KA Series

ROHS

3KA

Radial Lead Transient Voltage Suppressors (TVS)

www.unsemi.com.tw

Description

The KA series of high current bi-directional transient suppressors are designed for AC. line protection and high power DC bus clamping applications. These devices offer bi-directional port protection from 76 volts to 430 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

Features

- Halogen-free
- Bi-directional
- RoHS compliant
- Low slope resistance
- Very low clamping voltage
- Sharp breakdown voltage
- Glass passivated junction
- Snapback technology for superior clamping factor
- High temperature wave soldering: 265℃/10s at terminals
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃
- Terminal: solder plated, solderable per J-STD-002
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)

Functional Diagram

Bi-directional

Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Current Rating Per 8/20μs IEC 61000-4-5	I_{PP}	3.0	KA
Operating Temperature Range	T_J	- 55 to +125	°C
Storage Temperature Range	T_{STG}	- 55 to +150	°C

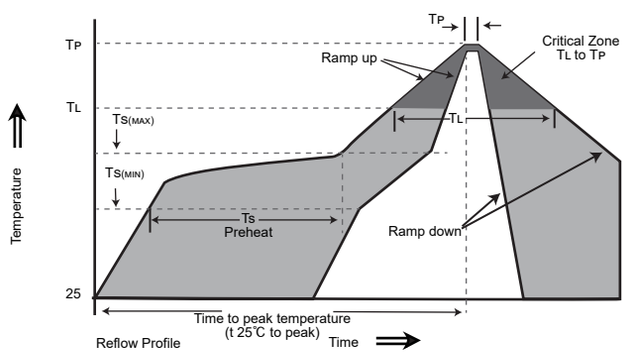
Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number	Stand-Off Voltage	Breakdown Voltage		Test Current	Current Rating	Maximum Clamping Voltage	Reverse Leakage
	V_R(V)	V_{BR}(V) Min.@I_T	V_{BR}(V) Max.@I_T	I_T (mA)	I_{PP} 8/20μs (KA)	V_C(V) @I_{PP}	I_R(μA) @V_R
KA-076	76	85	95	10	3	140	10
KA-380	380	401	443	10	3	520	10
KA-430	430	440	490	10	3	625	10

Physical Specifications

Weight	Contact manufacturer
Case	Epoxy encapsulated
Terminal	Silver plated leads, solderable per MIL -STD-750, Method 2026

Soldering Parameters



Reflow Condition		pd-Lead–free assembly
Pre Heat	-Temperature Min ($T_{S(min)}$)	150°C
	-Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (Ts)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		5°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (Ts)	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		280°C

Flow/Wave Soldering (Solder Dipping)

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

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

Fig1. V- I curve characteristics (Bi-directional)

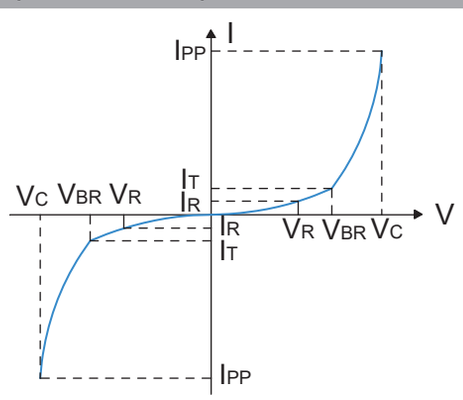
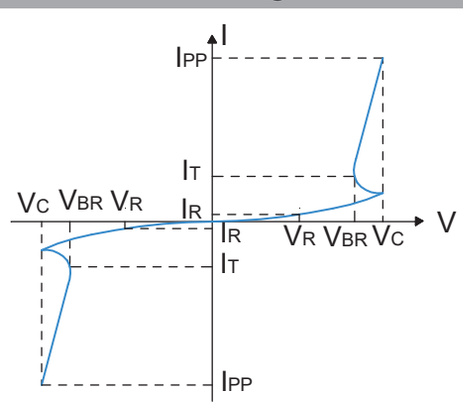


Fig2. V- I curve characteristics (Bi-directional with negative resistance)



