5KP –H Transient Voltage Suppressor Diode Series

General Information

The 5KP-H 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-H 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

- Meets ISO7637-2 surge specification
- 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, especially for automotive load dump protection application.

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 μs waveform	P_{PK}	5000	Watts
Peak pulse current with a 10/1000 μs waveform	I_{FSM}	See next table	Amps
Power dissipation on infinite heat sink at T_L= 75 ° 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	° C

Notes :

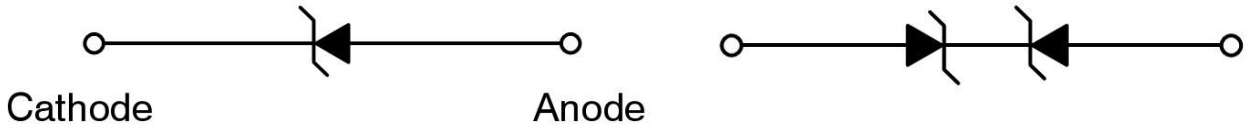
(1)Non-repetitive current pulse, per fig. 6 and derated above T_A = 25 ° C per fig. 2

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

Electrical Characteristics

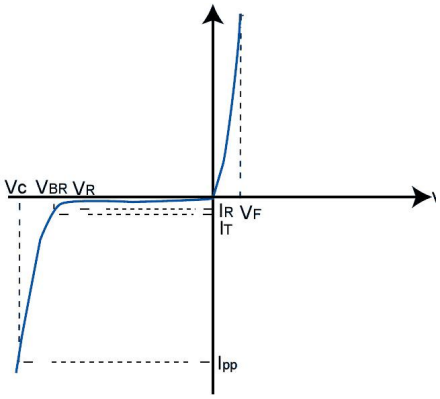
Part Number (Bi)	Part Number (Uni)	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μ A)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C@ I $_{PP}$(V)
			Min .V	Max .V				
5KP5.0CA-H	5KP5.0A-H	5.00	6.40	7.00	50	5000	554.3	9.2
5KP6.0CA-H	5KP6.0A-H	6.00	6.67	7.37	50	5000	495.1	10.3
5KP8.0CA-H	5KP8.0A-H	8.00	8.99	10.23	5	150	375.0	13.6
5KP10CA-H	5KP10A-H	10.0	11.10	12.80	5	15	354.2	17.0
5KP11CA-H	5KP11A-H	11.0	12.20	13.50	5	2	280.2	18.2
5KP12CA-H	5 KP12A-H	12.0	13.30	14.70	5	2	256.3	19.9
5KP15CA-H	5KP15A-H	15.0	16.70	18.50	5	2	209.0	24.4
5KP16CA-H	5KP16A-H	16.0	17.80	19.70	5	2	196.2	26.0
5KP18CA-H	5KP18A-H	18.0	20.00	22.10	5	2	174.7	29.2
5KP20CA-H	5KP20A-H	20.0	22.20	24.50	5	2	157.4	32.4
5KP22CA-H	5KP22A-H	22.0	24.40	26.90	5	2	143.7	35.5
5KP24CA-H	5KP24A-H	24.0	26.70	29.50	5	2	131.1	38.9
5KP26CA-H	5KP26A-H	26.0	28.90	31.90	5	2	121.1	42.1
5KP28CA-H	5KP28A-H	28.0	31.10	34.40	5	2	112.3	45.4
5KP30CA-H	5KP30A-H	30.0	33.30	36.80	5	2	105.4	48.4
5KP33CA-H	5KP33A-H	33.0	36.70	40.60	5	2	95.7	56.3
5KP36CA-H	5KP36A-H	36.0	40.00	44.20	5	2	87.7	58.1
5KP40CA-H	5KP40A-H	40.0	44.40	49.10	5	2	79.1	64.5
5KP43CA-H	5KP43A-H	43.0	47.80	52.80	5	2	73.5	69.4
5KP48CA-H	5KP48A-H	48.0	53.30	58.90	5	2	65.9	77.4
5KP51CA-H	5KP51A-H	51.0	56.70	62.70	5	2	61.9	82.4
5KP54 CA-H	5KP54 A-H	54.0	60.00	66.30	5	2	58.6	87.1
5KP60CA-H	5KP60A-H	60.0	66.70	73.70	5	2	52.7	96.8
5KP64CA-H	5KP64A-H	64.0	71.10	78.60	5	2	49.5	103.0
5KP70CA-H	5KP70A-H	70.0	77.80	86.00	5	2	45.1	113.0
5KP75CA-H	5KP75A-H	75.0	83.30	92.10	5	2	42.1	121.0
5KP90CA-H	5KP90A-H	90.0	100.00	111.00	5	2	34.9	146.0
5KP100CA-H	5KP100A-H	100.0	111.00	123.00	5	2	31.5	162.0
5KP120CA-H	5KP120A-H	120.0	133.00	147.00	5	2	26.4	193.0
5KP130CA-H	5KP130A-H	130.0	144.00	159.00	5	2	24.2	209.0
5KP150CA-H	5KP150A-H	150.0	167.00	185.00	5	2	21.0	243.0
5KP160CA-H	5KP160A-H	160.0	178.00	197.00	5	2	19.7	259.0
5KP180CA-H	5KP180A-H	180.0	200.00	221.00	5	2	17.5	292.0
5KP200CA-H	5KP200A-H	200.0	222.00	246.00	5	2	15.5	329.2
5KP220CA-H	5KP220A-H	220.0	244.00	270.00	5	2	13.7	371.1

