

TVS Diode – 20KPA Series

Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in P600 package.
- Excellent voltage clamping capability.
- Low Zener impedance.
- 20000W peak pulse power capability on 10/1000μs waveform.
- Typical leakage current less than 1μA above 13V.
- Very fast response time, typically less than 1.0ps from 0 volt to V_{BR} minimum.
- High temperature soldering guaranteed: 265°C/10 sec.
- MSL: JEDEC-J-STD-020, Level 1

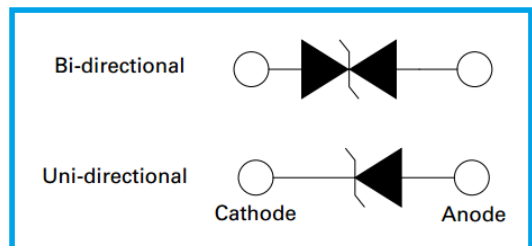


Applications

- I/O interface, V_{CC} bus
- Telecom
- Industrial and consumer electronic applications.
- Relay and electromagnetic valve surge absorption.

Agency Approval

- UL file no.: E474915



Mechanical and Physical Data

- Case: JEDEC P600 molded plastic.
- Axial leaded, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional.

Maximum Ratings and Thermal Characteristics

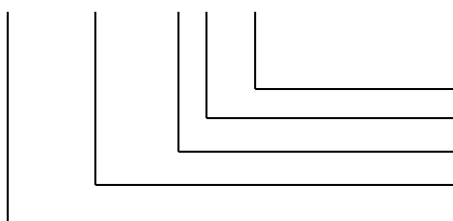
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, Fig.1).	P _{PPM}	Min 20000	Watt
Peak Pulse Current of 10/1000μs waveform (Note 1, Fig.3).	I _{PPM}	See Table	Amp
Steady State Power Dissipation at TL = 75°C, Lead lengths 0.375", (9.5mm) (Fig.5).	P _{M(AV)}	8.0	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I _{FSM}	400	Amp
Operating Junction and Storage Temperature Range.	T _J , T _{STG}	-55~175	°C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Part Number Code

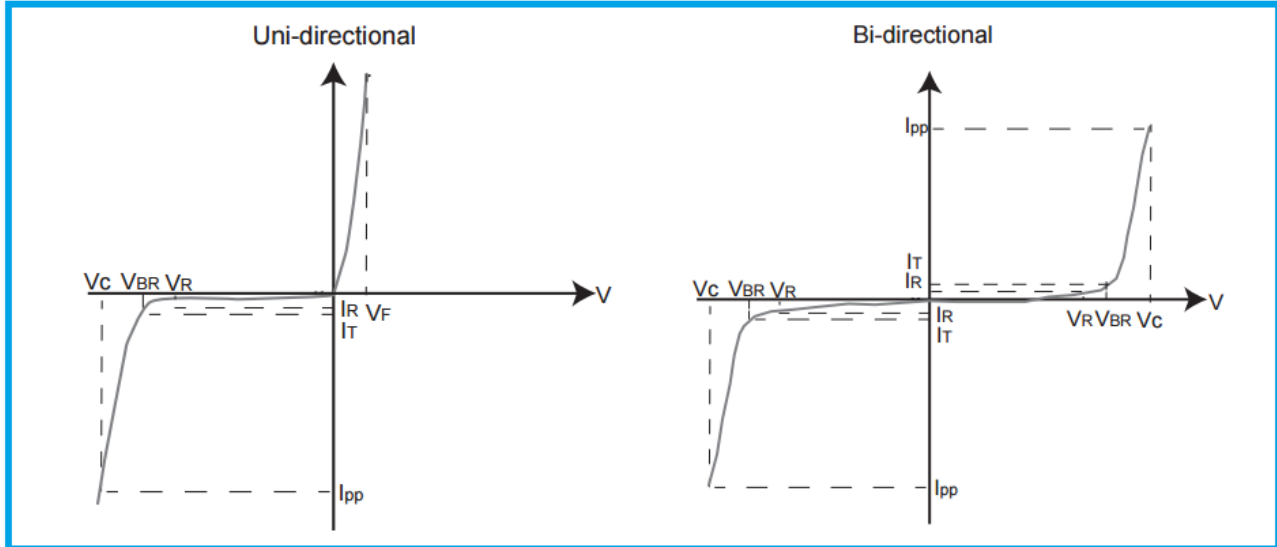
20KPA □□□ **CA** - □



- Packaging Code (T: Tape & Reel; B: Bulk)
- V_{BR} Voltage tolerance (A: 5%; Blank: 10%)
- C: Bi-directional; Blank: Uni-directional
- Typical Breakdown Voltage
- 20KPA Series (20000W)

