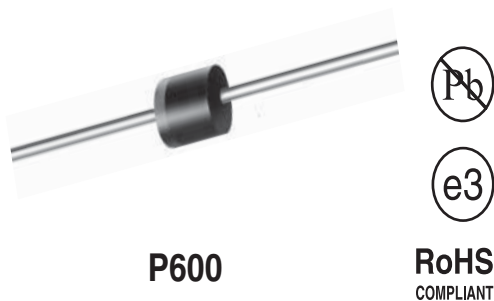


# 10KP20A-10KP43CA

Axial Lead TVS

TOP-EMC



## FEATURES

- Glass passivated chip junction
- 10000 W peak pulse power capability with a 10/1000us waveform
- Repetitive rate(duty cycle):0.01%
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Typical  $I_r$  less than 5 $\mu$ A
- High temperature soldering guaranteed 260 °C, 10 s

## MECHANICAL DATA

- Case:Molded plastic over glass passivated junction. Base P/NHE3 - RoHS compliant, high reliability/automotive grade (AEC Q101 qualified)
- Terminals:Plated Axial leads,solderable per J-STD-002 and JESD22-B102.
- Mounting Poition: Any
- Polarity: Color band denotes cathode end

## 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.

## PRIMARY CHARACTERISTICS

$V_{RWM}$	20 V to 43V
$P_{PPM}$	10000 W
$P_D$	8.0 W
$I_{FSM}$	500 A
$T_J$ max.	150

## CHARACTERISTICS

### MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

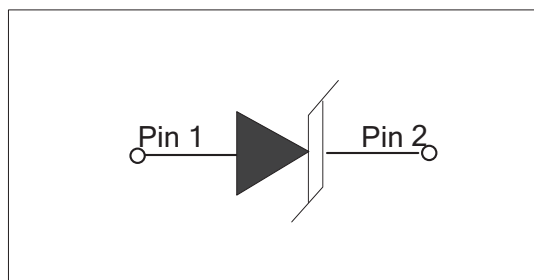
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$P_{PPM}$	10000	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PPM}$	See next table	A
Power dissipation on infinite heatsink at $T_L = 75\text{ }^\circ\text{C}$ (Fig. 5)	$P_D$	8.0	W
Peak forward surge current 8.3 ms single half sine-wave (Fig. 3)	$I_{FSM}$	500	A
Instantaneous forward voltage at 100 A <sup>(2)</sup>	$V_F$	3.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150	$^\circ\text{C}$

### Notes:

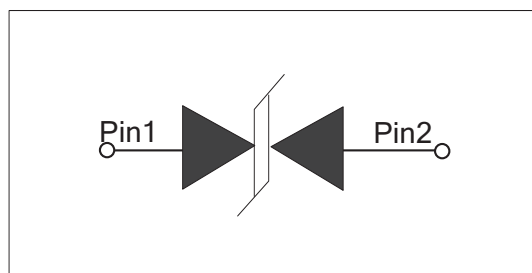
(1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25\text{ }^\circ\text{C}$  per Fig. 2

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

■ PIN CONFIGURATION



(Uni)



(Bi)

■ ELECTRICAL CHARACTERISTICS

Part Number		$V_R$	$I_R@V_R$	$V_{BR}@I_T$		$I_T$	$V_C@I_{PP}$	$I_{PP}^{①}$
Uni-Polar	Bi-Polar	V	$\mu A$	min(V)	max(V)	mA	max(V)	A
10KP20A	10KP20CA	20	5	22.2	24.5	5	32.4	308.6
10KP22A	10KP22CA	22	5	24.4	26.9	5	35.5	281.7
10KP24A	10KP24CA	24	5	26.7	29.5	5	38.9	257.1
10KP26A	10KP26CA	26	5	28.9	31.9	5	42.1	237.5
10KP28A	10KP28CA	28	5	31.1	34.4	5	45.4	219.8
10KP30A	10KP30CA	30	5	33.3	36.8	5	48.4	206.6
10KP33A	10KP33CA	33	5	36.7	40.6	5	53.3	187.6
10KP36A	10KP36CA	36	5	40.0	44.2	5	58.1	172.1
10KP40A	10KP40CA	40	5	44.4	49.1	5	64.5	155.0
10KP43A	10KP43CA	43	5	47.8	52.8	5	69.4	144.1

① Surge waveform: 10/1000 $\mu s$

$V_R$ : Stand-off Voltage -- Maximum voltage that can be applied

$V_{BR}$ : Breakdown Voltage

$V_C$ : Clamping Voltage -- Peak voltage measured across the suppressor at a specified  $I_{pp}$

