

MICROELECTRONICS CO., LTD.

SEM7032A
Thyristor Surge Protective Devices

Revision:A

General Description

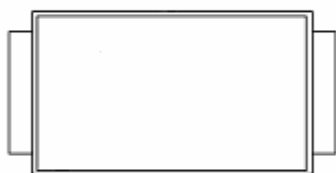
SEM7032A is solid state crowbar devices designed to protect telecom equipment during hazardous transient conditions. It is a two terminal solid state device capable to drain a surge current pulse to ground when a transient voltage appears in between its two terminals when a specific maximum voltage delimited by the maximum breakover voltage of the device is reached.

Features

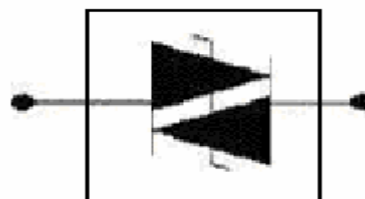
- Bidirectional crowbar protection
- Continuous reverse voltage :6V
- Low leakage current: IR=10uA max.
- Holding current: IH=50mA min.

Main applications

- Data line
- Interface circuit
- Analog line cards

Functional diagram


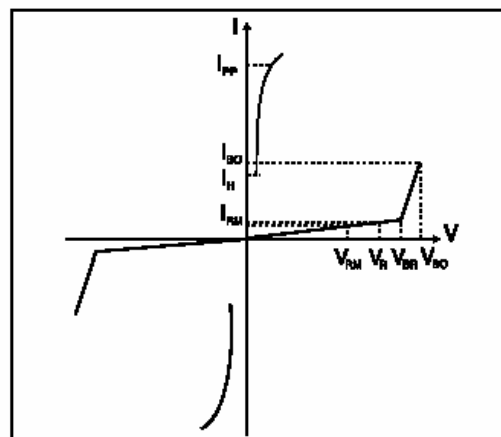
SMA


Absolute Ratings (Tamb=25°C)

Symbol	Parameter		Value	Unit
Ts	Storage temperature range		-40 to +150	°C
Tj	Maximum junction temperature		150	°C
I _{PP}	Repetitive peak pulse current:	10/1000μs	45	A
		10/560μs	50	
		10/160μs	90	
		8/20μs	150	
		2/10μs	150	
I _{TSM}	Non repetitive surge peak on-state current (sinusoidal)	t=16.6ms	20	A

Electrical Parameters

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Switching Voltage
I_{BO}	Breakover current
I_{RM}	Leakage current at V_{RM}
I_{PP}	Peak pulse current
I_H	Holding current
V_T	On-state Voltage at I_T
C_O	Off-state Capacitance

Electrical Characteristics ($T_{amb}=25^{\circ}C$)

Type	V_{RM}	I_{RM}	V_{BO}	I_{BO}	V_T	I_T	C_O	I_H
	Min.	Max.	Max.	Max.	Max.	Max.	Max.	Min.
	V	μA	V	mA	V	A	pF	mA
SEM7032A	6	10	25	800	4	1	50	50

Typical Characteristics

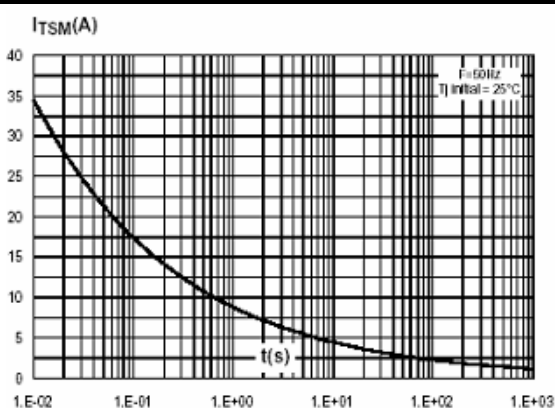


Fig.1:Non repetitive surge peak on-state current versus overload duration

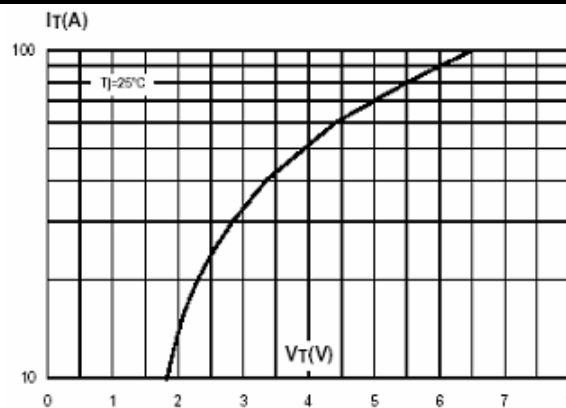


Fig.2:On-state voltage versus on-state current(typical values)

