

**Features**

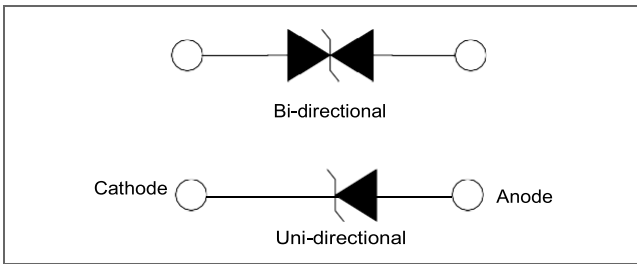
- 1000W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C



**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 <sub>A</sub> =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T <sub>A</sub> =25°C by 10/1000µs Waveform (Fig.3)	P <sub>PPM</sub>	1000	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =50°C	P <sub>D</sub>	5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I <sub>FSM</sub>	120	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V <sub>F</sub>	3.5	V
Operating Temperature Range	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
	Pending

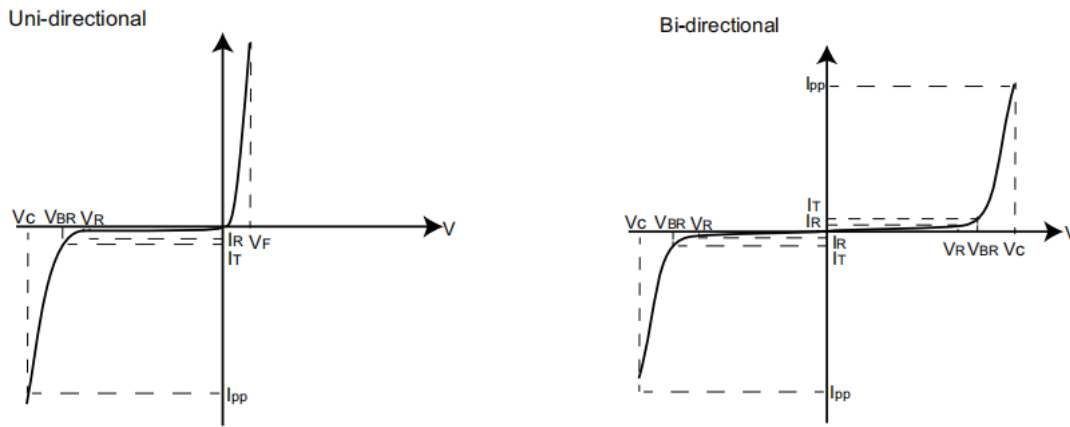
**Notes:**

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

**Characteristics (T = 25°C unless otherwise noted)**

Part Number (Uni)	Part Number (Bi)	Key Marking		Reverse Stand off Voltage V <sub>R</sub> (Volts)	Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>nn</sub> (V)	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA)	Agency Approval 
		UNI	BI		MIN	MAX					
1KSMB6.8A	1KSMB6.8CA	06E	06E	5.80	6.45	7.14	10	10.5	95.2	900	
1KSMB7.5A	1KSMB7.5CA	07F	07F	6.40	7.13	7.88	10	11.3	88.5	400	
1KSMB8.2A	1KSMB8.2CA	08T	08T	7.02	7.79	8.61	10	12.1	82.6	180	
1KSMB9.1A	1KSMB9.1CA	09O	09O	7.78	8.65	9.55	1	13.4	74.6	45	
1KSMB10A	1KSMB10CA	010	010	8.55	9.50	10.5	1	14.5	69.0	8	
1KSMB11A	1KSMB11CA	011	011	9.4	10.5	11.6	1	15.6	64.1	4	
1KSMB12A	1KSMB12CA	012	012	10.2	11.4	12.6	1	16.7	59.9	1	
1KSMB13A	1KSMB13CA	013	013	11.1	12.4	13.7	1	18.2	54.9	1	
1KSMB15A	1KSMB15CA	015	015	12.8	14.3	15.8	1	21.2	47.2	1	
1KSMB16A	1KSMB16CA	016	016	13.6	15.2	16.8	1	22.5	44.4	1	
