

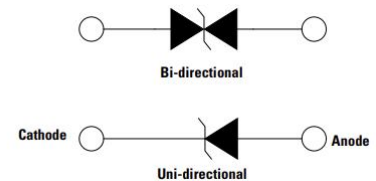


TVS Diodes 10KPA series

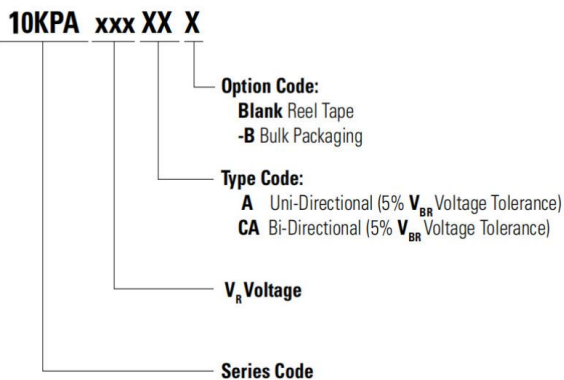
Transient Voltage Suppressors

Features

- ◆ 10KW 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/10 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.

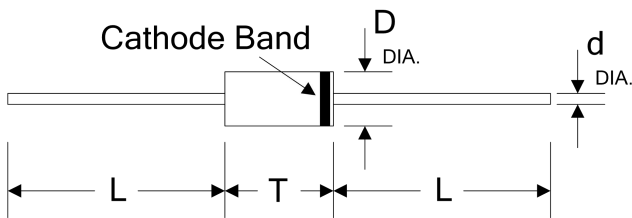
Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation at 10/1000μs Waveform (Note1)	P_{PPM}	Minimum 10000	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.2)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^{\circ}\text{C}$	P_D	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2, Fig.5)	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	1.32	0.048	0.052



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	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
10KPA11A	10KPA11CA	11	12.2-13.5	50	18.2	549.5	2000
10KPA12A	10KPA12CA	12	13.3-14.7	50	19.9	502.5	2000
10KPA13A	10KPA13CA	13	14.4-15.9	50	21.5	465.1	1500
10KPA14A	10KPA14CA	14	15.6-17.2	50	23.2	431	1500
10KPA15A	10KPA15CA	15	16.7-18.5	5	24.4	409.8	500
10KPA16A	10KPA16CA	16	17.8-19.7	5	26.0	384.6	100
10KPA17A	10KPA17CA	17.0	18.9~20.9	5	27.60	362.3	50
10KPA18A	10KPA18CA	18.0	20.0~22.1	5	29.2	342.5	20
10KPA20A	10KPA20CA	20.0	22.2~24.5	5	32.4	308.6	10
10KPA22A	10KPA22CA	22.0	24.4~26.9	5	35.5	281.7	8
10KPA24A	10KPA24CA	24.0	26.7~29.5	5	38.9	257.1	2
10KPA26A	10KPA26CA	26.0	28.9~31.9	5	42.1	237.5	2
10KPA28A	10KPA28CA	28.0	31.1~34.4	5	45.4	220.3	2
10KPA30A	10KPA30CA	30.0	33.3~36.8	5	48.4	206.6	2
10KPA33A	10KPA33CA	33.0	36.7~40.6	5	53.3	187.6	2
10KPA36A	10KPA36CA	36.0	40.0~44.2	5	58.1	172.1	2
10KPA40A	10KPA40CA	40.0	44.4~49.1	5	64.5	155.0	2
10KPA43A	10KPA43CA	43.0	47.8~52.8	5	69.4	144.1	2
10KPA45A	10KPA45CA	45.0	50.0~55.3	5	72.7	137.6	2
10KPA48A	10KPA48CA	48.0	53.3~58.9	5	77.4	129.2	2
10KPA51A	10KPA51CA	51.0	56.7~62.7	5	82.4	121.4	2
10KPA54A	10KPA54CA	54.0	60.0~66.3	5	87.1	114.8	2
10KPA58A	10KPA58CA	58.0	64.40~71.20	5	93.6	106.8	2
10KPA60A	10KPA60CA	60.0	66.7~73.7	5	96.8	103.3	2
10KPA64A	10KPA64CA	64.0	71.1~78.6	5	103	97.1	2
10KPA70A	10KPA70CA	70.0	77.8~86.6	5	113	88.5	2
10KPA75A	10KPA75CA	75.0	83.3~92.1	5	121	82.6	2
10KPA78A	10KPA78CA	78.0	86.7~95.8	5	126	79.4	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	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
10KPA85A	10KPA85CA	85.0	94.4~104.0	5	73.0	137	2
10KPA90A	10KPA90CA	90.0	100.0~111.0	5	68.5	146	2
10KPA100A	10KPA100CA	100.0	111.0~123.0	5	61.7	162	2
10KPA110A	10KPA110CA	110.0	122.0~135.0	5	56.5	177	2
10KPA120A	10KPA120CA	120.0	133.0~147.0	5	51.8	193	2
10KPA130A	10KPA130CA	130.0	144.0~159.0	5	47.8	209	2
10KPA150A	10KPA150CA	150.0	167.0~185.0	5	41.2	243	2
10KPA160A	10KPA160CA	160.0	178.4~196.6	5	38.6	259	2
10KPA170A	10KPA170CA	170.0	189.4~208.6	5	36.4	275	2
10KPA180A	10KPA180CA	180.0	200.4~220.6	5	34.2	292	2
10KPA190A	10KPA190CA	190.0	211.4~232.5	5	32.3	310	2
10KPA200A	10KPA200CA	200.0	222.4~245.5	5	30.4	329.2	2
10KPA210A	10KPA210CA	210.0	233.5~257.5	5	28.6	349.5	2
10KPA220A	10KPA220CA	220.0	244.5~269.5	5	26.9	371.1	2
10KPA250A	10KPA250CA	250.0	277.0~306.0	5	23.5	425	2

