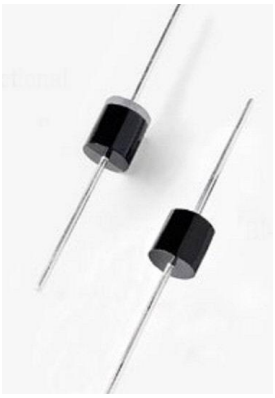
3KP Transient Voltage Suppressor Diode Series

General Information

The 3KP 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 3KP 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.

Electrical Characteristics (@ TA = 25° C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 μs waveform	P_{PK}	3000	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	7	Watts
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	300	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

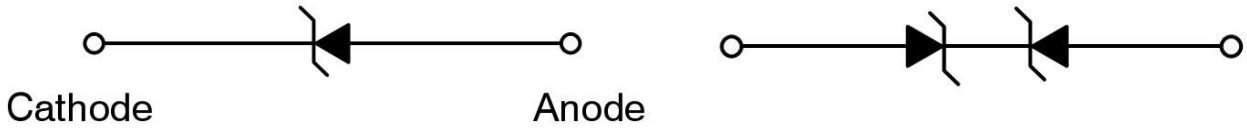
(2)Measured 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

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(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C @ I_{pp}(V)
			Min .V	Max .V				
3KP5.0CA	3KP5.0A	5.00	6.40	7.00	50	800	326.1	9.2
3KP6.0CA	3KP6.0A	6.00	6.67	7.37	50	800	291.3	10.3
3KP6.5CA	3KP6.5A	6.50	7.22	7.98	50	500	267.9	11.2
3KP7.0CA	3KP7.0A	7.00	7.78	8.60	50	200	250.0	12.0
3KP7.5CA	3KP7.5A	7.50	8.33	9.21	5	100	232.6	12.9
3KP8.0CA	3KP8.0A	8.00	8.99	10.23	5	50	220.6	13.6
3KP8.5CA	3KP8.5A	8.50	9.44	10.40	5	20	208.3	14.4
3KP9.0CA	3KP9.0A	9.00	10.00	11.1.	5	10	194.8	15.4
3KP10CA	3KP10A	10.0	11.10	12.30	5	5	176.5	17.0
3KP11CA	3KP11A	11.0	12.20	13.50	5	2	164.8	18.2
3KP12CA	3KP12A	12.0	13.30	14.70	5	2	150.8	19.9
3KP13CA	3KP13A	13.0	14.40	15.90	5	2	139.5	21.5
3KP14CA	3KP14A	14.0	15.60	17.20	5	2	129.3	23.2
3KP15CA	3KP15A	15.0	16.70	18.50	5	2	123.0	24.4
3KP16CA	3KP16A	16.0	17.80	19.70	5	2	115.4	26.0
3KP17CA	3KP17A	17.0	18.90	20.90	5	2	108.7	27.6
3KP18CA	3KP18A	18.0	20.00	22.10	5	2	102.7	29.2
3KP20CA	3KP20A	20.0	22.20	24.50	5	2	92.6	32.4
3KP22CA	3KP22A	22.0	24.40	26.90	5	2	84.5	35.5
3KP24CA	3KP24A	24.0	26.70	29.50	5	2	77.1	38.9
3KP26CA	3KP26A	26.0	28.90	31.90	5	2	71.3	42.1
3KP28CA	3KP28A	28.0	31.10	34.40	5	2	66.1	45.4
3KP30CA	3KP30A	30.0	33.30	36.80	5	2	62.0	48.4
3KP33CA	3KP33A	33.0	36.70	40.60	5	2	53.3	56.3
3KP36CA	3KP36A	36.0	40.00	44.20	5	2	51.6	58.1
3KP40CA	3KP40A	40.0	44.40	49.10	5	2	46.5	64.5
3KP43CA	3KP43A	43.0	47.80	52.80	5	2	43.2	69.4
3KP45CA	3KP45A	45.0	50.00	55.30	5	2	41.3	72.7
3KP48CA	3KP48A	48.0	53.30	58.90	5	2	38.8	77.4
3KP51CA	3KP51A	51.0	56.70	62.70	5	2	36.4	82.4
3KP54CA	3KP54 A	54.0	60.00	66.30	5	2	34.4	87.1
3KP58CA	3KP58A	58.0	64.40	71.20	5	2	32.1	93.6
3KP60CA	3KP60A	60.0	66.70	73.70	5	2	31.0	96.8
3KP64CA	3KP64A	64.0	71.10	78.60	5	2	29.1	103.0
3KP70CA	3KP70A	70.0	77.80	86.00	5	2	26.5	113.0
3KP75CA	3KP75A	75.0	83.30	92.10	5	2	24.8	121.0
3KP78CA	3KP78A	78.0	86.70	95.80	5	2	23.8	126.0
3KP85CA	3KP85A	85.0	94.40	104.00	5	2	21.9	137.0