1KSMB18A	1KSMB18CA	018	018	15.3	17.1	18.9	1	25.5	39.2	1	
1KSMB20A	1KSMB20CA	020	020	17.1	19.0	21.0	1	27.7	36.1	1	
1KSMB22A	1KSMB22CA	022	022	18.8	20.9	23.1	1	30.6	32.7	1	
1KSMB24A	1KSMB24CA	024	024	20.5	22.8	25.2	1	33.2	30.1	1	
1KSMB27A	1KSMB27CA	027	027	23.1	25.7	28.4	1	37.5	26.7	1	
1KSMB30A	1KSMB30CA	030	030	25.6	28.5	31.5	1	41.4	24.2	1	
1KSMB33A	1KSMB33CA	033	033	28.2	31.4	34.7	1	45.7	21.9	1	
1KSMB36A	1KSMB36CA	036	036	30.8	34.2	37.8	1	49.9	20.0	1	
1KSMB39A	1KSMB39CA	039	039	33.3	37.1	41.0	1	53.9	18.6	1	
1KSMB43A	1KSMB43CA	043	043	36.8	40.9	45.2	1	59.3	16.9	1	
1KSMB47A	1KSMB47CA	047	047	40.2	44.7	49.4	1	64.8	15.4	1	
1KSMB51A	1KSMB51CA	051	051	43.6	48.5	53.6	1	70.1	14.3	1	
1KSMB56A	1KSMB56CA	056	056	47.8	53.2	58.8	1	77.0	13.0	1	
1KSMB62A	1KSMB62CA	062	062	53.0	58.9	65.1	1	85.0	11.8	1	
1KSMB68A	1KSMB68CA	068	068	58.1	64.6	71.4	1	92.0	10.9	1	
1KSMB75A	1KSMB75CA	075	075	64.1	71.3	78.8	1	103.0	9.7	1	
1KSMB82A	1KSMB82CA	082	082	70.1	77.9	86.1	1	113.0	8.8	1	
1KSMB91A	1KSMB91CA	091	091	77.8	86.50	95.50	1	125.0	8.0	1	
1KSMB100A	1KSMB100CA	100	100	85.5	95.0	105.0	1	137.0	7.3	1	
1KSMB110A	1KSMB110CA	110	110	94.0	105.0	116.0	1	152.0	6.6	1	
1KSMB120A	1KSMB120CA	120	120	102.0	114.0	126.0	1	165.0	6.1	1	
1KSMB130A	1KSMB130CA	130	130	111.0	124.0	137.0	1	179.0	5.6	1	
1KSMB150A	1KSMB150CA	150	150	128.0	143.0	158.0	1	207.0	4.8	1	
1KSMB160A	1KSMB160CA	160	160	136.0	152.0	168.0	1	219.0	4.6	1	
1KSMB170A	1KSMB170CA	170	170	144.5	162.0	179.0	1	234.0	4.3	1	
1KSMB180A	1KSMB180CA	180	180	153.0	171.0	189.0	1	246.0	4.1	1	

## I-V Curve Characteristics



$P_{PPM}$  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 through the TVS at a specified test current ( $I_T$ )

