

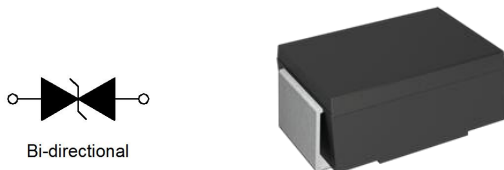
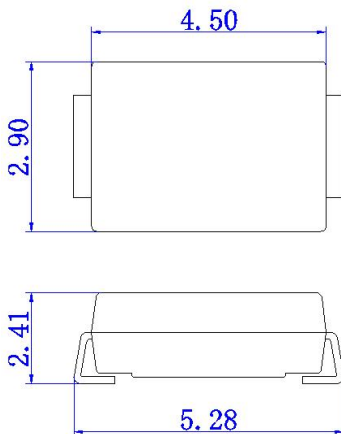
Description

Transient voltage suppression diodes, also known as TVS diodes, are protective electronic parts that protect electrical equipment from voltage spikes introduced by wires.

Features

- For surface mounted applications
- Excellent clamping capability
- 400 W peak pulse power capability with a 10/1000 μ s Waveform.
- V_{RWM} 400V
- Low profile package and low inductance
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0V to V_{BR} min.

Dimensions & Symbol (Unit: mm Max)



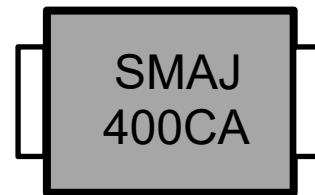
Applications

- computer system
- domestic appliance
- video input

Mechanical Characteristics

- Package: SMA/DO-214AC
 - Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
 - Moisture Sensitivity: Meet MSL 1
 - Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
 - Polarity: Color band denotes cathode except bi-directional models
- Weight: 0.07g(Approximate)

Marking Information



SMAJ400CA: SMAJ400CA Marking code

Electrical Characteristics (T=25°C)

Part Number	Marking	V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	$I_{PP}^{\textcircled{1}}$
Bi-Polar	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SMAJ440CA	SMAJ440CA	440.0	1	492.0	543.0	1	713.0	0.57

Notes:

