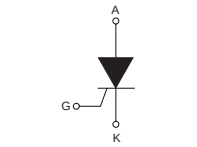
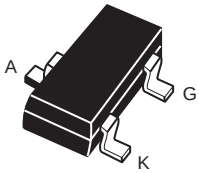
P0102BL

SENSITIVE 0.25A SCRs

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	0.25	A
V_{DRM}/V_{RRM}	200	V
I_{GT}	200	µA





SOT-23

DESCRIPTION

Thanks to highly sensitive triggering levels, the PO102BL SCR is suitable for all applications where the available gate current is limited such as stand-by mode power supplies, smoke and alarm detectors...
Available in SOT-23, it provides optimized space saving on high density printed circuit boards.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		Tamb = 30°C	0.25	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)		Tamb = 30°C	0.17	A
I_{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	Tj = 25°C	7	A
		tp = 10 ms		6	
I^2t	I^2t Value for fusing	tp = 10 ms	Tj = 25°C	0.18	A^2S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100ns	F = 60 Hz	Tj = 125°C	50	A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	0.5	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	0.02	W
T_{stg} Tj	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions			P0102BL	Unit
I_{GT}	V_D = 12 V R_L = 140 Ω		MAX.	200	µA
V_{GT}			MAX.	0.8	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ R_{GK} = 1 kΩ	Tj = 125°C	MIN.	0.1	V
V_{RG}	I_{RG} = 10 µA		MIN.	8	V
I_H	I_T = 50 mA R_{GK} = 1kΩ		MAX.	6	mA
I_L	I_G = 1 mA R_{GK} = 1kΩ		MAX.	7	mA
dV/dt	V_D = 67 % V_{DRM} R_{GK} = 1kΩ	Tj = 125°C	MIN.	200	V/µs
V_{TM}	I_{TM} = 0.4 A tp = 380 µs	Tj = 25°C	MAX.	1.7	V
V_{t0}	Threshold voltage	Tj = 125°C	MAX.	1.0	V
R_d	Dynamic resistance	Tj = 125°C	MAX.	1000	mΩ
I_{DRM}	$V_{DRM} = V_{RRM}$	Tj = 25°C	MAX.	1	µA
I_{RRM}		Tj = 125°C		100	

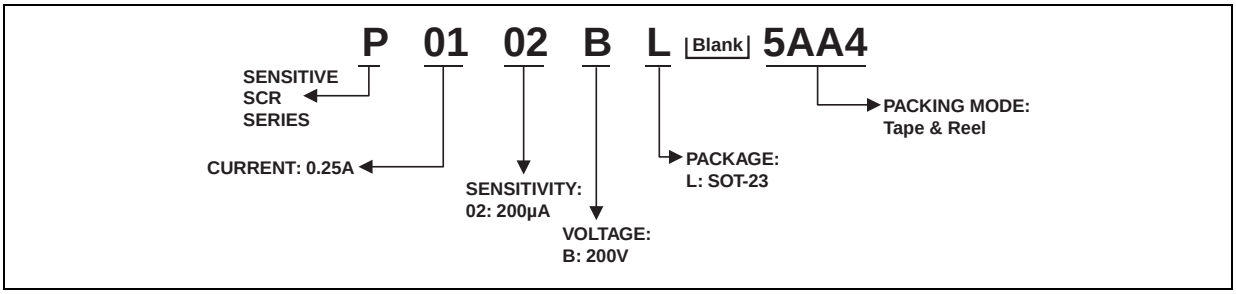
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient (mounted on FR4 with recommended pad layout)	400	°C/W

PRODUCT SELECTOR

Part Number	Voltage	Sensitivity	Package
P0102BL	200 V	200 µA	SOT-23

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
P0102BL	P2B	0.01 g	3000	Tape & reel

Fig. 1: Maximum average power dissipation versus average on-state current.

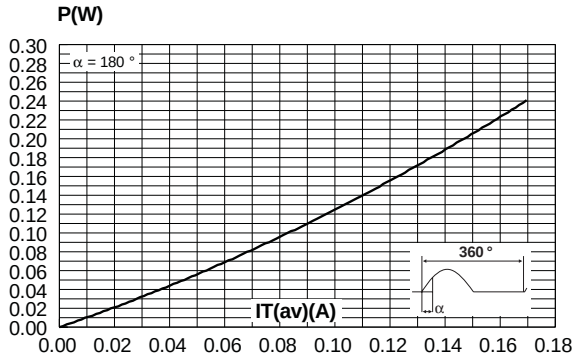


Fig. 2: Average and D.C. on-state current versus ambient temperature.

