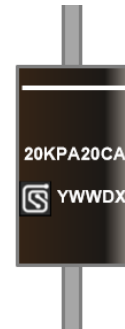


Features

- 20000W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- IEC61000-4-2 +/-30kV both contact and air
- IEC61000-4-4 50A(5/50nS)

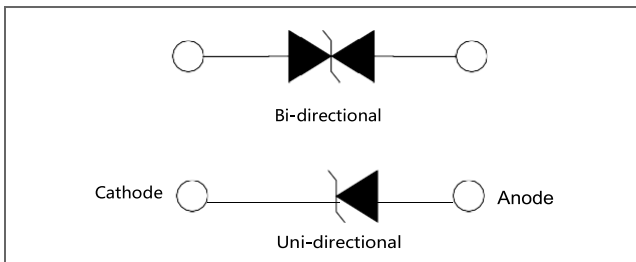
RoHS
Compliant



Applications

TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Function Diagram




Maximum Ratings and Thermal Characteristics (T _A =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T _A =25°C by 10/1000µs Waveform (Fig.3)	P _{PPM}	20000	W
Power Dissipation on Infinite Heat Sink at T _L =50°C	P _D	8	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I _{FSM}	400	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V _F	3.5/5	V
Operating Temperature Range	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
	Pending

Notes:

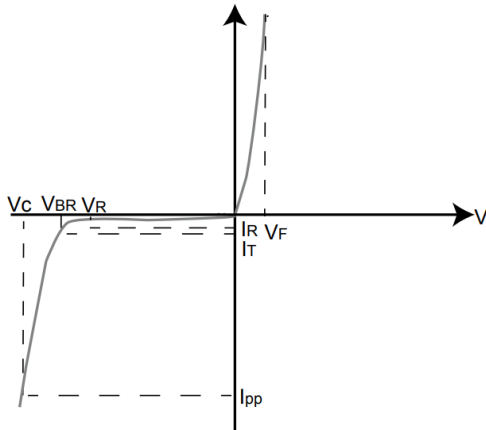
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. 3.5V for single die, 5V for stack die

Characteristics (T = 25°C unless otherwise noted)