Notes: 1.For C Type having reverse stand-off voltage of 30V and less, The IR 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 ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Derating Curve

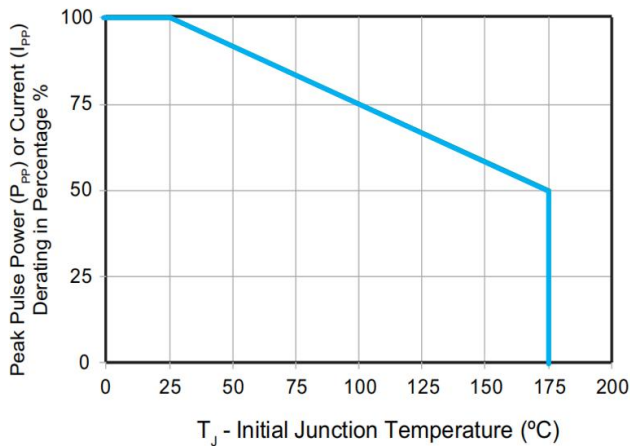


Figure 2. Pulse Waveform

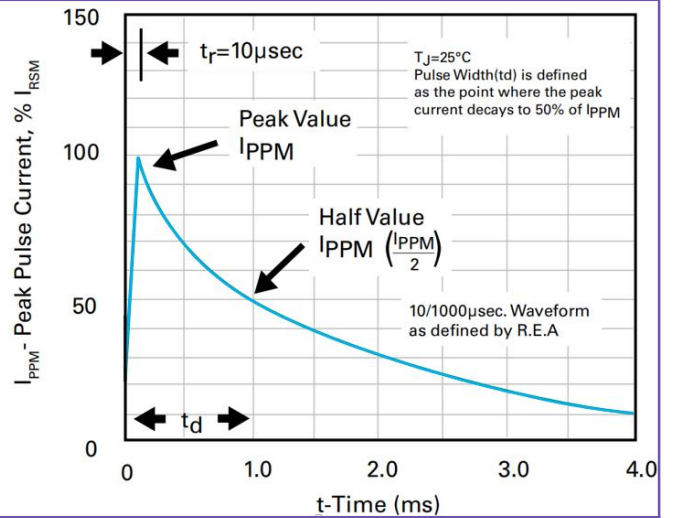


Figure 3. Typical Junction Capacitance

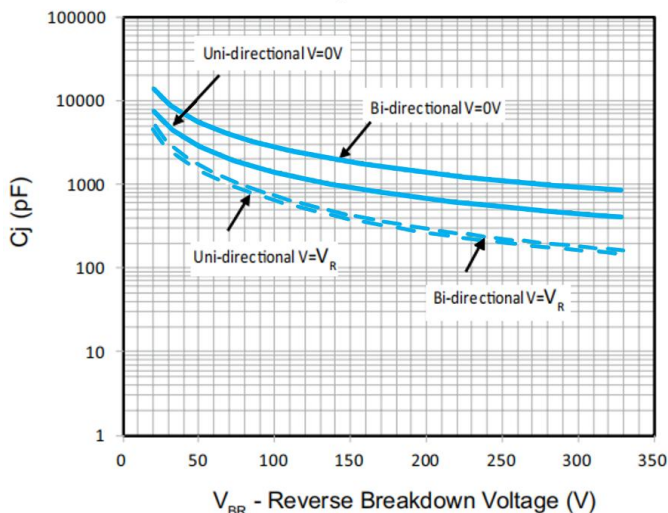


Figure 4. Typical Transient Thermal Impedance

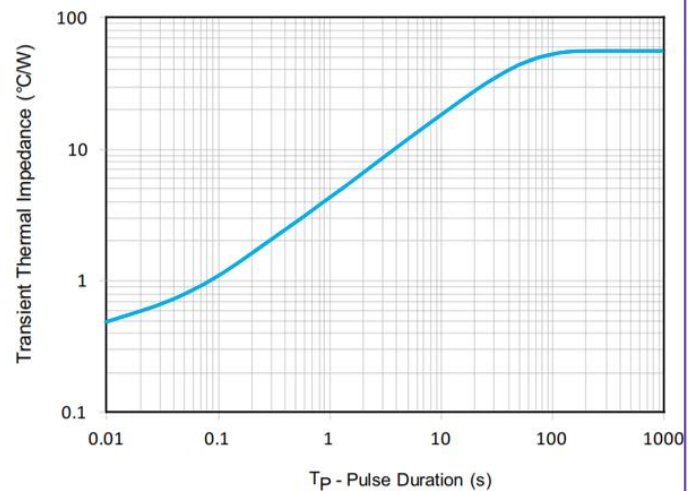


Figure 5. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