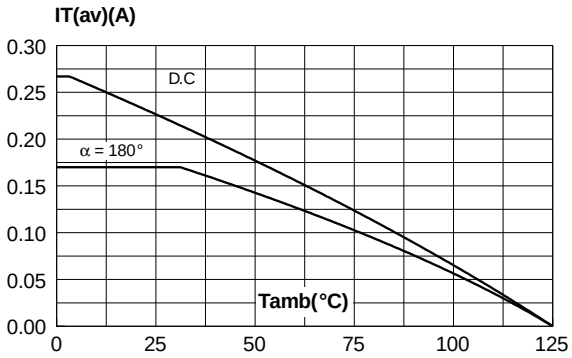


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

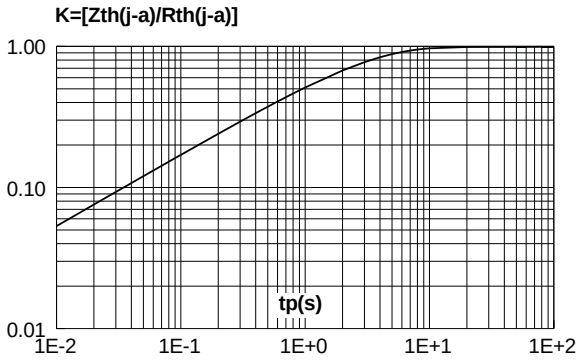


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

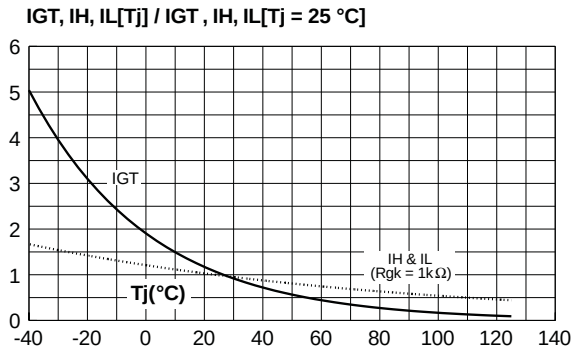


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

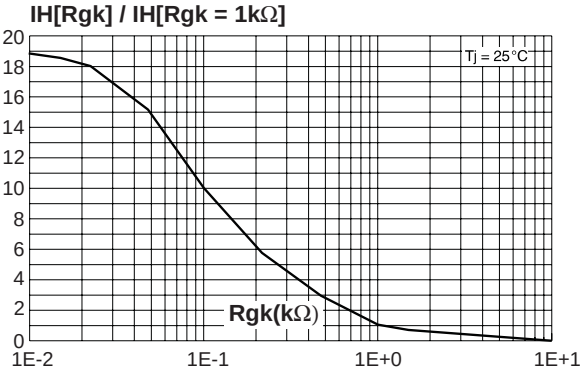


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

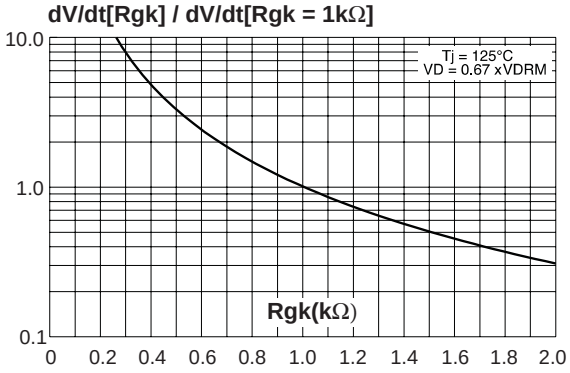


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

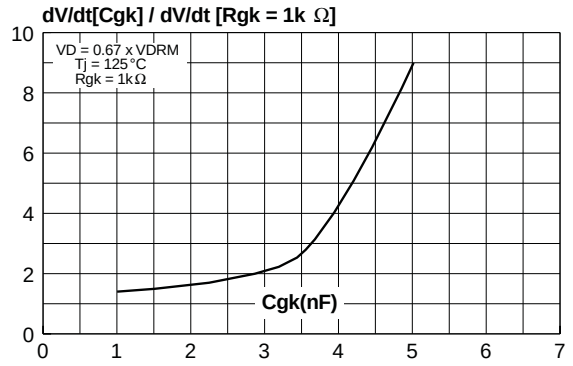


Fig. 8: Surge peak on-state current versus number of cycles.

