP51A	51.0	56.70	62.70	5	2	61.9	82.4
5KP54CA	5KP54 A	54.0	60.00	66.30	5	2	58.6	87.1
5KP58CA	5KP58A	58.0	64.40	71.20	5	2	54.5	93.6
5KP60CA	5KP60A	60.0	66.70	73.70	5	2	52.7	96.8
5KP64CA	5KP64A	64.0	71.10	78.60	5	2	49.5	103.0
5KP70CA	5KP70A	70.0	77.80	86.00	5	2	45.1	113.0
5KP75CA	5KP75A	75.0	83.30	92.10	5	2	42.1	121.0
5KP78CA	5KP78A	78.0	86.70	95.80	5	2	40.5	126.0
5KP85CA	5KP85A	85.0	94.40	104.00	5	2	37.2	137.0
5KP90CA	5KP90A	90.0	100.00	111.00	5	2	34.9	146.0

5KP100CA	5KP100A	100.0	111.00	123.00	5	2	31.5	162.0
5KP110CA	5KP110A	110.0	122.00	135.00	5	2	28.8	177.0
5KP120CA	5KP120A	120.0	133.00	147.00	5	2	26.4	193.0
5KP130CA	5KP130A	130.0	144.00	159.00	5	2	24.4	209.0
5KP150CA	5KP150A	150.0	167.00	185.00	5	2	21.0	243.0
5KP160CA	5KP160A	160.0	178.00	197.00	5	2	19.7	259.0
5KP170CA	5KP170A	170.0	189.00	209.00	5	2	18.5	275.0
5KP180CA	5KP180A	180.0	200.00	221.00	5	2	17.5	289.0
5KP190CA	5KP190A	190.0	211.00	233.00	5	2	16.5	310.0
5KP200CA	5KP200A	200.0	222.00	246.00	5	2	15.5	329.2
5KP210CA	5KP210A	210.0	233.00	258.00	5	2	14.6	349.5
5KP220CA	5KP220A	220.0	244.00	270.00	5	2	13.7	371.1
5KP250CA	5KP250A	250.0	277.00	306.00	5	2	12.0	425.0