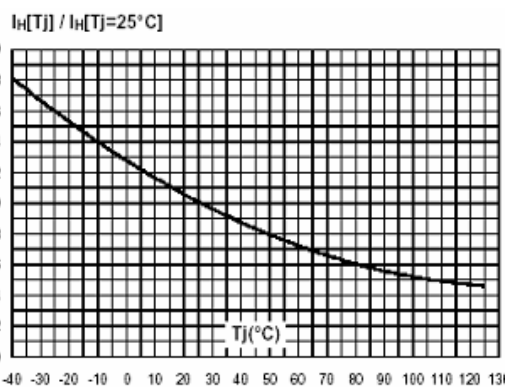


Fig.3:Relative variation of holding current versus junction temperature

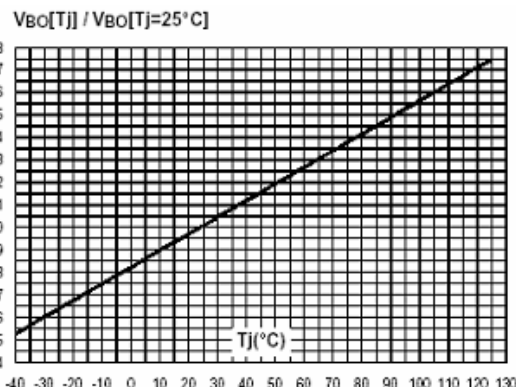


Fig.4:Relative variation of breakover voltage versus junction temperature

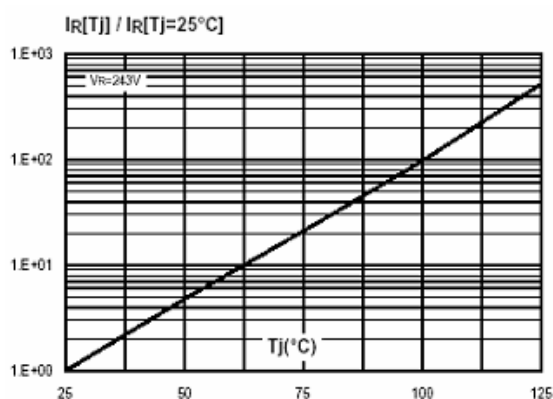


Fig.5: Relative variation of leakage current versus reverse voltage applied (typical values)

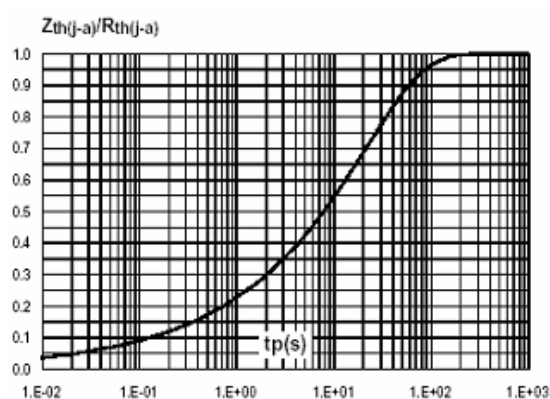
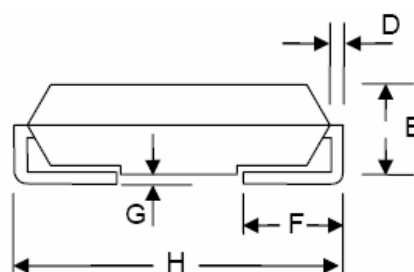
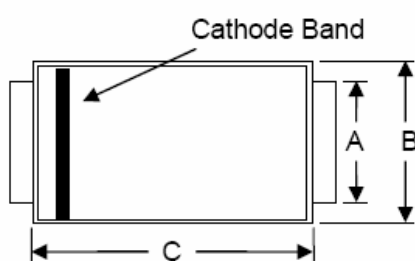


Fig.6: Variation of thermal impedance junction to ambient versus pulse duration (Printed circuit board FR4, $Scu=35\mu m$, recommended pad layout)

SMA Mechanical Dimensions



Item	Inches		Millimeters	
	Min.	Max.	Min.	Max
A	0.049	0.065	1.250	1.650
B	0.100	0.110	2.540	2.790
C	0.157	0.177	3.990	4.500
D	0.006	0.012	0.152	0.305
E	0.078	0.090	1.980	2.290
F	0.030	0.060	0.760	1.520
G	-	0.008	-	0.203
H	0.194	0.208	4.930	5.280

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