Thyristor Surge Suppresser

Version: A1 2017-12-11

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

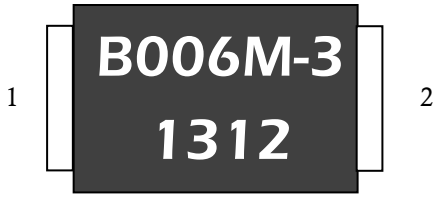
Exterior

SMA

Application Information

- Video

Package (top view)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU

Schematic Symbol

Part Number and Electrical Parameter

Part Number	I_{DRM}@ V_{DRM}		V_S①@ I_S		V_T@ I_T		I_H	C_O	C_O②
	μA	V	V	mA	V	A	mA	pF	pF
	MAX		MAX		MAX		MIN	TYP	MAX
BS0060M-3	5	6	25	800	4	2.2	10	15	20

Absolute maximum ratings measured at T_A= 25ºC RH = 45%-75% (unless otherwise noted).

① Vs is measured at 100KV/S

② Off-state Capacitance is measured at V_{DC}=2V, V_{RMS}=1V, f=1MHz

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Part Numbering System

BS 0060 M - 3
(1) (2) (3) (4)

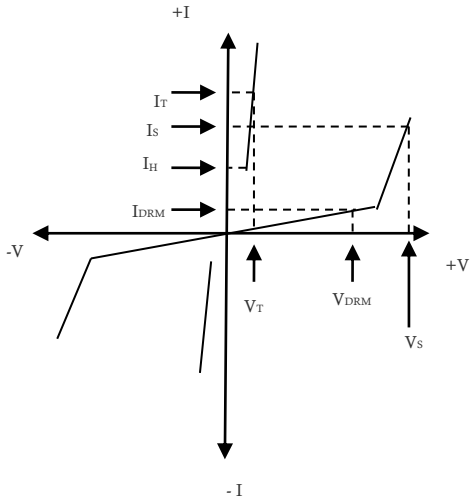
(1) Bencent Semiconductor Surge Arrester
(2) Off-state Voltage, e.g.0060=6×10^0=6V
(3) Package: SMA
Rating Surge Voltage:4KV (1.2/50μs, 42Ω) , omitted in the Mark
(4) Low Capacitance

Mark

B006M-3: 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	8/20μs
Voltage Waveform	1.2/50μs 42Ω
Ipp	96A

-Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product;
-Bencent only makes the test for 8/20μs @96A(1.2/50μs 42Ω 4000V), Bencent will not take any obligation for these parameters, so before applying our parts, please make sure to verify the parameters listed in the above table.

Thermal Considerations

Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +125	℃
T_S	Storage Temperature Range	-60 to +125	℃

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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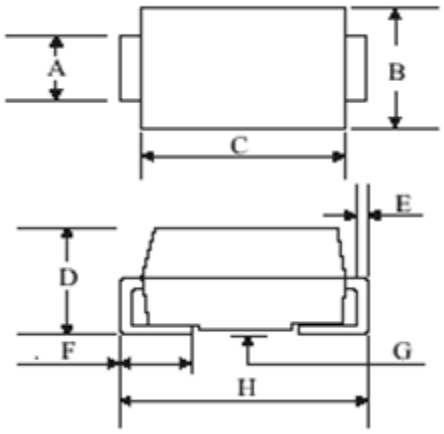
Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: 125±3℃, Bias=80%V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150℃ Time: 168H
High-low Temperature Cycle Test	Temperature: From -40℃ to125℃ Dwell time: 30min, 10-100 cycles
High Temperature &High Humidity Test	Temperature: 85℃ Humidity: 85% Test time: 168H
Pressure Cooker Test	Temperature: 121℃, 2atm. Humidity: 100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: 260±5℃ Time of dip soldering: 10s, 3times

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

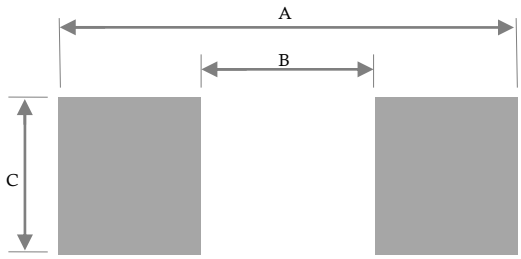
Product Dimensions



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	1.70-2.31	0.067-0.091
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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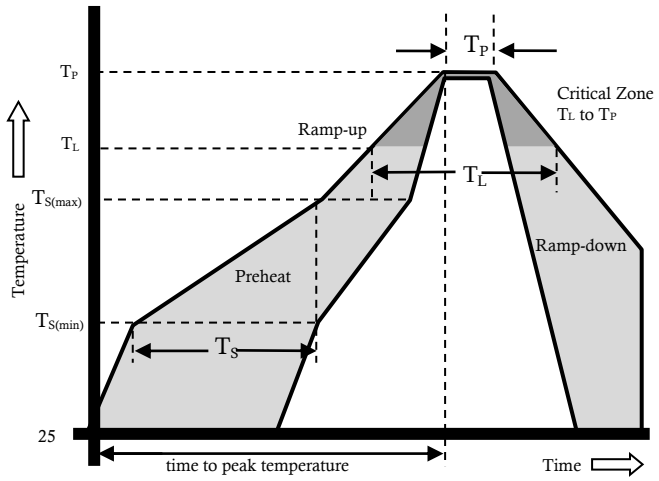
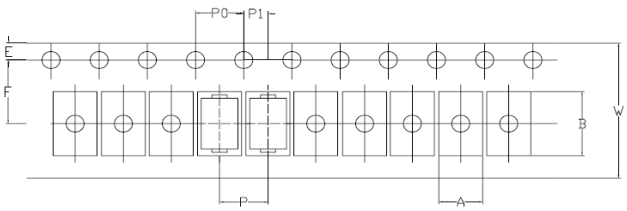
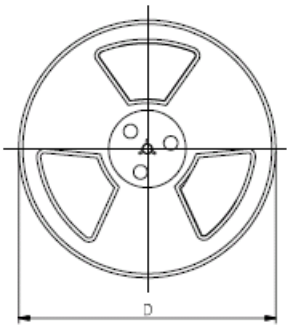
Reflow Profile

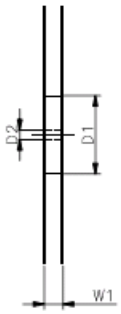
Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time (Min to Max)	60 – 180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max.
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature (T_L) (Liquidus)	+217°C
	- Temperature (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	1.5+/-0.1	0.059+/-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