TVS Diode – 20KPA Series

I-V Curve Characteristics



P_{PPM} Peak Pulse Power Dissipation – Maximum power dissipation

V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_T)

V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (Peak Impulse Current)

I_R Reverse Leakage Current – Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

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Electrical Characteristics

Part Number		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T	Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μ A) @ V_R
Uni	Bi		Min.				
20KPA20A	20KPA20CA	20.0	22.34	50	36.8	548.9	5000
20KPA24A	20KPA24CA	24.0	26.81	50	41.2	490.3	5000
20KPA26A	20KPA26CA	26.0	29.04	50	44.7	451.9	2000
20KPA28A	20KPA28CA	28.0	31.28	50	48.0	420.8	1000
20KPA30A	20KPA30CA	30.0	33.51	5	51.5	392.2	250
20KPA32A	20KPA32CA	32.0	35.74	5	54.3	372.0	150
20KPA34A	20KPA34CA	34.0	38.00	5	57.5	351.3	50
20KPA36A	20KPA36CA	36.0	40.20	5	61.5	328.5	20
20KPA40A	20KPA40CA	40.0	44.70	5	67.8	297.9	15
20KPA44A	20KPA44CA	44.0	49.10	5	72.7	277.9	2
20KPA48A	20KPA48CA	48.0	53.60	5	79.4	254.4	2
20KPA52A	20KPA52CA	52.0	58.10	5	85.8	235.4	2
20KPA56A	20KPA56CA	56.0	62.60	5	92.6	218.1	2
20KPA60A	20KPA60CA	60.0	67.00	5	97.6	207.0	2
20KPA64A	20KPA64CA	64.0	71.50	5	104.0	194.2	2
20KPA68A	20KPA68CA	68.0	76.00	5	110.0	183.6	2
20KPA72A	20KPA72CA	72.0	80.40	5	116.0	174.1	2
20KPA80A	20KPA80CA	80.0	89.40	5	130.0	155.4	2
20KPA88A	20KPA88CA	88.0	98.30	5	142.0	142.3	2
20KPA96A	20KPA96CA	96.0	107.2	5	155.0	130.3	2
20KPA104A	20KPA104CA	104.0	116.2	5	168.0	120.2	2
20KPA112A	20KPA112CA	112.0	125.1	5	182.0	111.0	2
20KPA120A	20KPA120CA	120.0	134.0	5	194.0	104.1	2
20KPA132A	20KPA132CA	132.0	147.4	5	213.0	94.8	2
20KPA144A	20KPA144CA	144.0	160.8	5	232.0	87.1	2
20KPA160A	20KPA160CA	160.0	178.7	5	258.0	78.3	2
20KPA172A	20KPA172CA	172.0	192.1	5	277.0	72.9	2
20KPA180A	20KPA180CA	180.0	201.1	5	291.0	69.4	2
20KPA192A	20KPA192CA	192.0	214.5	5	309.0	65.4	2
20KPA204A	20KPA204CA	204.0	227.9	5	329.0	61.4	2
20KPA216A	20KPA216CA	216.0	241.3	5	348.0	58.0	2
20KPA232A	20KPA232CA	232.0	259.1	5	374.0	54.0	2
20KPA240A	20KPA240CA	240.0	268.1	5	387.0	52.2	2
20KPA256A	20KPA256CA	256.0	286.0	5	412.0	49.0	2
20KPA280A	20KPA280CA	280.0	312.8	5	451.0	44.8	2
20KPA300A	20KPA300CA	300.0	335.1	5	483.0	41.8	2