Functional Diagram

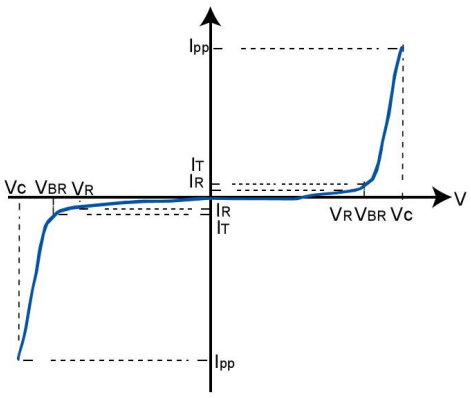


Uni-directional　　Bi-directional

I-V Curve Characteristics



Uni-directional



Bi-directional

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

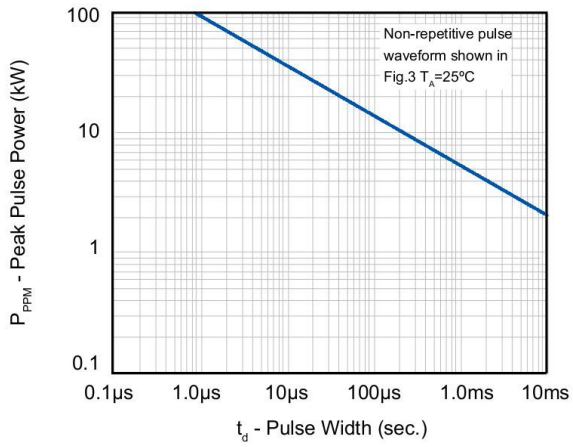


Figure 2 - Pulse Derating Curve

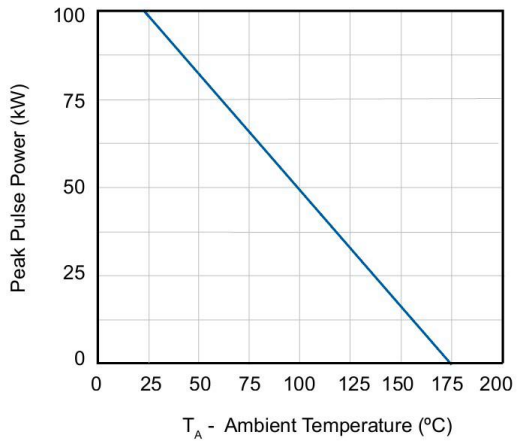


Figure 3 - Pulse Waveform