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

Fig3. Typical V_{BR} vs Junction Temperature

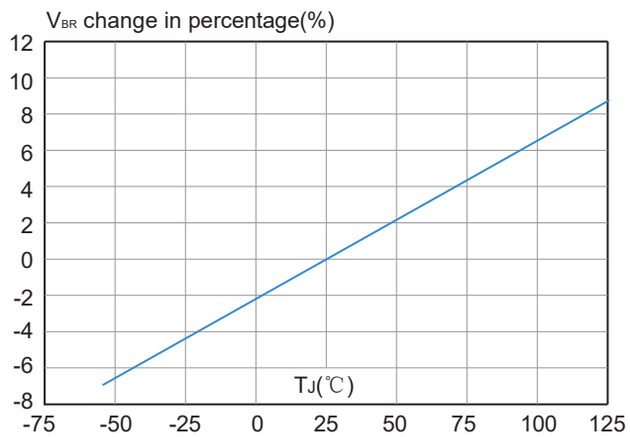


Fig4. : Pulse Waveform

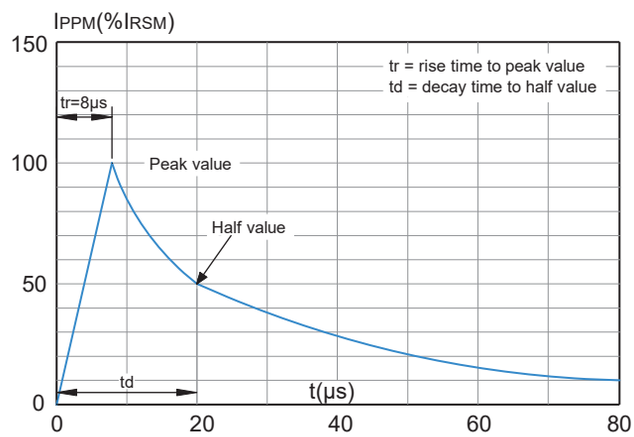
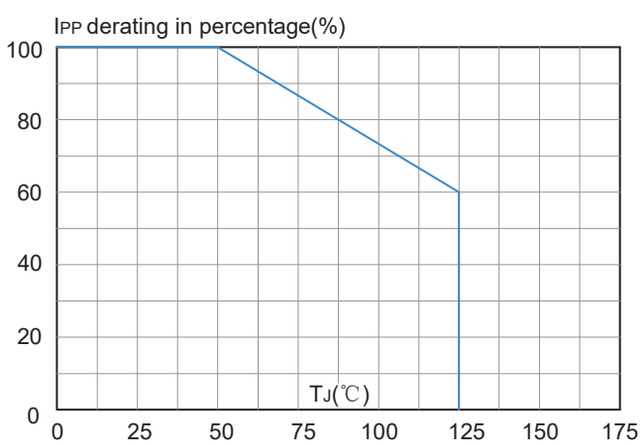
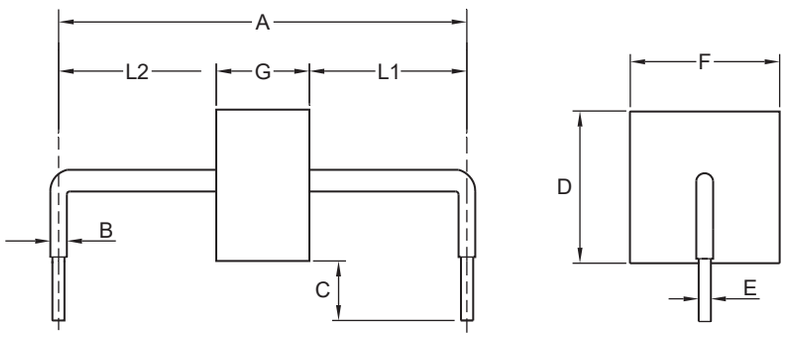


Fig5. Pulse Derating Curve

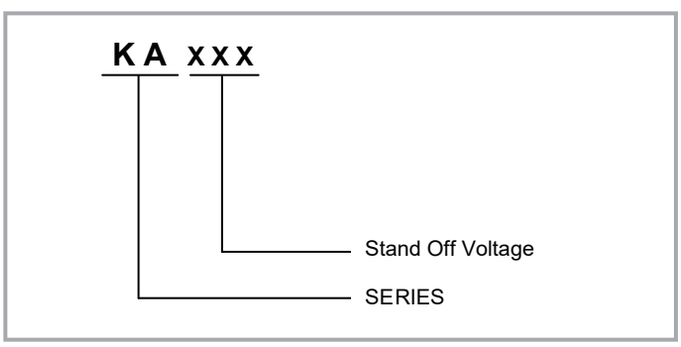


Dimensions



Dimensions		Millimeters	Inches
A		24.15±1.00	0.951±0.039
B		2.40±0.60	0.094±0.024
C		6.00±1.00	0.236±0.039
D		11.00max	0.433max
E		1.27±0.05	0.050±0.002
F		9.50max	0.374max
G	KA-076	5.50±1.20	0.217±0.047
	KA-380/KA-430	15.50±1.20	0.610±0.047
L1		L1=L2 tolerance±1.20mm (±0.047 inch)	
L2		L1=L2 tolerance±1.20mm (±0.047 inch)	

Part Numbering



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