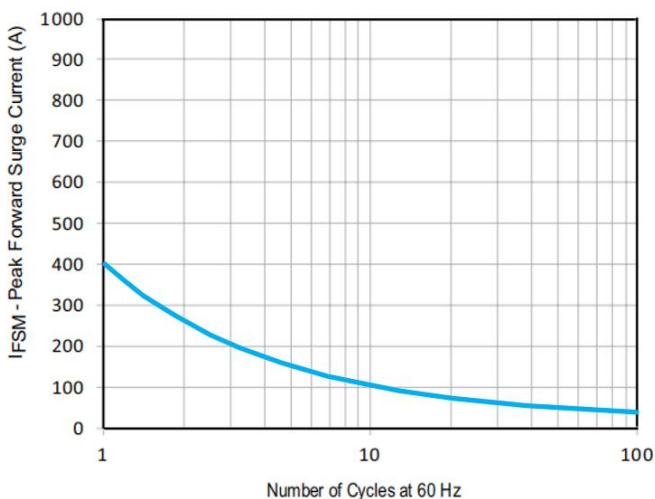
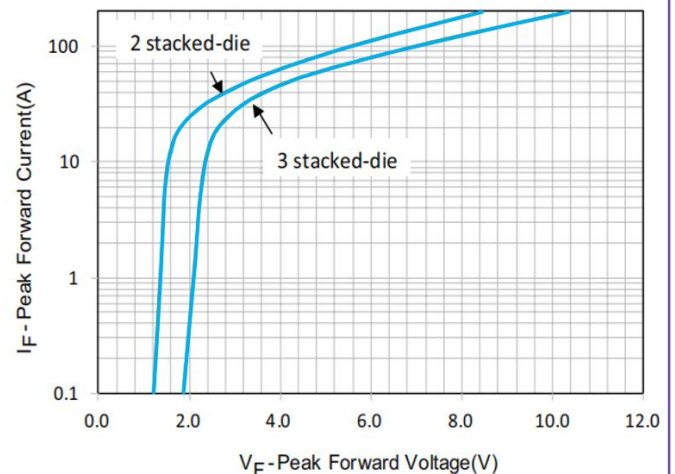
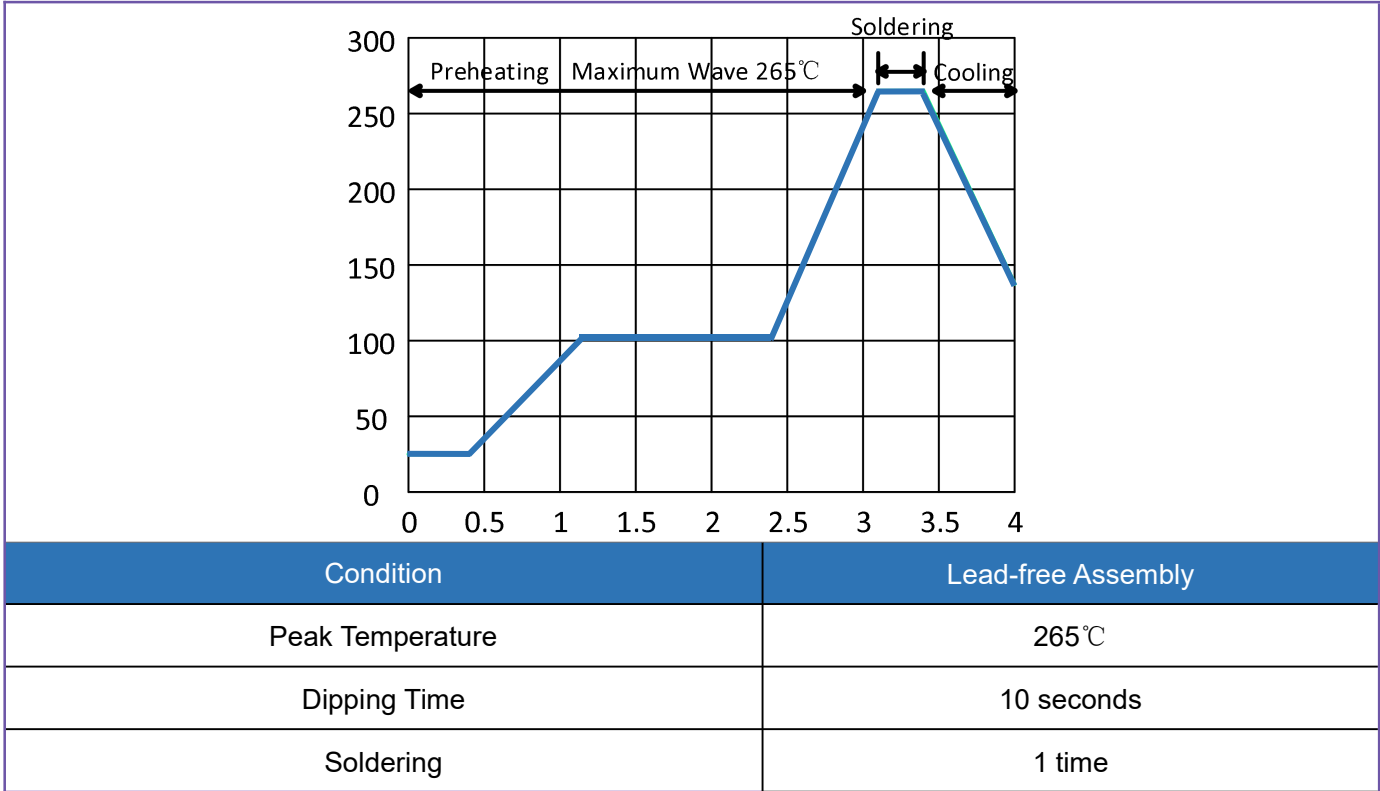


Figure 6. Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)



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