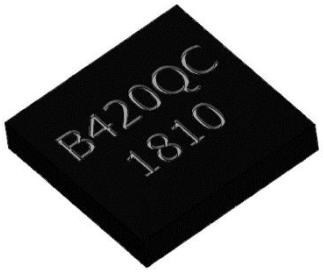
Thyristor Surge Suppresser

Version: A5 2020/05/21

Features

- Excellent capability of absorbing transient surge
- Quick response to surge voltage (nS Level)
- Eliminates overvoltage caused by fast rising transients
- Moisture sensitivity level: level 1
- Weight: 33.3mg (approximate)
- Non degenerative
- Bi-directional

Exterior



DFN

Application Information

- Ethernet

Package (top view)

Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance withIEC61249-2-21:2003

Schematic Symbol

Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}		V_S①@ I_S		V_T@ I_T		I_H	C_O②
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MAX	MAX
BS4200Q-C	5	400	520	800	4	2.2	50	35

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	4200	Q	C
(1)	(2)	(3)	(4)

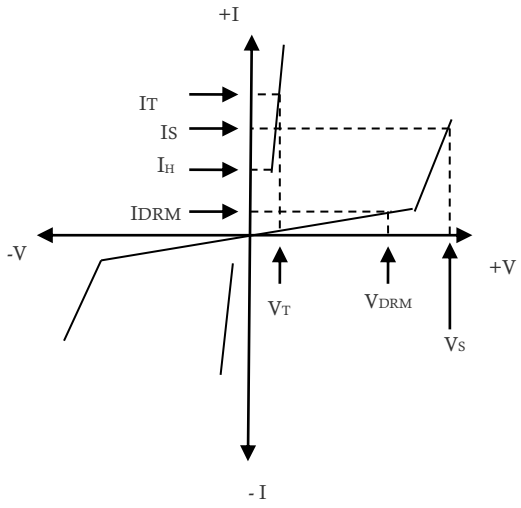
(1) Bencent Semiconductor Surge Arrester
(2) Off-state Voltage, e.g.: 4200=420×10^0=420V
(3) Package: DFN
(4) Rating Surge Voltage: 6KV (10/700μs)

Mark

B420QC: Part Number
1810: October, 2018

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	2/10μs	8/20μs	10/160μs	5/320μs*	10/1000μs
Voltage Waveform	2/10μs	1.2/50μs	10/160μs	10/700μs*	10/1000μs
Ipp	375A	300A	180A	150A	100A

-Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product;
-Bencent only makes the test for 5/320μs@150A* (10/700μs@6KV), but for other IPP value derived from experience is just for reference only. 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.

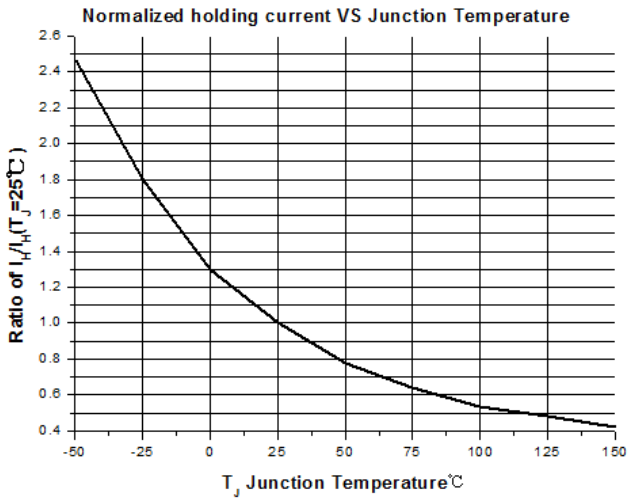
Thermal Considerations

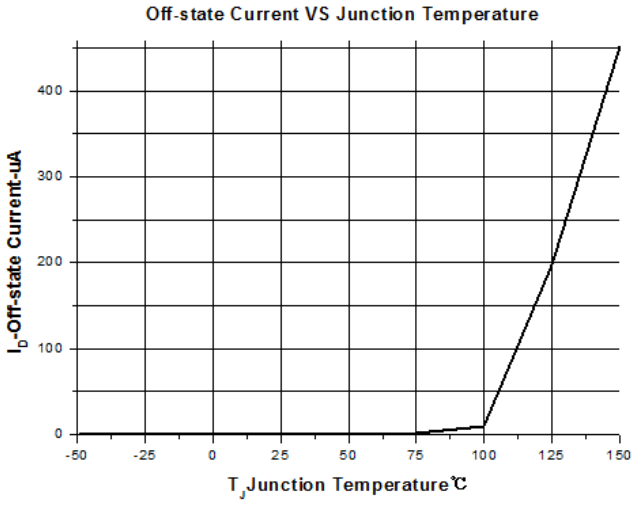
Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +150	℃
T_S	Storage Temperature Range	-60 to +150	℃