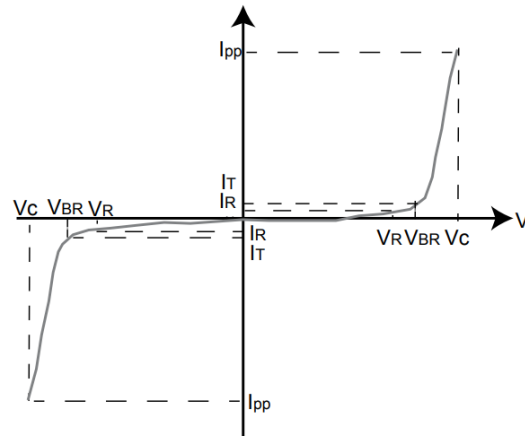
Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{nn} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
			MIN	MAX					
20KPA20A	20KPA20CA	20	22.34	24.57	50	36.8	548.9	5000	
20KPA24A	20KPA24CA	24	26.81	29.49	50	41.2	490.3	5000	
20KPA26A	20KPA26CA	26	29.04	31.94	50	44.7	451.9	2000	
20KPA28A	20KPA28CA	28	31.28	34.41	50	48.0	420.8	1000	
20KPA30A	20KPA30CA	30	33.51	36.86	5	51.5	392.2	250	
20KPA32A	20KPA32CA	32	35.74	39.31	5	54.3	372.0	150	
20KPA34A	20KPA34CA	34	38.00	41.80	5	57.5	351.3	50	
20KPA36A	20KPA36CA	36	40.20	44.22	5	61.5	328.5	20	
20KPA40A	20KPA40CA	40	44.70	49.17	5	67.8	297.9	15	
20KPA44A	20KPA44CA	44	49.10	54.01	5	72.7	277.9	2	
20KPA48A	20KPA48CA	48	53.60	58.96	5	79.4	254.4	2	
20KPA52A	20KPA52CA	52	58.10	63.91	5	85.8	235.4	2	
20KPA56A	20KPA56CA	56	62.60	68.86	5	92.6	218.1	2	
20KPA60A	20KPA60CA	60	67.00	73.70	5	97.6	207.0	2	
20KPA64A	20KPA64CA	64	71.50	78.65	5	104.0	194.2	2	
20KPA68A	20KPA68CA	68	76.00	83.60	5	110.0	183.6	2	
20KPA72A	20KPA72CA	72	80.40	88.44	5	116.0	174.1	2	
20KPA80A	20KPA80CA	80	89.40	98.34	5	130.0	155.4	2	
20KPA88A	20KPA88CA	88	98.30	108.13	5	142.0	142.3	2	
20KPA96A	20KPA96CA	96	107.20	117.92	5	155.0	130.3	2	
20KPA104A	20KPA104CA	104	116.20	127.82	5	168.0	120.2	2	
20KPA112A	20KPA112CA	112	125.10	137.61	5	182.0	111.0	2	
20KPA120A	20KPA120CA	120	134.00	147.40	5	194.0	104.1	2	
20KPA132A	20KPA132CA	132	147.40	162.14	5	213.0	94.8	2	
20KPA144A	20KPA144CA	144	160.80	176.88	5	232.0	87.1	2	
20KPA160A	20KPA160CA	160	178.70	196.57	5	258.0	78.3	2	
20KPA172A	20KPA172CA	172	192.10	211.31	5	277.0	72.9	2	
20KPA180A	20KPA180CA	180	201.10	221.21	5	291.0	69.4	2	
20KPA192A	20KPA192CA	192	214.50	235.95	5	309.0	65.4	2	
20KPA204A	20KPA204CA	204	227.90	250.69	5	329.0	61.4	2	
20KPA216A	20KPA216CA	216	241.30	265.43	5	348.0	58.0	2	
20KPA232A	20KPA232CA	232	259.10	285.01	5	374.0	54.0	2	
20KPA240A	20KPA240CA	240	268.10	294.91	5	387.0	52.2	2	
20KPA256A	20KPA256CA	256	286.00	314.60	5	412.0	49.0	2	
20KPA280A	20KPA280CA	280	312.80	344.08	5	451.0	44.8	2	
20KPA300A	20KPA300CA	300	335.10	368.61	5	483.0	41.8	2	

