

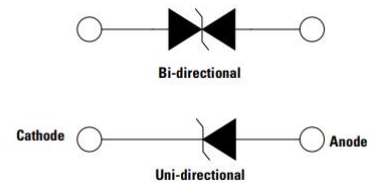


TVS Diodes 15KPA series

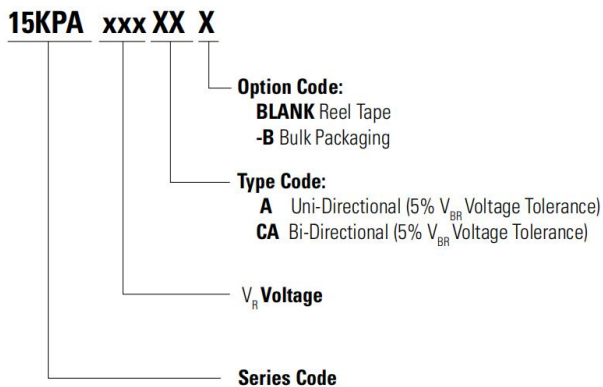
Transient Voltage Suppressors

Features

- ◆ 15KW peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- ◆ Low incremental surge impedance
- ◆ Excellent clamping capability
- ◆ Typical I_R less than 2 μ A when V_{BR} min>36V
- ◆ High Temperature soldering guaranteed: 265 $^{\circ}$ C/40 seconds/.375", (9.5mm) lead length, 5lbs (2.3kg) tension.
- ◆ Plastic package has underwriters laboratory flammability 94V-0
- ◆ Meets MSL level 1, per J-STD-020.
- ◆ Meet HF and RoHS compliant



Part Number Coding System



Applications

- ◆ I/O interface
- ◆ AC/DC power supply
- ◆ Low frequency signal transmission line(RS232,RS485,etc.)

Mechanical Data

- ◆ Case: JEDEC P600 Moulded plastic, Axial lead
- ◆ Polarity: Color band denotes positive end (cathode) except bi-directional models

Maximum Rating and Characteristics

Parameters at 25°C ambient temperature unless otherwise Noted.

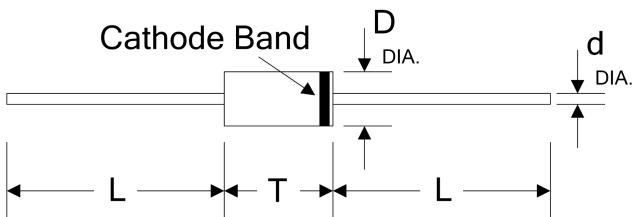
Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation at 10/1000μs Waveform (Note1)	P_{PPM}	Minimum 15000	Watts
Steady State Power Dissipation on Infinite Heat Sink at $T_L = 75^\circ\text{C}$	P_D	8.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional Only (Note 2)	I_{FSM}	400	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

Notes:

- 1.Non-repetitive current pulse, per Fig.2 and derated above $T_A = 25^\circ\text{C}$ per Fig.1.
- 2.8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Dimensions (P600)

Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	25.40	-	1.000	-
T	8.60	9.10	0.340	0.360
D	8.60	9.10	0.340	0.360
d	1.22	1.36	0.048	0.054



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

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
15KPA17A	15KPA17CA	17.0	18.99~20.79	50	29.3	515.4	5000
15KPA18A	15KPA18CA	18.0	20.11~22.01	50	30.9	488.7	5000
15KPA20A	15KPA20CA	20.0	22.34~24.46	20	34.3	440.2	1500
15KPA22A	15KPA22CA	22.0	24.57~26.91	10	37.1	407.0	500
15KPA24A	15KPA24CA	24.0	26.81~29.35	5	40.7	371.0	150
15KPA26A	15KPA26CA	26.0	29.04~31.80	5	44.0	343.2	50
15KPA28A	15KPA28CA	28.0	31.28~34.24	5	47.5	317.9	25
15KPA30A	15KPA30CA	30.0	33.51~36.7	5	50.7	297.8	15
15KPA33A	15KPA33CA	33.0	36.90~40.4	5	54.7	276.1	2
15KPA36A	15KPA36CA	36.0	40.20~44.0	5	59.8	252.5	2
15KPA40A	15KPA40CA	40.0	44.70~48.9	5	65.8	229.5	2
15KPA43A	15KPA43CA	43.0	48.00~52.6	5	69.8	216.3	2
15KPA45A	15KPA45CA	45.0	50.30~55.0	5	72.8	207.4	2
15KPA48A	15KPA48CA	48.0	53.60~58.7	5	77.7	194.3	2
15KPA51A	15KPA51CA	51.0	57.00~62.4	5	82.9	182.1	2
15KPA54A	15KPA54CA	54.0	60.30~66.0	5	87.7	172.2	2
15KPA58A	15KPA58CA	58.0	64.80~70.9	5	93.8	161.0	2
15KPA60A	15KPA60CA	60.0	67.00~73.4	5	97.4	155.0	2
15KPA64A	15KPA64CA	64.0	71.50~78.3	5	104.2	144.9	2
15KPA70A	15KPA70CA	70.0	78.20~85.6	5	113.6	132.9	2
15KPA75A	15KPA75CA	75.0	83.80~91.7	5	122.0	123.8	2
15KPA78A	15KPA78CA	78.0	87.10~95.4	5	126.1	119.7	2