TVS Diode – 20KPA Series

Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

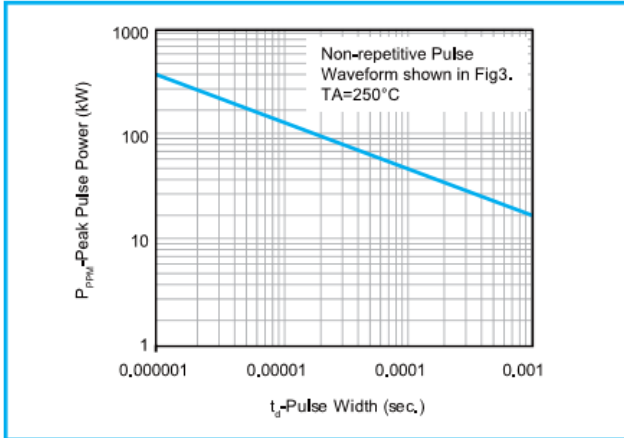


Fig 2 - Pulse Derating Curve

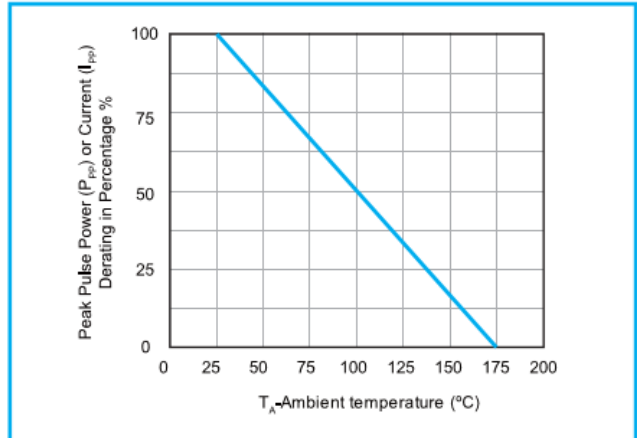


Fig 3 - Pulse Waveform

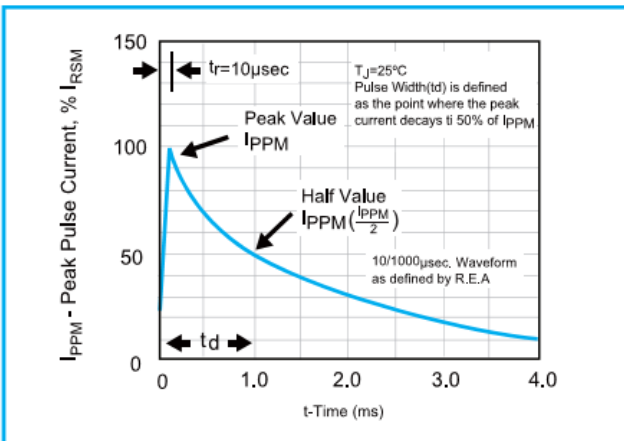


Fig 4 - Typical Junction Capacitance Uni-directional

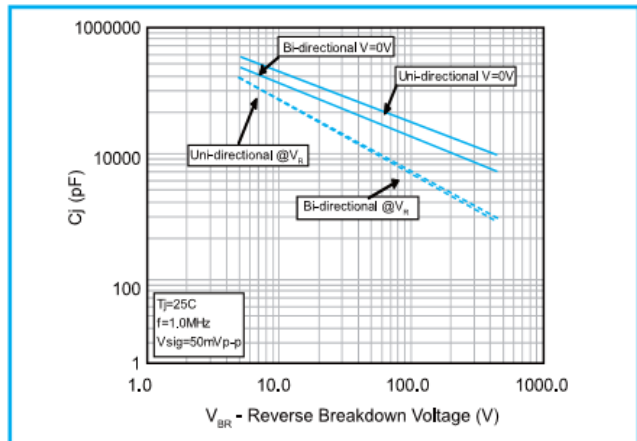


Fig 5 - Steady State Power Dissipation Derating Curve

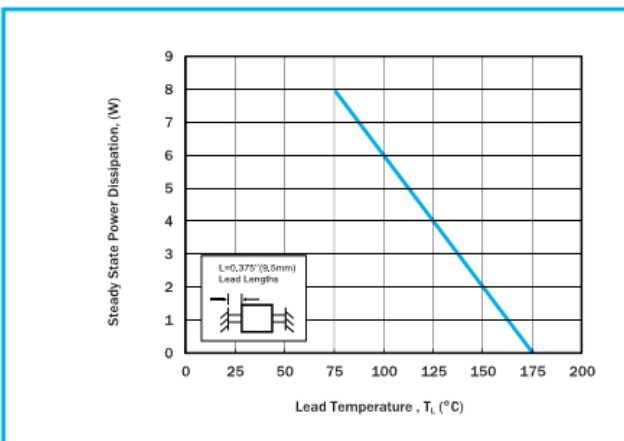
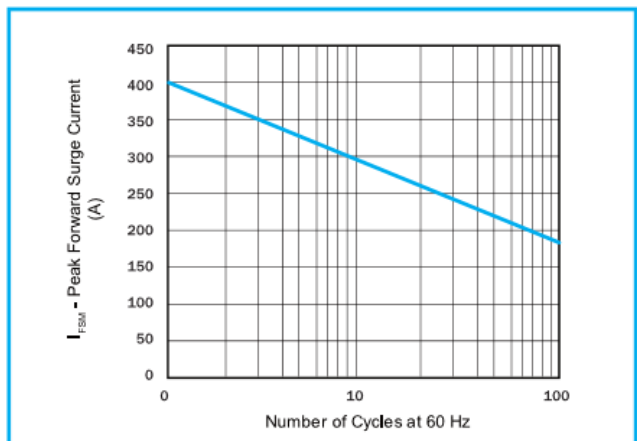
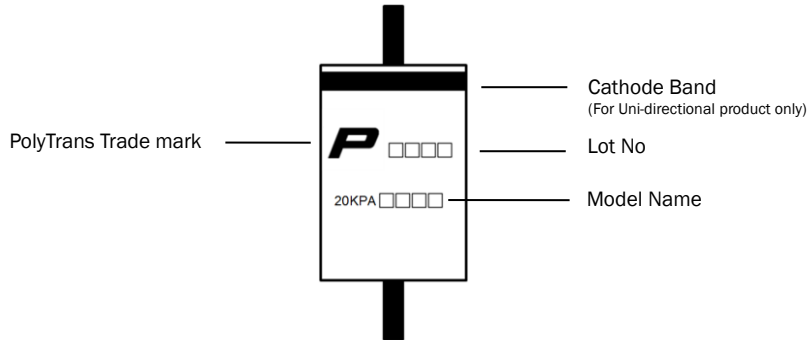


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

