

Thyristor Surge Suppressor

Version: A2 2023-06-20

Features

- Excellent capability of absorbing transient surge
- Quick response to surge voltage (nS Level)
- Low Capacitance <20pF
- Eliminates overvoltage caused by fast rising transients
- Moisture sensitivity level: level 1
- Weight: 70mg
- Non degenerative

Exterior**SMA****Application Information**

- Video

Package (top view)**Agency Approvals**

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

Schematic Symbol**Part Number and Electrical Parameter**

Part Number	IDRM@ VDRM		Vs ^① @ Is		VT@ IT		IH	Co ^②
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MIN	MAX
BS0060M-BH	5	6	25	800	4	2.2	10	20

Absolute maximum ratings measured at TA= 25°C RH = 45%-75% (unless otherwise noted).

① Vs is measured at 100KV/S

② Off-state Capacitance is measured at VDC=2V, VRMS=1V, f=1MHz

Thyristor Surge Suppressor

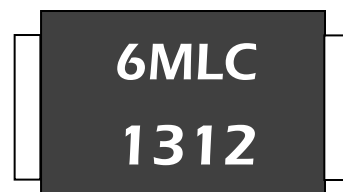
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Part Numbering System

BS 0060 M - B H
(1) (2) (3) (4) (5)

- (1) Bencent Semiconductor Surge Arrester
- (2) Off-state Voltage, e.g.: 0060= $6 \times 10^0=6V$
- (3) Package: SMA
- (4) Rating Surge Voltage:4KV (10/700 μ s, 40 Ω)
- (5) Bencent internal code

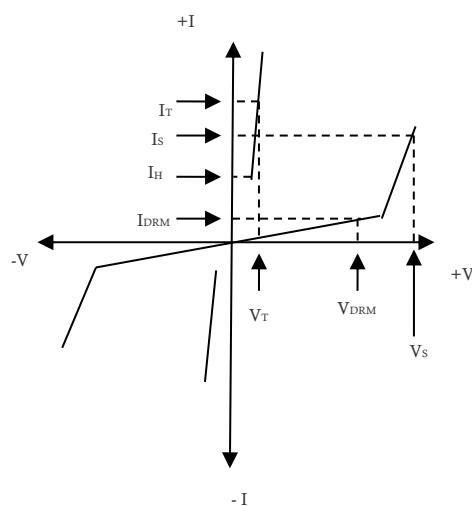
Mark



6MLC: Part Number
1312: December, 2013

V-I Curve

Parameters	Definition
V_{DRM}	Peak Off-state Voltage
I_{DRM}	Off-state Current
V_S	Switching Voltage
I_S	Switching Current
I_H	Holding Current
V_T	On-state Voltage
I_T	On-state Current
C_o	Off-state Capacitance



Surge Ratings

Current Waveform	5/320 μ s*	10/1000 μ s
Voltage Waveform	10/700 μ s*	10/1000 μ s
I_{pp}	100A	50A

- Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product;
- Bencent only makes the test for 5/320 μ s@100A* (10/700 μ s@4KV).

Thermal Considerations

Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +150	$^{\circ}C$
T_S	Storage Temperature Range	-60 to +150	$^{\circ}C$

Physical Characteristics

Lead Material	Copper Alloy
Body Material	UL recognized epoxy meeting flammability classification 94V-0
Terminal Finish	100% Matte-Tin Plated

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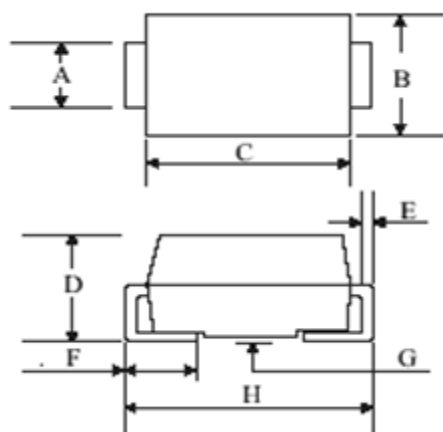
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Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: $125\pm 3^{\circ}\text{C}$, Bias= $80\%V_{\text{DRM}}$ Time: 168H
High Temperature Life Test	Temperature: 150°C Time: 168H
High-low Temperature Cycle Test	Temperature: From -40°C to 125°C Dwell time: 30min, 10-100 cycles
High Temperature & High Humidity Test	Temperature: 85°C Humidity: 85% Test time: 168H
Pressure Cooker Test	Temperature: 121°C , 2atm. Humidity: 100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