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
15KPA85A	15KPA85CA	85.0	94.90~104.0	5	137.6	109.7	2
15KPA90A	15KPA90CA	90.0	100.50~110.1	5	145.6	103.7	2
15KPA100A	15KPA100CA	100.0	111.70~122.3	5	161.3	93.6	2
15KPA110A	15KPA110CA	110.0	122.90~134.5	5	178.6	84.5	2
15KPA120A	15KPA120CA	120.0	134.00~146.8	5	192.3	78.5	2
15KPA130A	15KPA130CA	130.0	145.20~159.0	5	208.3	72.5	2
15KPA150A	15KPA150CA	150.0	167.60~183.5	5	241.9	62.4	2
15KPA160A	15KPA160CA	160.0	178.70~195.7	5	258.6	58.4	2
15KPA170A	15KPA170CA	170.0	189.90~207.9	5	272.7	55.4	2
15KPA180A	15KPA180CA	180.0	201.10~220.1	5	288.5	52.3	2
15KPA200A	15KPA200CA	200.0	223.40~244.6	5	319.1	47.3	2
15KPA220A	15KPA220CA	220.0	245.70~269.1	5	356.0	42.4	2
15KPA240A	15KPA240CA	240.0	268.10~293.5	5	384.6	39.3	2
15KPA260A	15KPA260CA	260.0	290.40~318.0	5	416.7	36.2	2
15KPA280A	15KPA280CA	280.0	312.80~342.4	5	454.5	33.2	2

Notes: 1.For C Type having reverse stand-off voltage of 30V and less, The I_R limit is double.

2.For parts without A, the V_{BR} is $\pm 10\%$ and V_C is 5% higher than with A parts, the parts without A are currently available, but not recommended for new designs. The parts with A are preferred.

Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

Figure 1. Peak Pulse Power Derating Curve

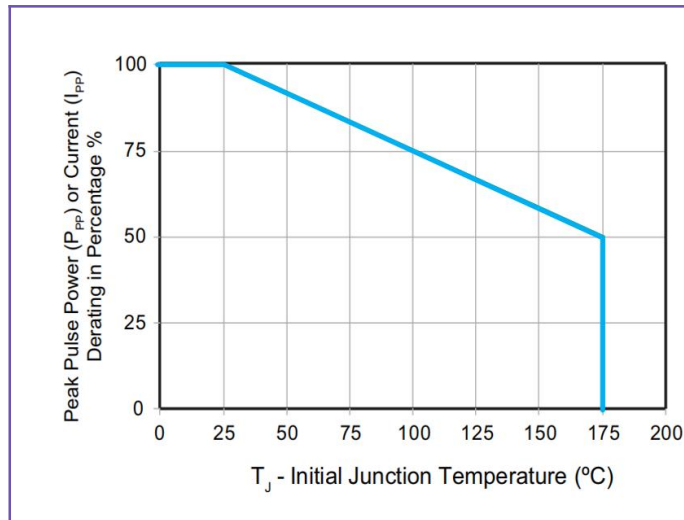


Figure 2. Pulse Waveform

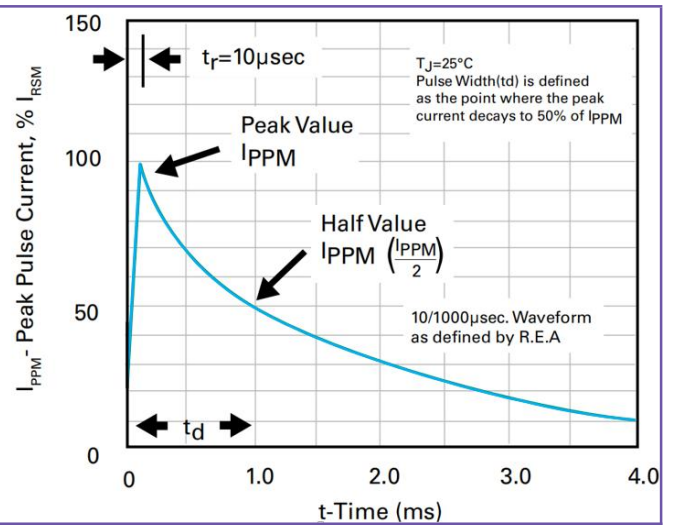


Figure 3. Typical Junction Capacitance

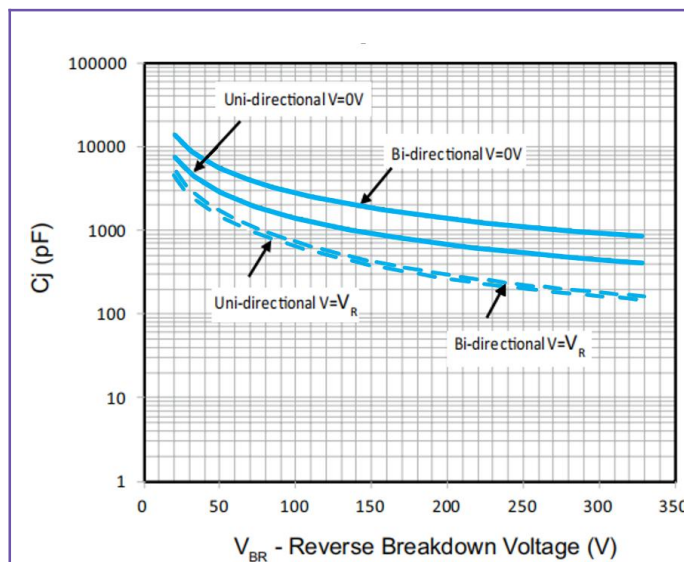


Figure 4. Typical Transient Thermal Impedance

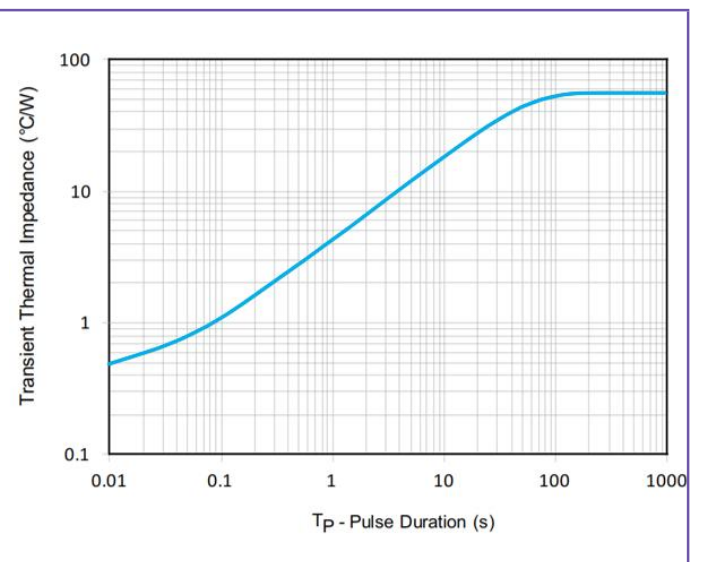


Figure 5. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

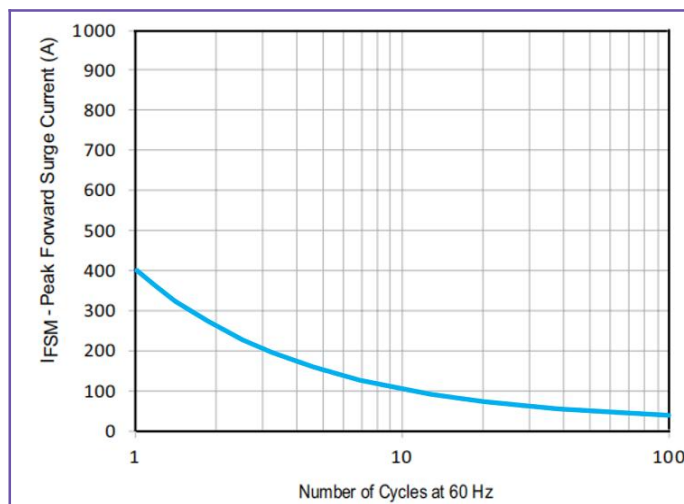