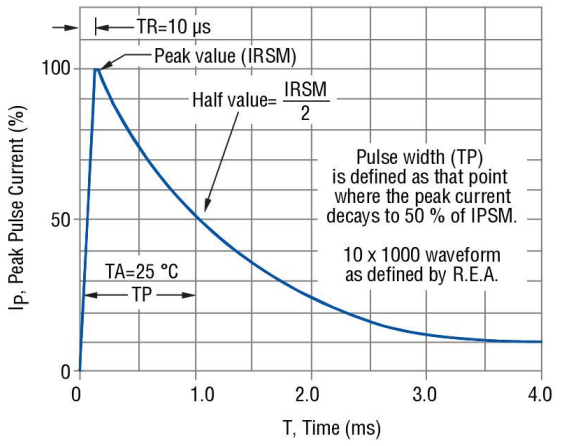


Figure 4 - Typical Junction Capacitance

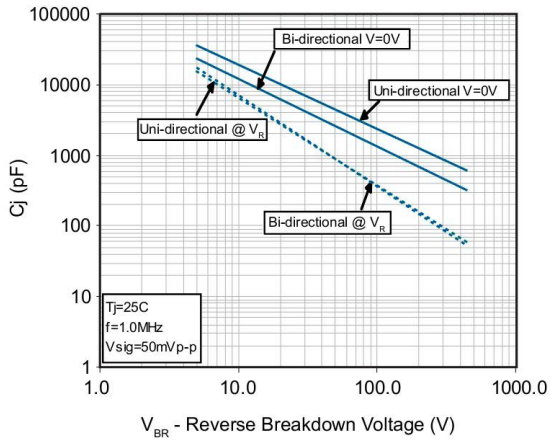


Figure 5 - Pulse Derating Curve

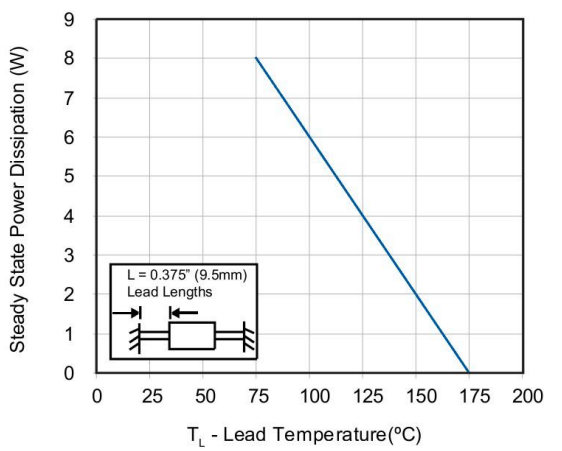
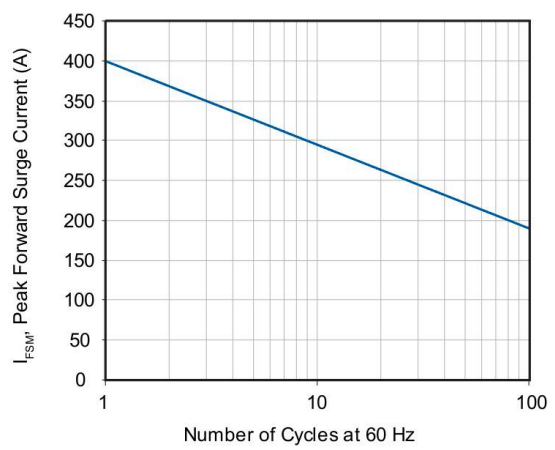
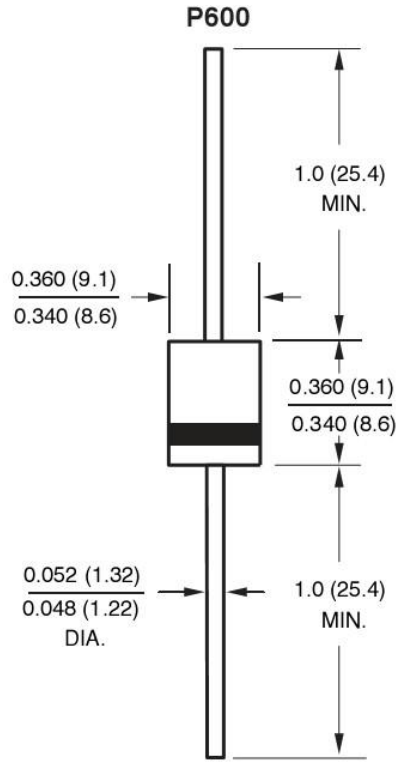


Figure 6 - Maximum Non-Repetitive Surge Current



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.