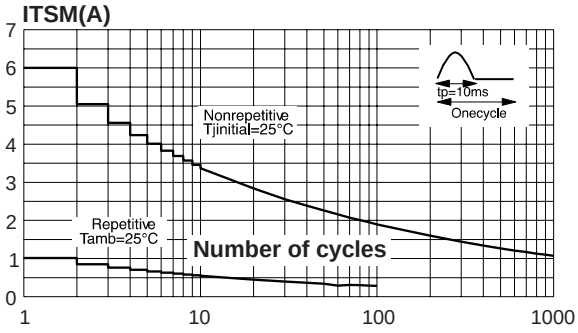


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

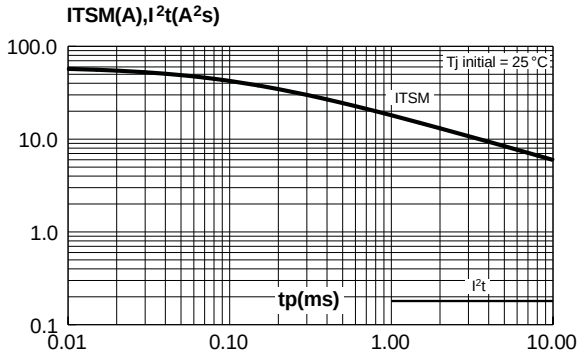


Fig. 10: On-state characteristics (maximum values).

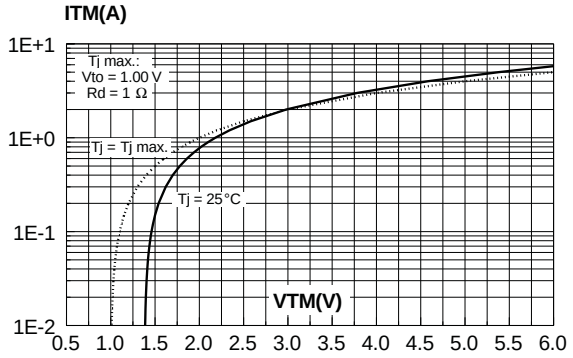
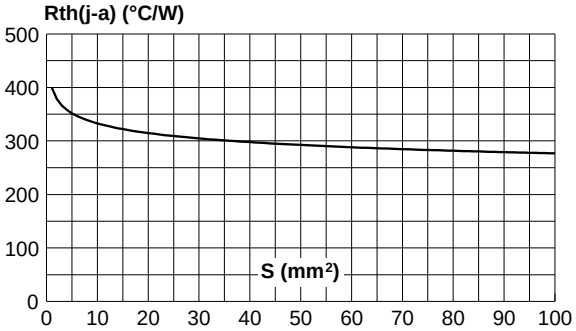
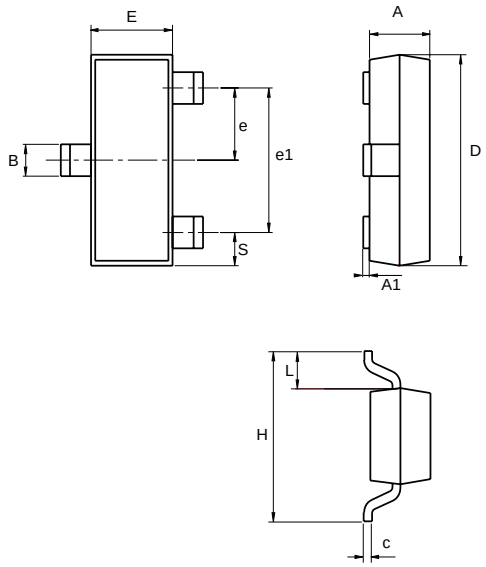


Fig. 11: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 µm).



PACKAGE MECHANICAL DATA

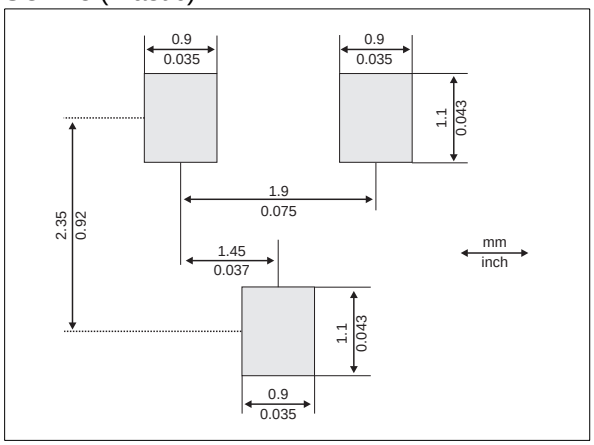
SOT-23 (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.89	1.4	0.035	0.055
A1	0	0.1	0	0.004
B	0.3	0.51	0.012	0.02
c	0.085	0.18	0.003	0.007
D	2.75	3.04	0.108	0.12
e	0.85	1.05	0.033	0.041
e1	1.7	2.1	0.067	0.083
E	1.2	1.6	0.047	0.063
H	2.1	2.75	0.083	0.108
L	0.6 typ.		0.024 typ.	
S	0.35	0.65	0.014	0.026

FOOTPRINT DIMENSIONS (in millimeters)

SOT-23 (Plastic)



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