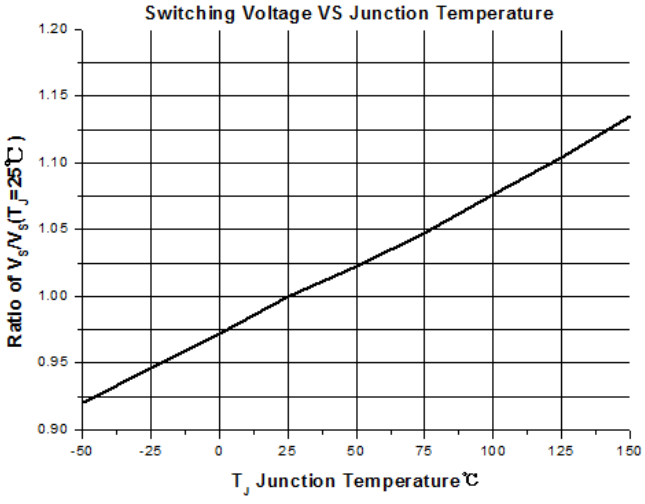
Physical Characteristics

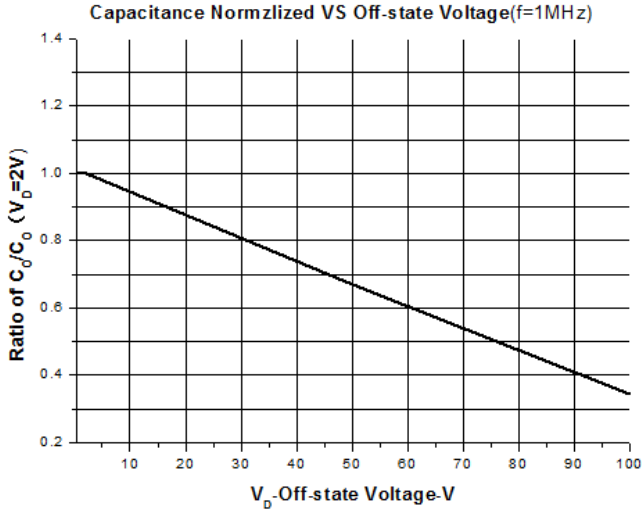
Lead Material	Copper Alloy
Body Material	UL recognized epoxy meeting flammability classification 94V-0
Terminal Finish	100% Matte-Tin Plated

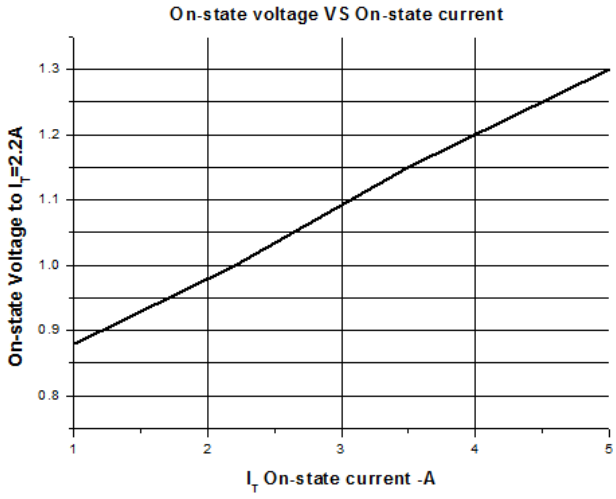
Typical Characteristics











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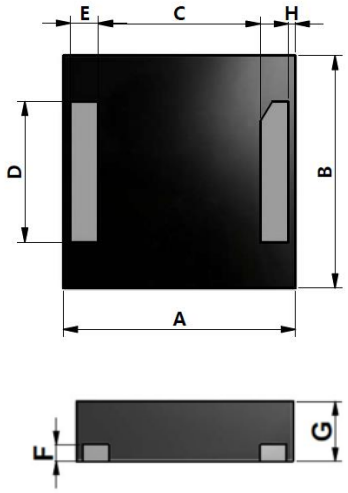
Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: 150±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