$I_R$ : Reverse Leakage Current

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

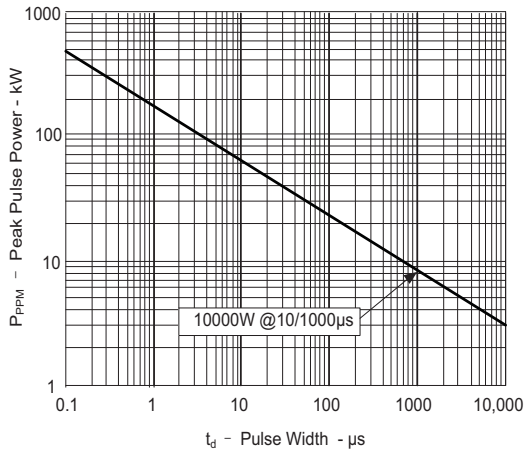


Figure 1. Peak Pulse Power Rating Curve

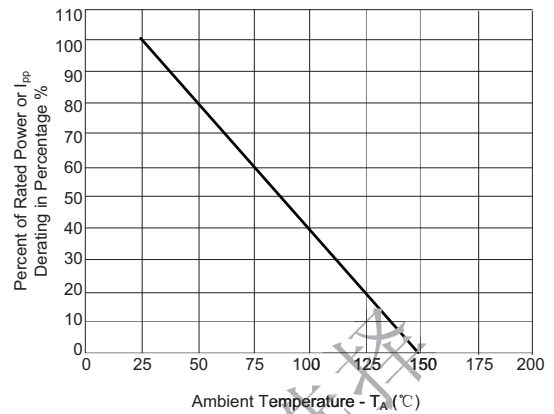


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

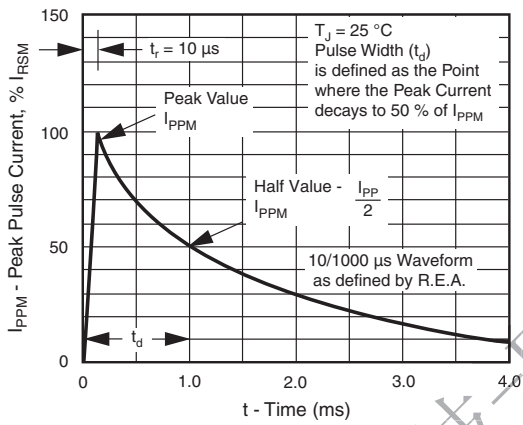


Figure 3. Pulse Waveform

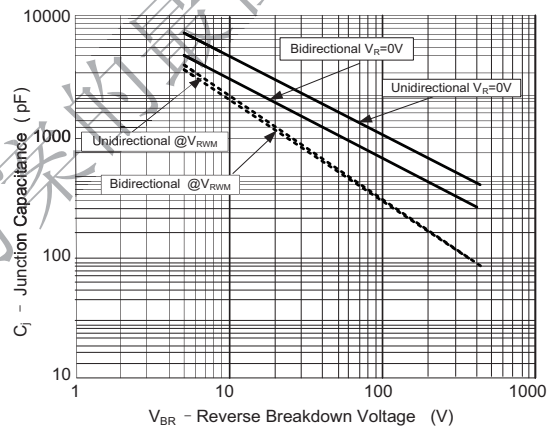


Figure 4. Typical Junction Capacitance

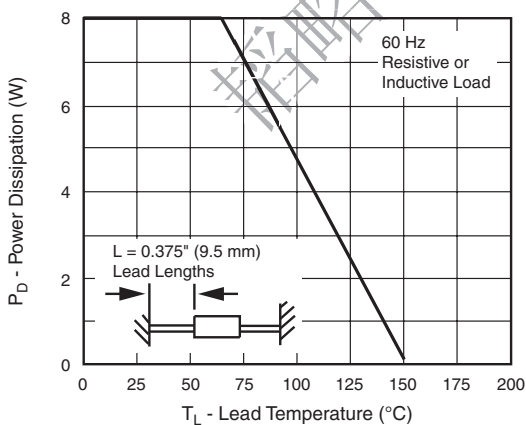


Figure 5. Power Derating Curve

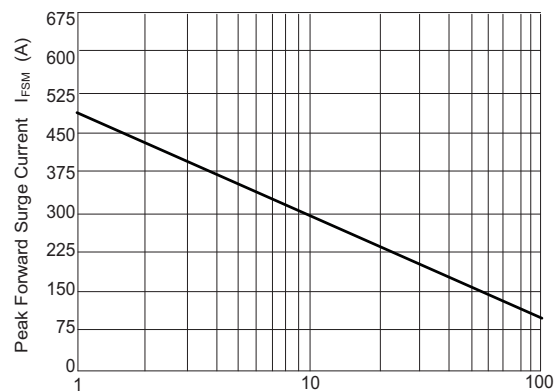
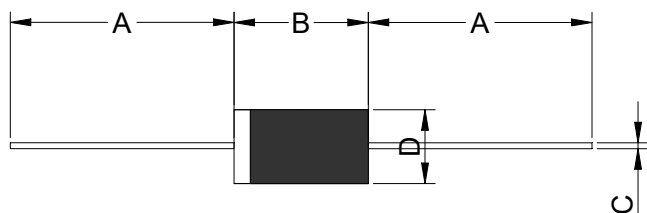


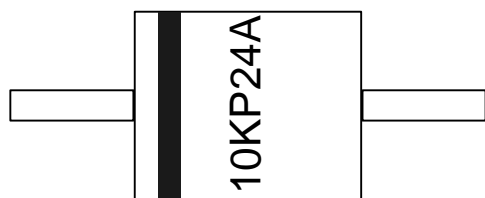
Figure 6. Maximum Non-repetitive Forward Surge Current

## ■ Package mechanical data



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	-	25.40	-
B	0.339	0.370	8.60	9.40
C	0.048	0.052	1.20	1.40
D	0.340	0.360	8.60	9.10

## ■ MARKING CODES



### APPLICATION NOTE

The 10KP series TVS of its power transient voltage suppressors were designed to be used on the output of switching power supplies. These devices may be used to replace crowbar circuits. Both the 5 % and 10 % voltage tolerances are referenced to the power supply output voltage level.

They are able to withstand high levels of peak current while allowing a circuit breaker to trip or a fuse blow before shorting. This will enable the user to reset the breaker or replace the fuse and continue operation. For this type operation, it is recommended that a sufficient mounting surface be used for dissipating the heat generated by the Transient Voltage Suppressor during the transient or over-voltage condition.

### Contact Information

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