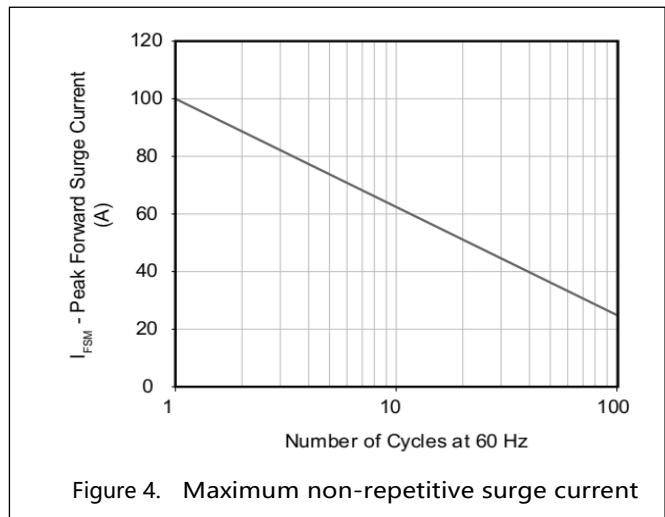
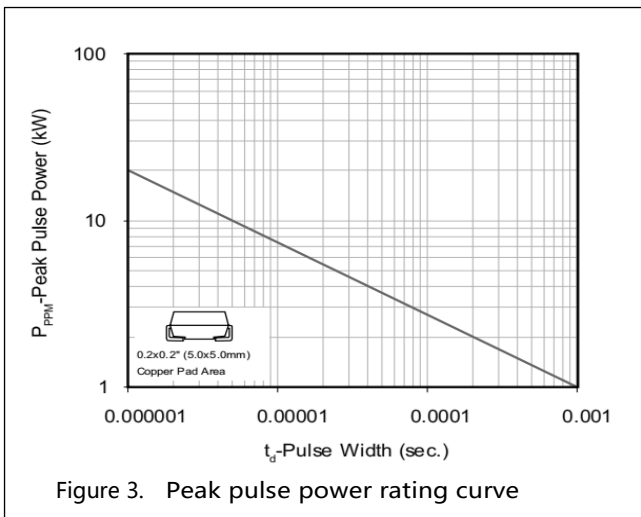
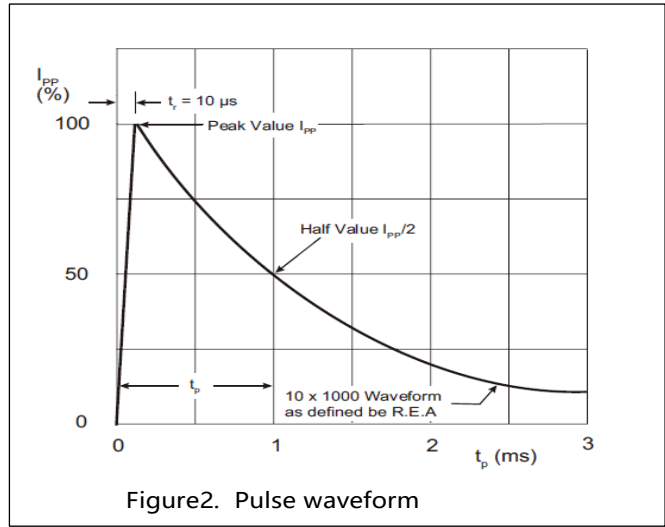
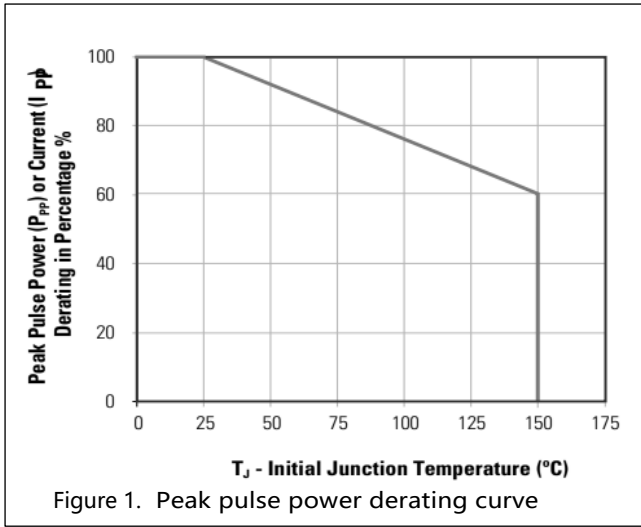
$V_C$  Clamping Voltage -- Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)

