

## 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 $\mu$ s waveform	P <sub>PK</sub>	5000	Watts
Peak pulse current with a 10/1000 $\mu$ s waveform	I <sub>FSM</sub>	See next table	Amps
Power dissipation on infinite heat sink at T <sub>L</sub> = 75 ° C	P <sub>D</sub>	8	Watts
Peak forward surge current 8.3 ms single half sine-wave	I <sub>FSM</sub>	400	Amps
Instantaneous forward voltage at 100 A for Unidirectional only	V <sub>F</sub>	3.5	V
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	° C

Notes :

(1) Non-repetitive current pulse, per fig. 6 and derated above T<sub>A</sub> = 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 $I_R$ @ $V_R$ ( $\mu$ 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



Rating & Characteristic Curves

Figure 1 - Peak Pulse Power Rating Curve

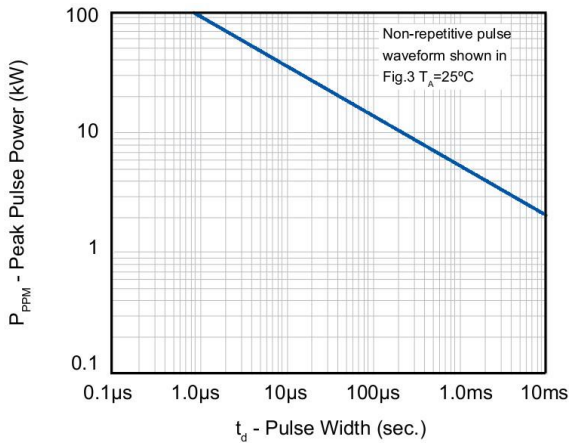


Figure 2 - Pulse Derating Curve

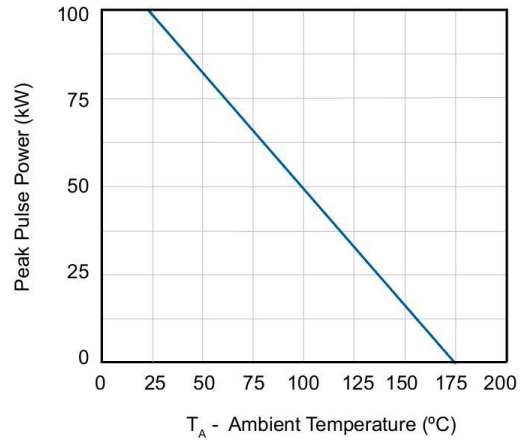


Figure 3 - Pulse Waveform

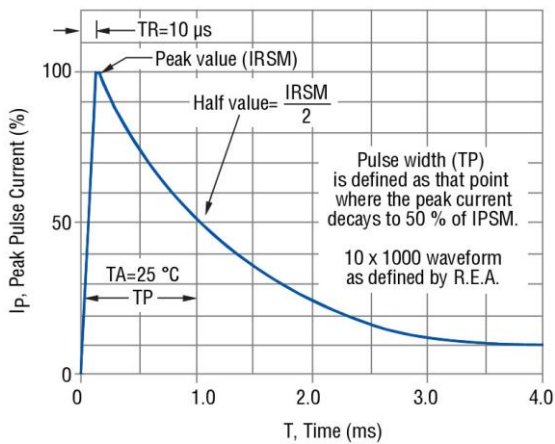


Figure 4 - Typical Junction Capacitance

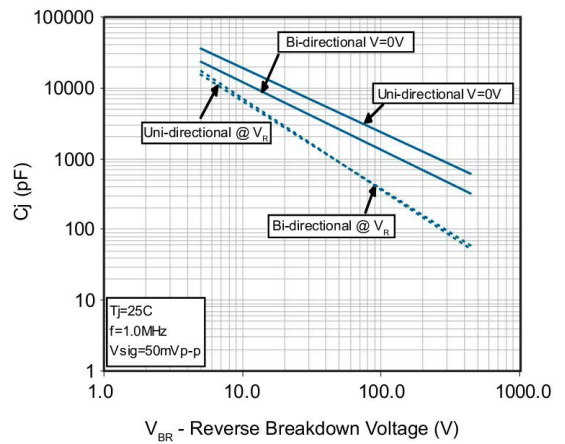


Figure 5 - Pulse Derating Curve

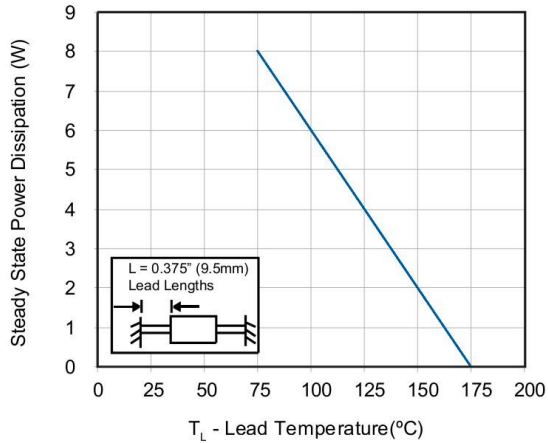
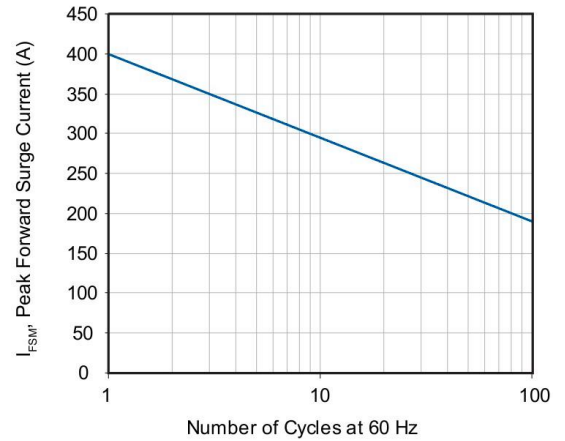
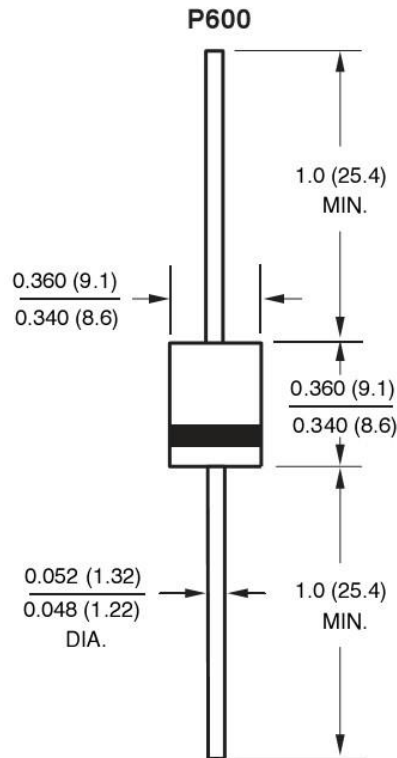


Figure 6 - Maximum Non-Repetitive Surge Current





**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.