I-V Curve Characteristics

Uni-directional

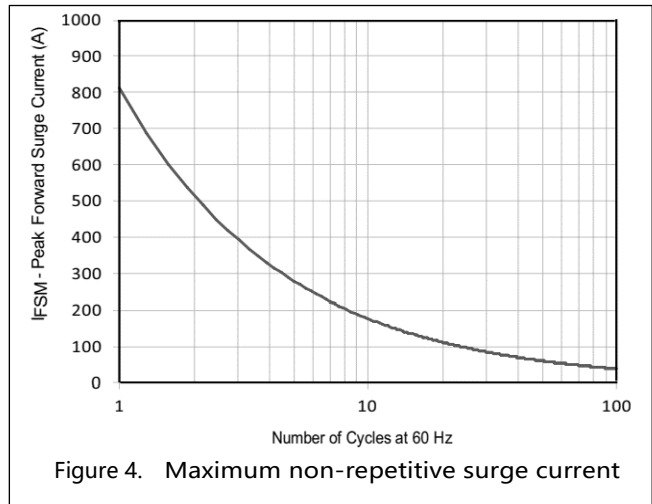
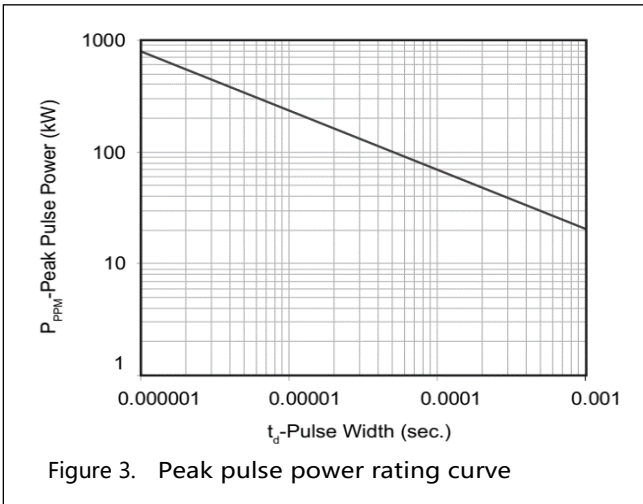
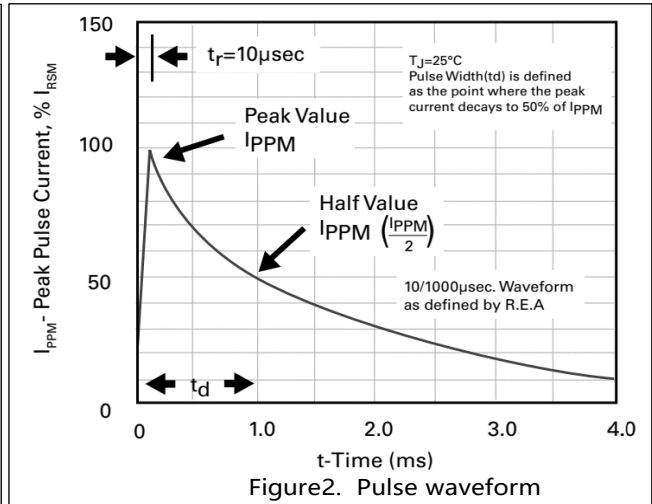
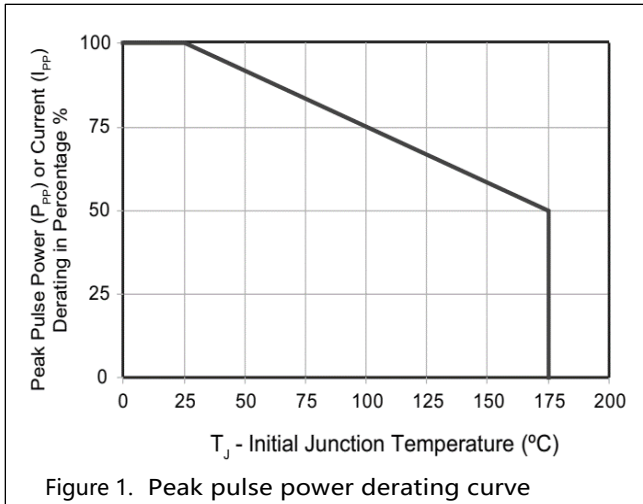


Bi-directional



- P_{PPM} Peak Pulse Power Dissipation -- Max 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 though 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

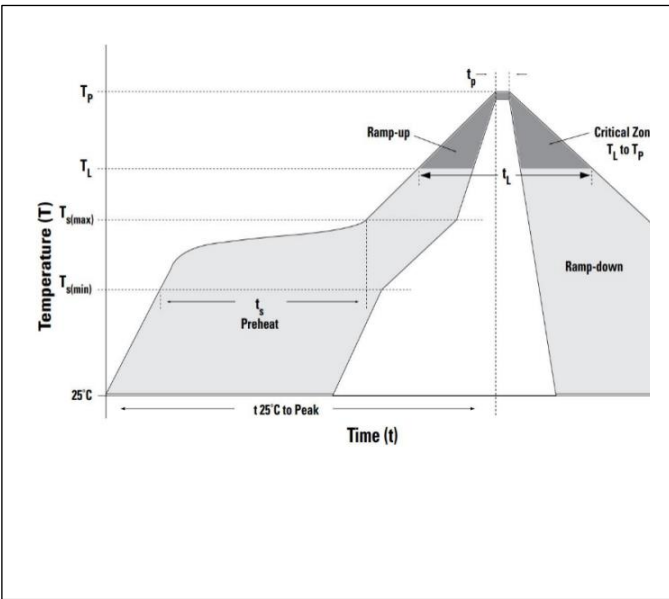
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