① Surge waveform: 10/1000 μs

V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown Voltage

V_C : Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

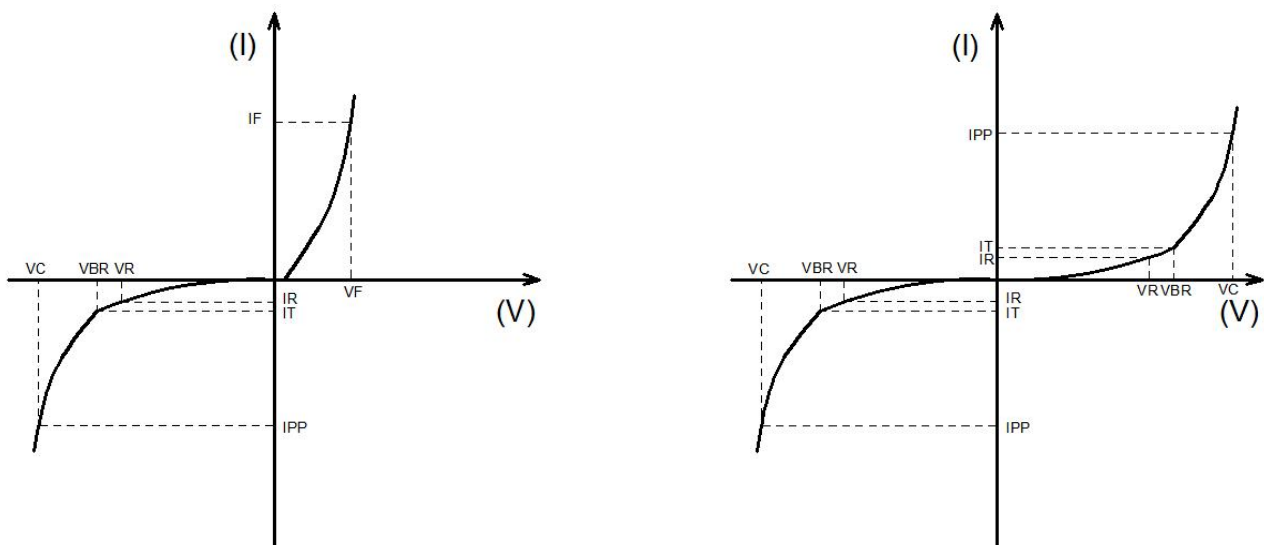
I_R : Reverse Leakage Current

Absolute Maximum Ratings(T=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000 μs waveform	P_{PP}	400	W
Steady state power dissipation at $T_L=75^{\circ}C$	$P_{M(AV)}$	1.0	W
Operating junction temperature range	T_j	-55 to +125	$^{\circ}C$
Storage temperature range	T_{stg}	-55 to +150	$^{\circ}C$

Ratings And V-I Characteristics Curves (T=25°C, unless otherwise noted)

FIG1: V-I cure characteristics



Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @ I_F
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_R
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