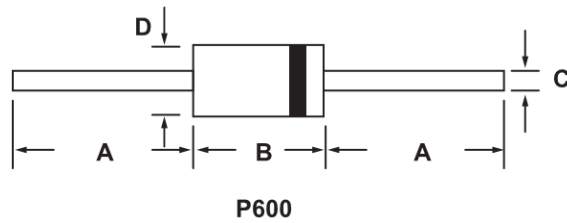


TVS Diode – 20KPA Series

Marking Definitions



Physical Dimensions



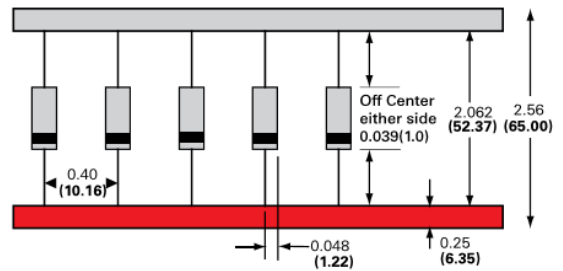
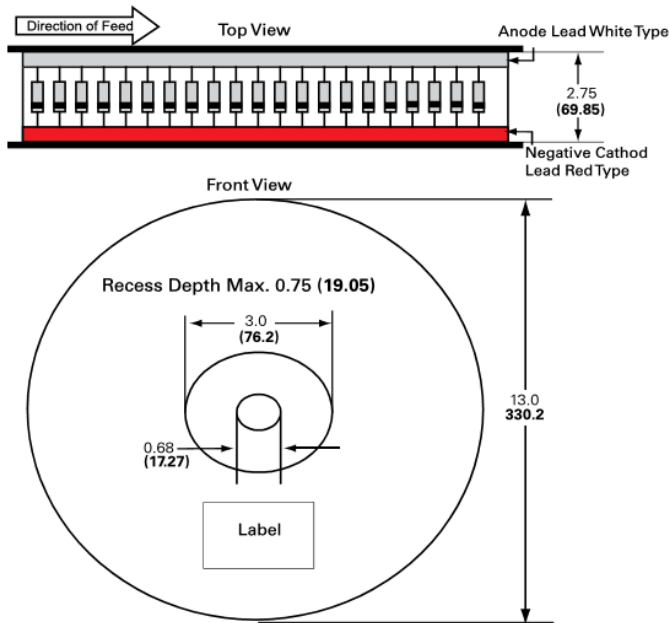
Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	25.40	-	1.000	-
B	8.60	9.10	0.340	0.360
C	1.22	1.32	0.048	0.052
D	8.60	9.10	0.340	0.360

TVS Diode – 20KPA Series

Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
20KPA Series	T	P600	800	Tape & Reel	EIA STD RS-296
20KPA Series	B	P600	100	Bulk	-

Tape and Reel Specifications



Dimensions are in inches/mm