Soldering Parameters

Soldering profile

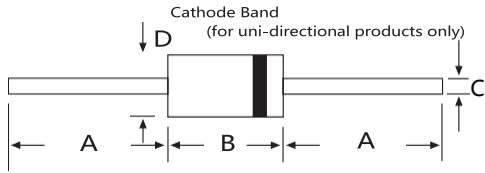
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{S(min)}$)	150°C
	- Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (t_S)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_A) to peak)		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_S)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (t_P)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C



Flow/Wave Soldering (Solder Dipping)

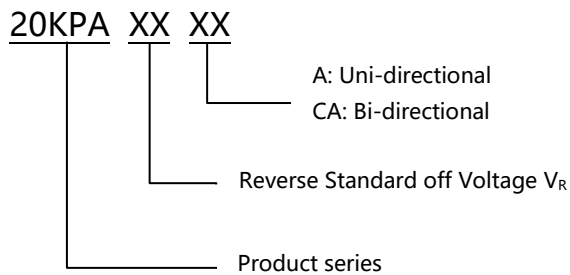
Peak Temperature:	265°C
Dipping Time:	10 seconds
Soldering:	1 time

Dimensions

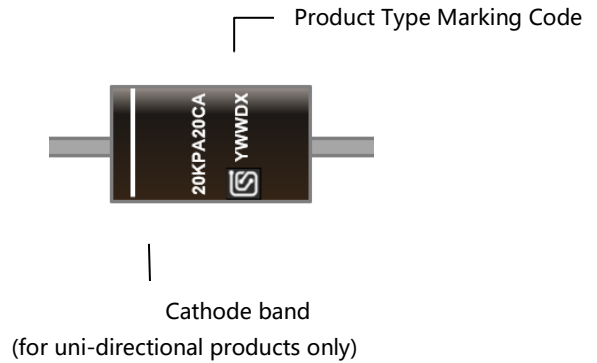


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.340	0.360	8.60	9.10
C	0.048	0.054	1.22	1.36
D	0.34	0.360	8.60	9.10

Part Numbering



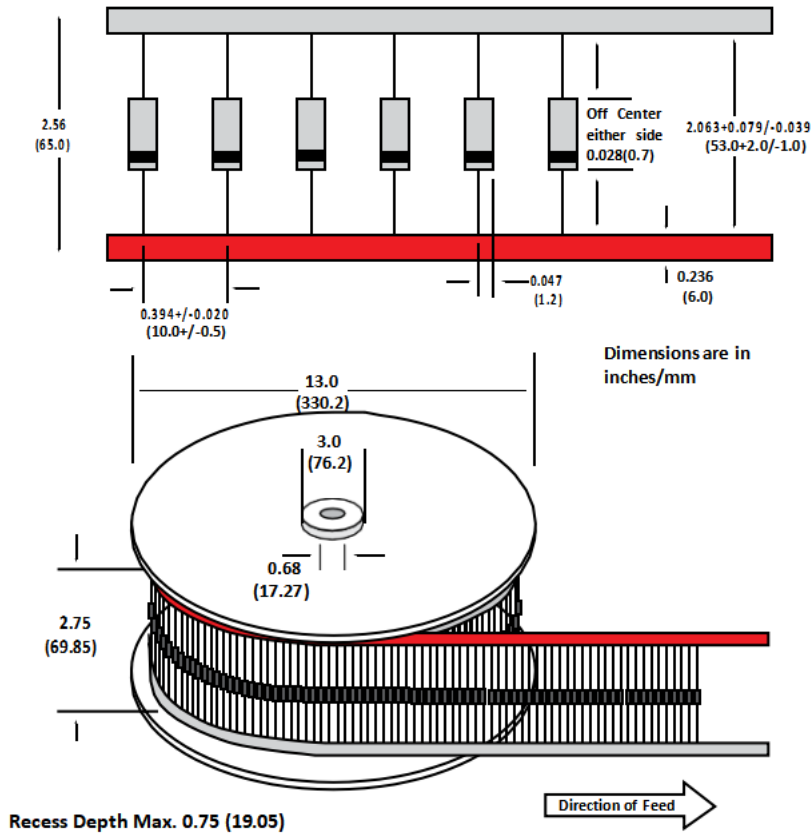
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
20KPAXXXX	P600	800	Tape & Reel

Tape and Reel Specification



Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	15-Aug-2021