$I_R$  Reverse Leakage Current -- Current measured at  $V_R$

$V_F$  Forward Voltage Drop for Uni-directional



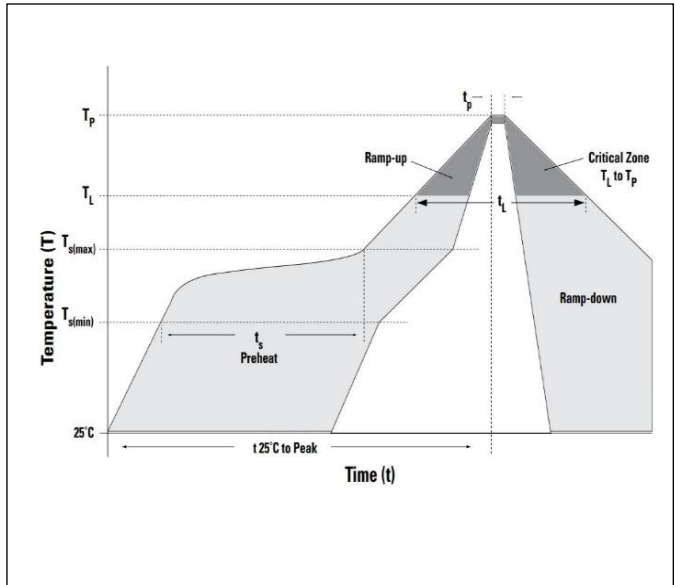
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



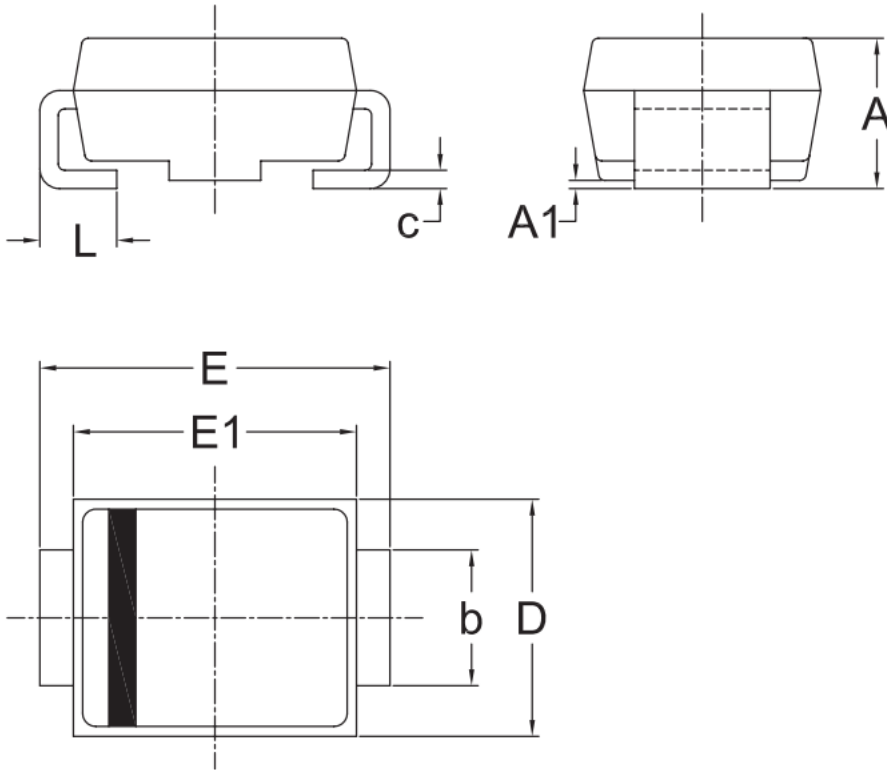
Soldering Parameters

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 <sup>+0/-5</sup> °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