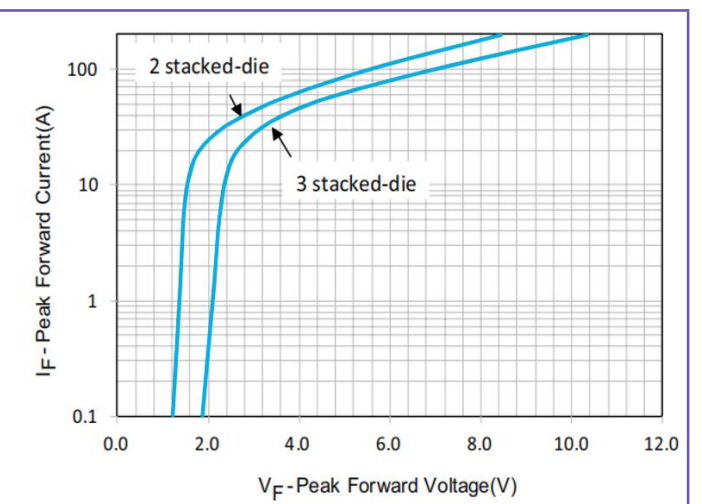
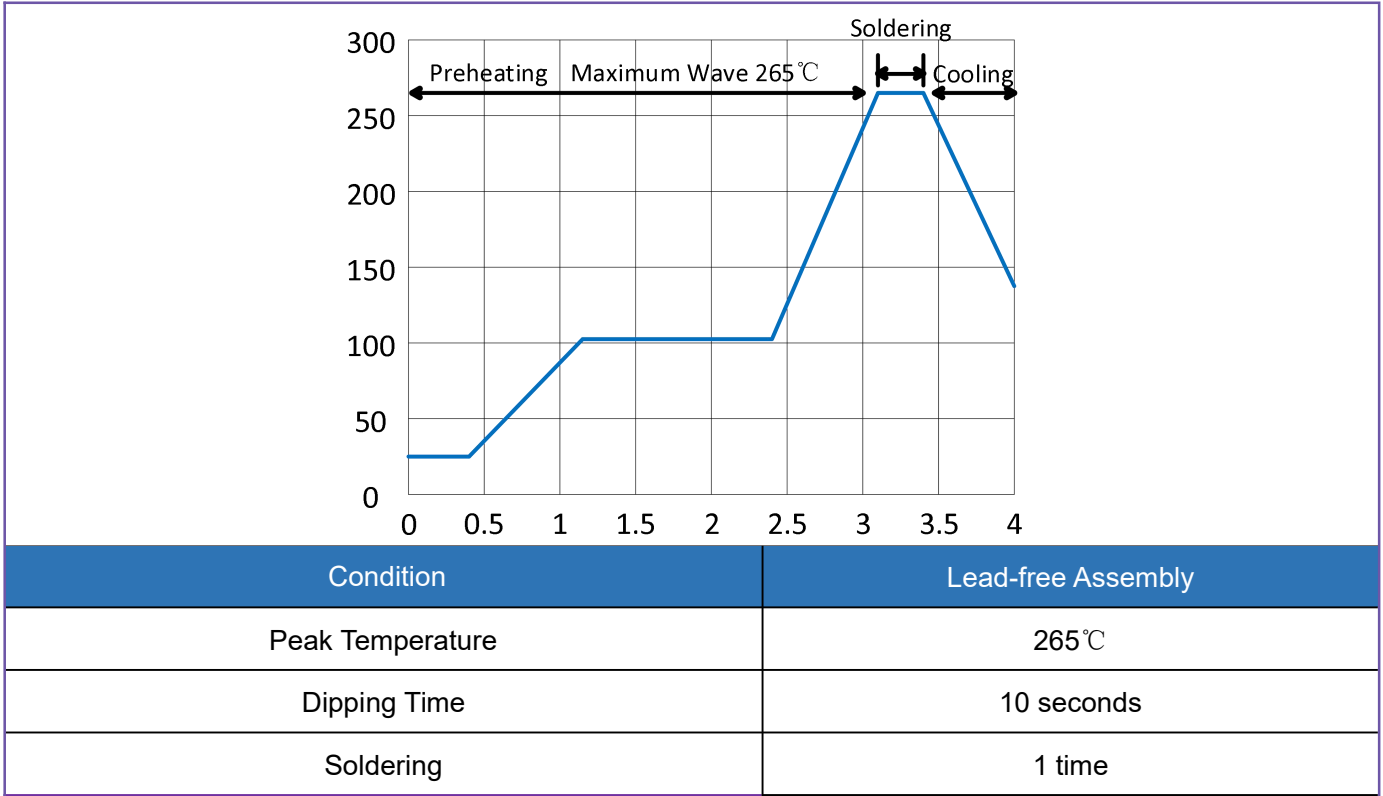


Figure 6. Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



Wave Soldering Parameters



Reliability

Items	Standards
Terminal strength	MIL-STD-750 Method 2036
Mechanical shock	JESD22-B104
Vibration	JESD22-B103
High Temp. Storage	JESD22-A103
High Temp Reverse Bias	JESD22-A108
Temperature Cycling	JESD22-A104
High Temp High Humidity Reverse Bias	JESD22-A101
Resistance to solder heat	JESD22-B106