Note: The above testing items can be specified by customers by contacting Bencent service

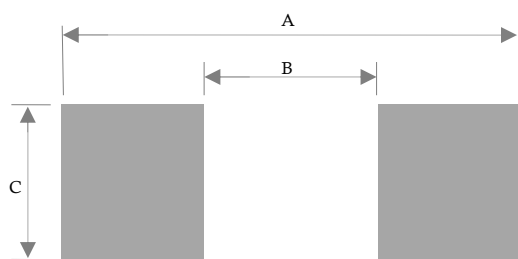
Product Dimensions



SMA

REF.	mm	inch
A	1.25-1.65	0.049-0.065
B	2.18-2.79	0.086-0.110
C	4.06-4.57	0.160-0.180
D	2.00-2.62	0.079-0.103
E	0.15-0.31	0.006-0.012
F	0.89-1.50	0.035-0.059
G	0.10-0.20	0.004-0.008
H	4.70-5.31	0.185-0.209

Recommended Soldering Pad



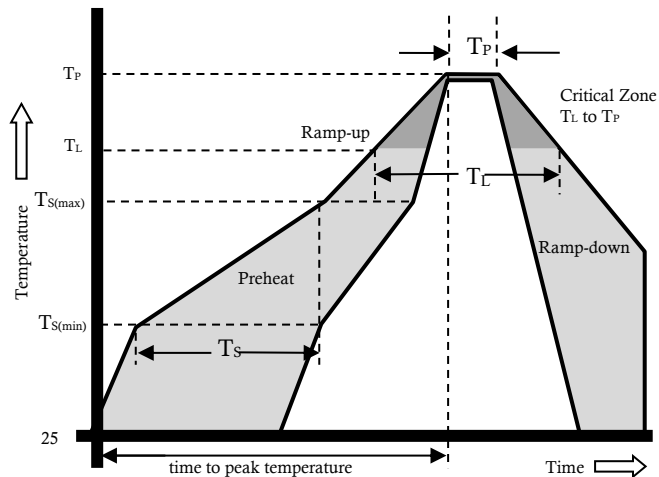
REF	mm	inch
A	6.00	0.236
B	2.00	0.079
C	2.00	0.079

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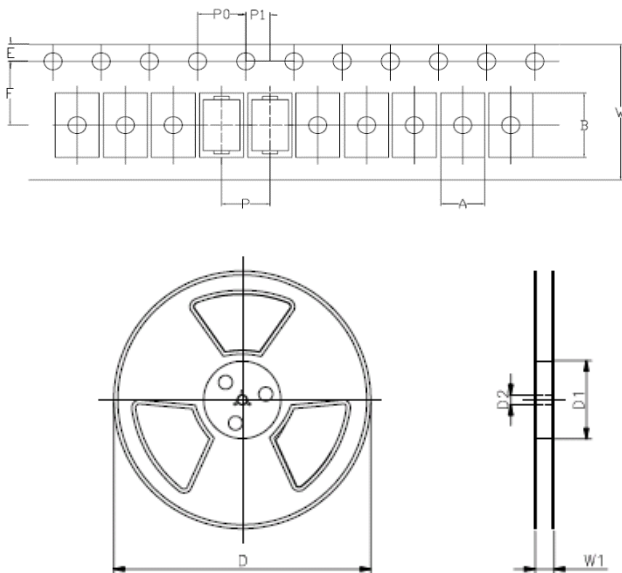
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Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time (Min to Max)	60 – 180 secs.
Average ramp up rate (Liquidus Temp (T _L) to peak)		3°C/sec. Max.
Ts(max) to T _L - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature (T _L) (Liquidus)	+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)		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T _P)		8 min. Max.
Do not exceed		+260°C



Package Reel Information



REF	mm	inch
A	2.6+/-0.15	0.102+/-0.006
B	5.15+/-0.15	0.203+/-0.006
d	1.55+/-0.1	0.061+/-0.004
D	330.0	13.0
D1	100+/-3	3.937+/-0.118
D2	13+/-0.3	0.512+/-0.012
E	1.5+/-0.2	0.059+/-0.008
F	5.65+/-0.2	0.222+/-0.008
P	4.0+/-0.2	0.157+/-0.008
P0	4.0+/-0.2	0.157+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	12.0+/-0.2	0.472+/-0.008
W1	16.8+/-2.0	0.661+/-0.079

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	5,000	80,000	330	360	360	385