Functional Diagram



I-V Curve Characteristics



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

Rating & Characteristic Curves

Figure 1 - Peak Pulse Power Rating Curve

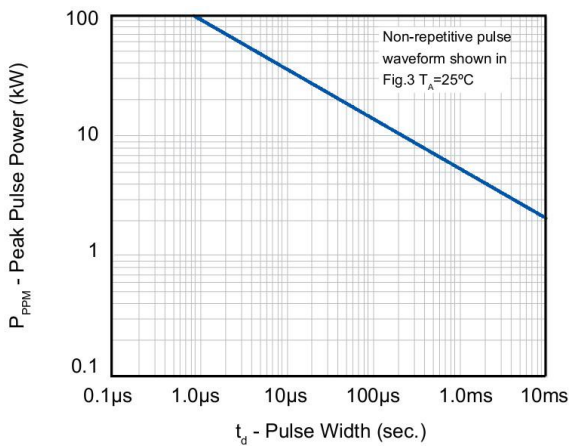


Figure 2 - Pulse Derating Curve

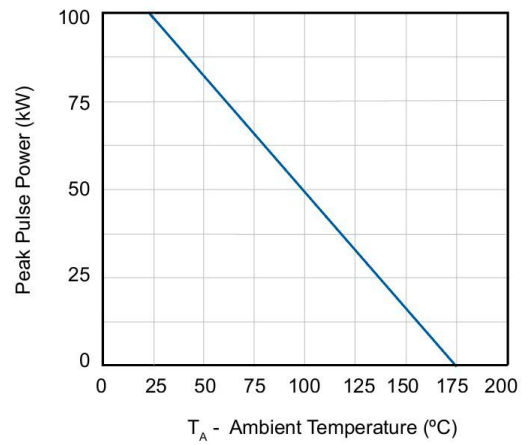


Figure 3 - Pulse Waveform

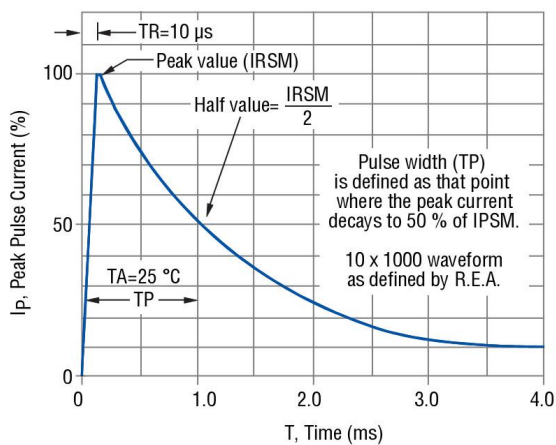


Figure 4 - Typical Junction Capacitance

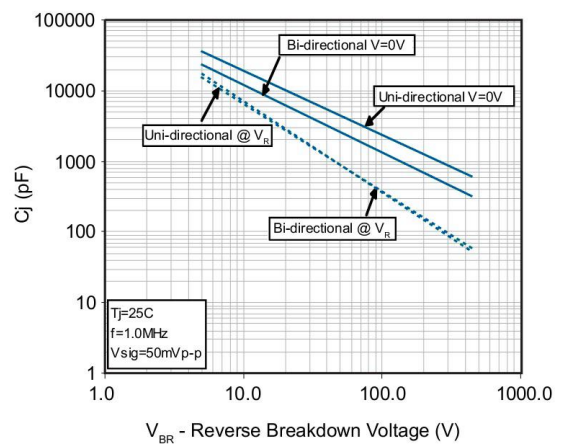


Figure 5 - Pulse Derating Curve

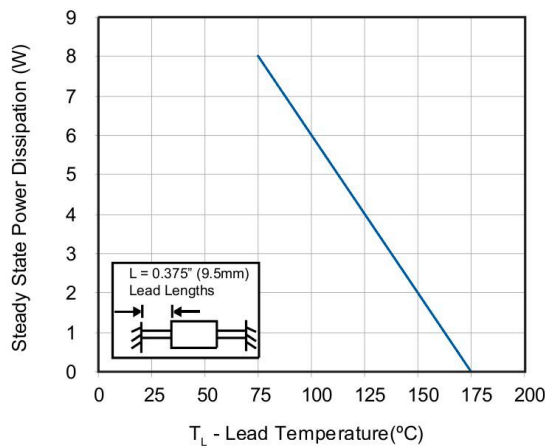
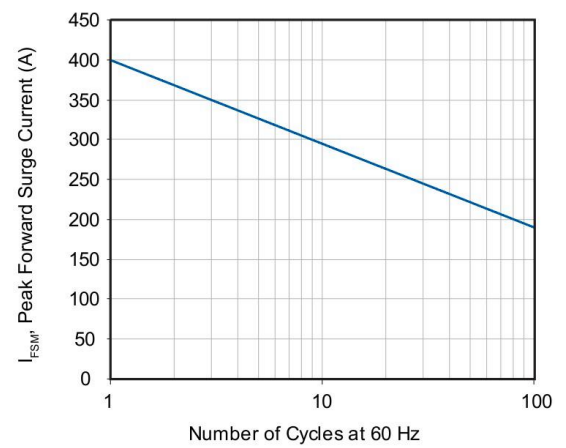
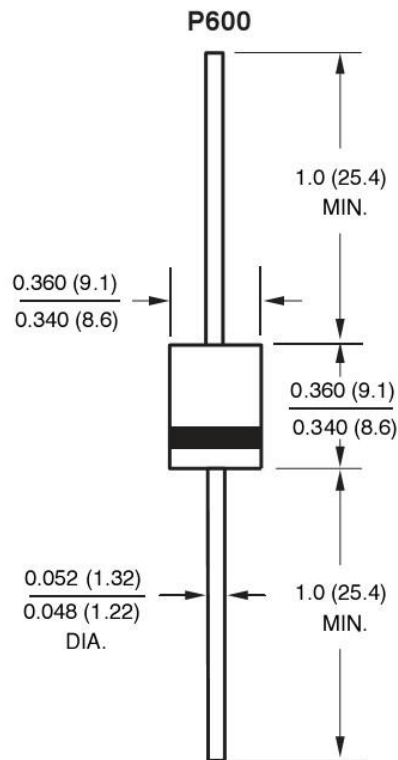


Figure 6 - Maximum Non-Repetitive Surge Current



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.