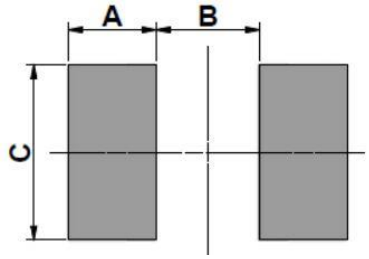
Note: The above testing items can be specified by customers by contacting Bencent service

Product Dimensions



REF.	mm	inch
A	3.3±0.1	0.130±0.004
B	3.3±0.1	0.130±0.004
C	2.39±0.3	0.094±0.012
D	2.0±0.1	0.079±0.004
E	0.4±0.05	0.016±0.002
F	0.25±0.03	0.010±0.001
G	1.0 +0.1/-0.2	0.039 +0.004/-0.008
H	0.10±0.06	0.004±0.002

Recommended Soldering Pad



REF	mm	inch
A	1.27	0.050
B	1.5	0.059
C	2.54	0.100

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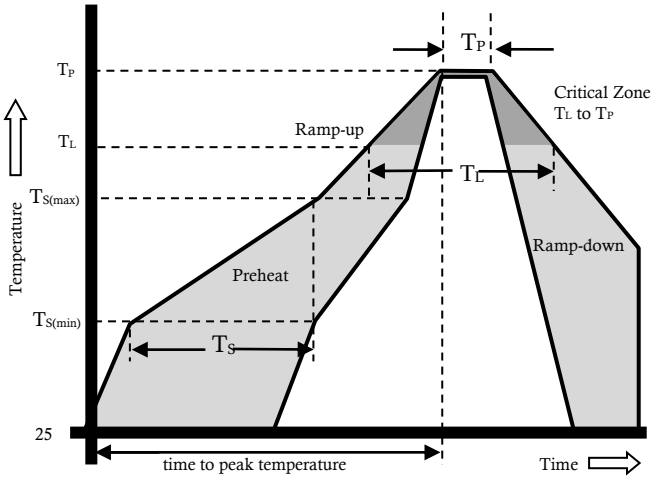
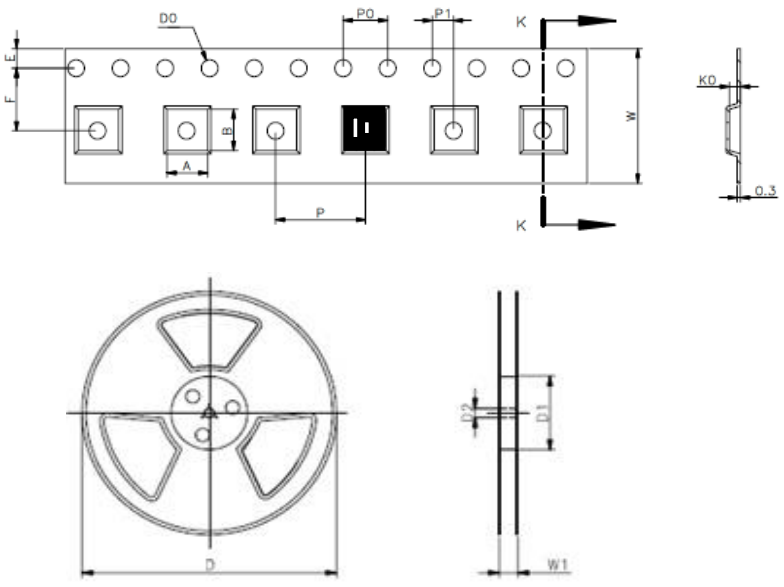
Reflow Profile

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)		8 – 15secs.
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	3.5±0.1	0.138±0.004
B	3.5±0.1	0.138±0.004
D	330.0	13.0
D0	1.5±0.1	0.059±0.004
D1	50.0	1.969
D2	13±0.15	0.512±0.006
E	1.5±0.1	0.059±0.004
F	5.65±0.05	0.222±0.002
P	8.0±0.1	0.315±0.004
P0	4.0±0.1	0.157±0.004
P1	2.0±0.1	0.079±0.004
W	12.0±0.2	0.472±0.008
W1	16.8±2.0	0.661±0.079
K0	1.2±0.1	0.047±0.004

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	5000	80000	330	360	360	385