Typical Characteristics

FIG2: Pulse Derating Curve

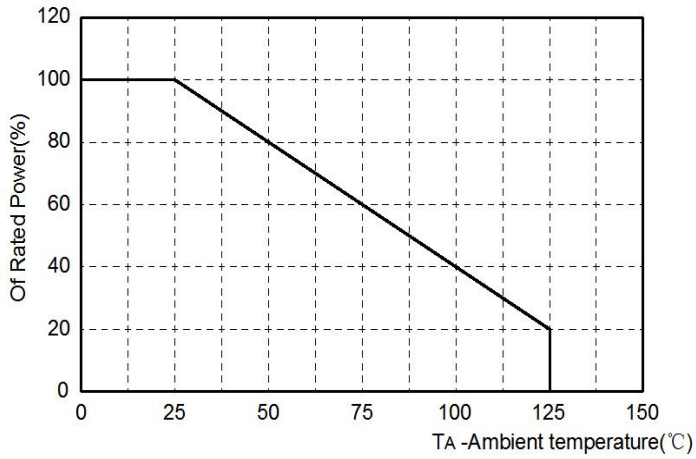


FIG3: Pulse Waveform

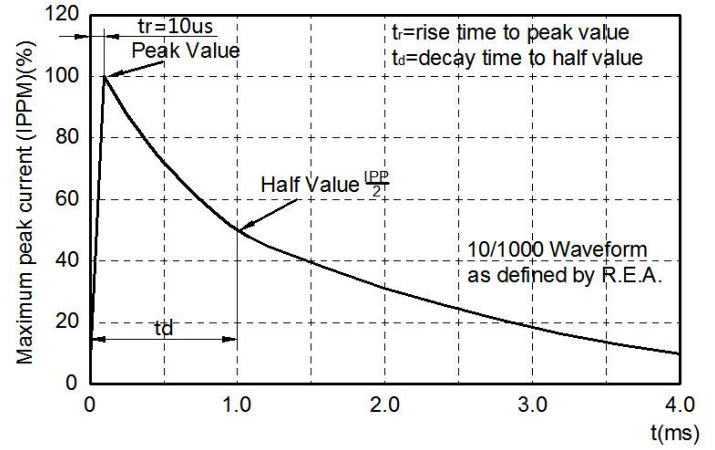


FIG4: Peak Pulse Power Rating Curve

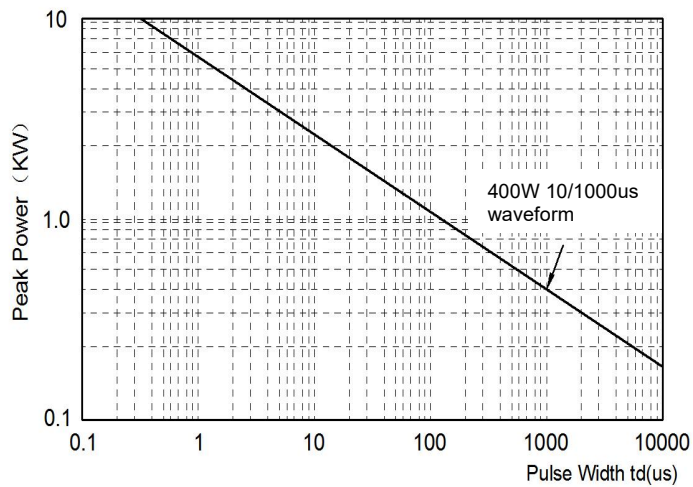
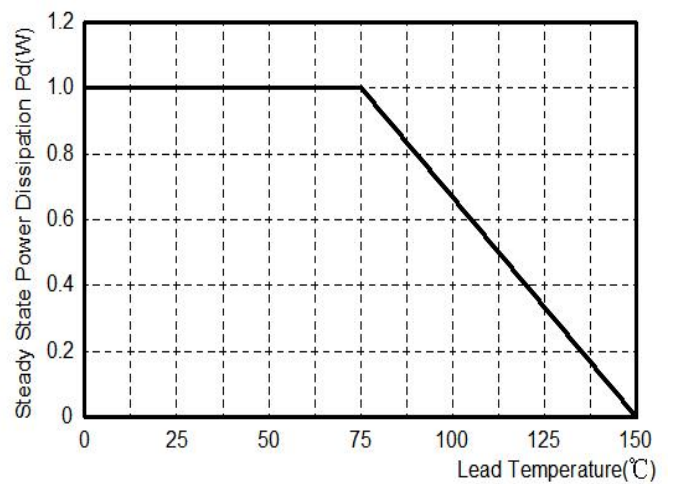
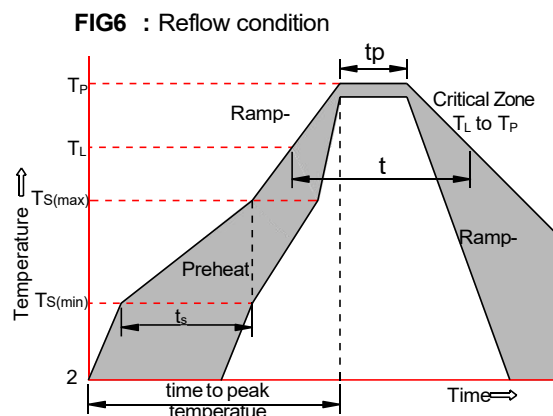


FIG5: Steady State Power Dissipation

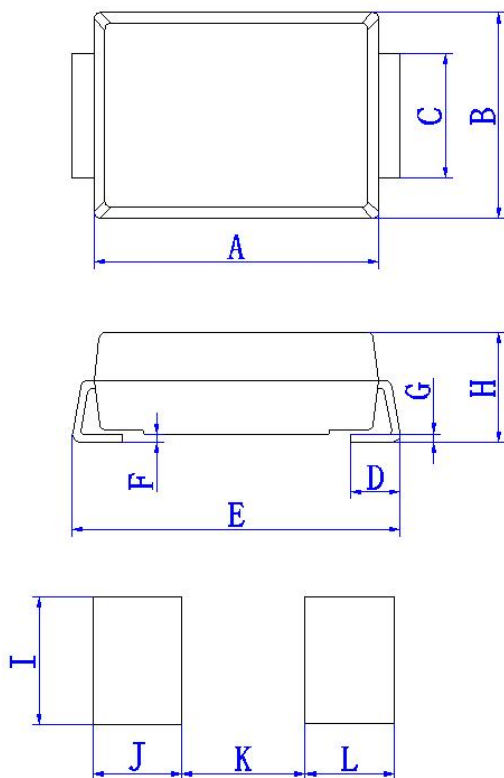


Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package mechanical data & Suggested Land Pattern



Ref.(mm)	Millimeters	
	Min.	Max.
A	3.99	4.5
B	2.5	2.9
C	1.2	1.7
D	0.76	1.52
E	4.93	5.28
F	0	0.203
G	0.15	0.25
H	1.98	2.41
I	1.50	1.70
J	1.40	1.60
K	2.30	2.50
L	1.40	1.60