3KP90CA	3KP90A	90.0	100.00	111.00	5	2	20.5	146.0
3KP100CA	3KP100A	100.0	111.00	123.00	5	2	18.5	162.0
3KP110CA	3KP110A	110.0	122.00	135.00	5	2	16.9	177.0
3KP120CA	3KP120A	120.0	133.00	147.00	5	2	15.5	193.0
3KP130CA	3KP130A	130.0	144.00	159.00	5	2	14.4	209.0
3KP150CA	3KP150A	150.0	167.00	185.00	5	2	12.3	243.0
3KP160CA	3KP160A	160.0	178.00	197.00	5	2	11.6	259.0
3KP170CA	3KP170A	170.0	189.00	209.00	5	2	10.9	275.0
3KP180CA	3KP180A	180.0	200.00	221.00	5	2	10.4	289.0
3KP190CA	3KP190A	190.0	211.00	233.00	5	2	9.7	310.0
3KP200CA	3KP200A	200.0	222.00	246.00	5	2	9.1	329.2
3KP210CA	3KP210A	210.0	233.00	258.00	5	2	8.6	349.5
3KP220CA	3KP220A	220.0	244.00	270.00	5	2	8.1	371.1

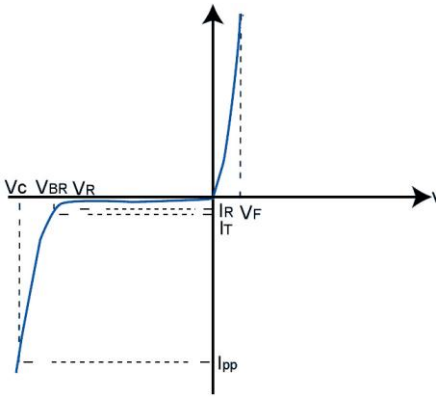