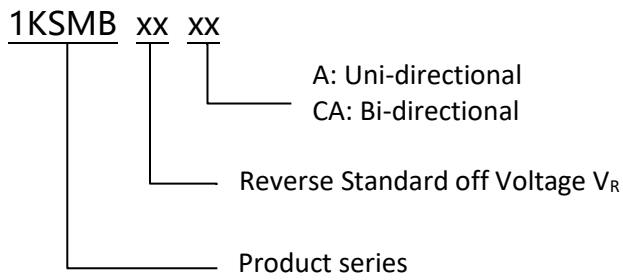
Dimensions



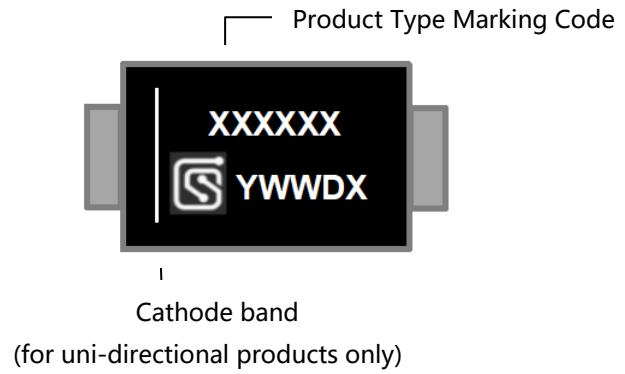
UNIT	A	A1	b	c	D	E	E1	L	
mm	Max	2.50	0.30	2.15	0.25	3.75	5.54	4.65	1.50
	Min	2.00	0.00	1.85	0.15	3.45	5.04	4.35	0.80

Remark: Dimensions D and E1 do not include mold flash & gate remain.

Part Numbering



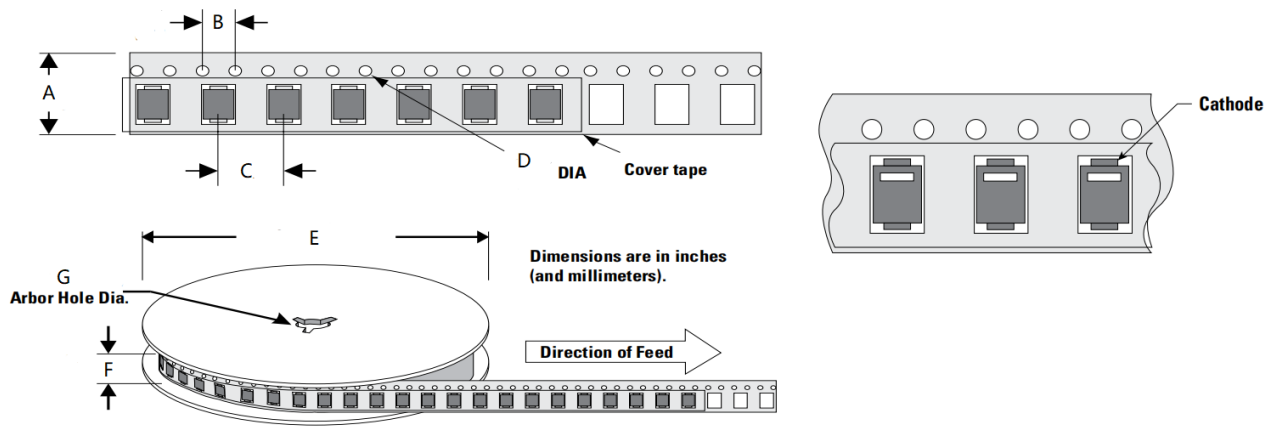
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
1KSMBXXXX	DO-214AA	3000	Tape & Reel

### Tape and Reel Specification



Symbol	Millimeter
A	12.00±0.10
B	4.00±0.10
C	8.00±0.10
D	1.55±0.05
E	330.20±2.00
F	15.70±2.00
G	13.30±0.30

### Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	13-Aug-2021



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