Functional Diagram



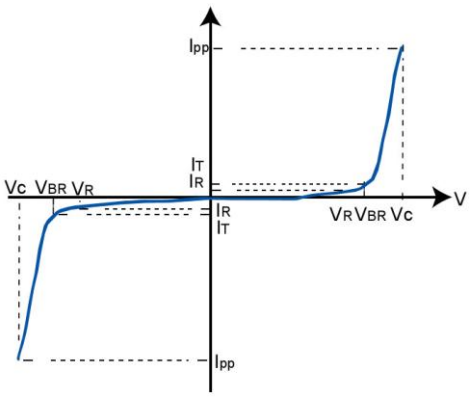
Uni-directional

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

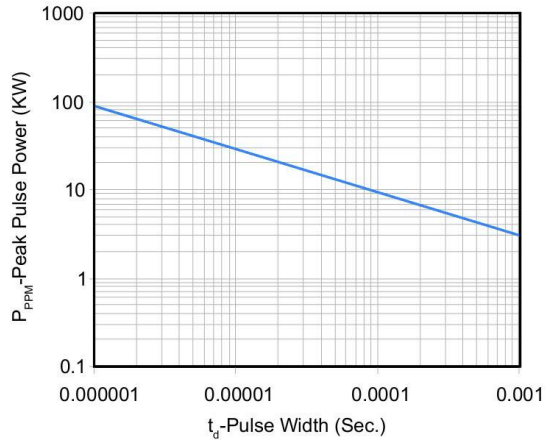


Figure 2 - Pulse Derating Curve

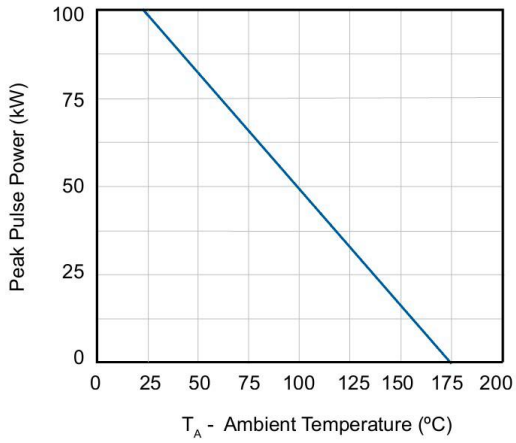


Figure 3 - Pulse Waveform

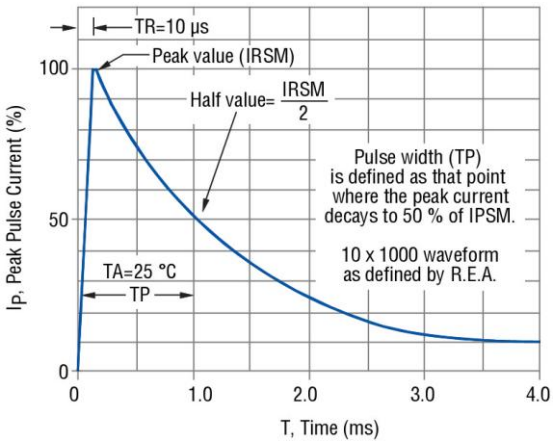


Figure 4 - Typical Junction Capacitance

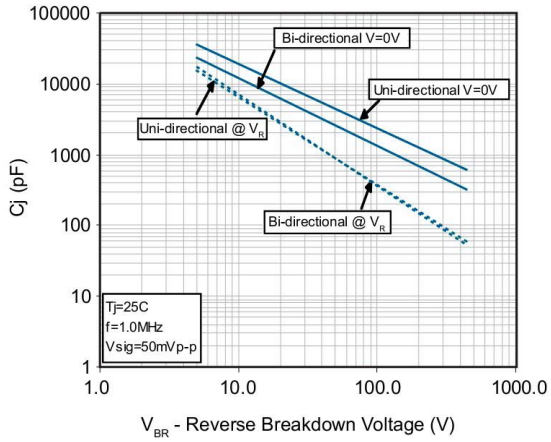


Figure 5 - Pulse Derating Curve

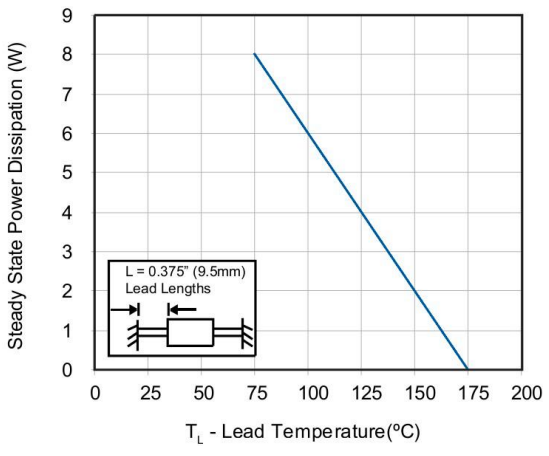
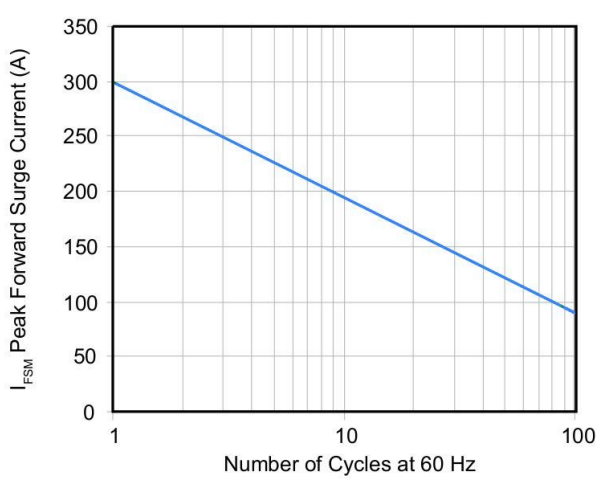
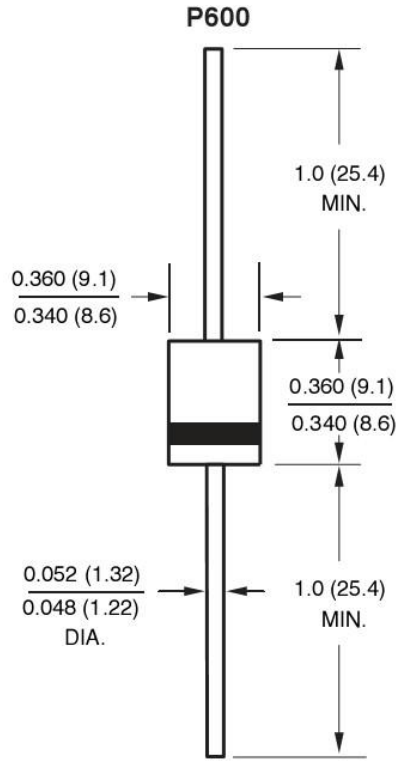


Figure 6 - Maximum Non-Repetitive Surge Current



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.