



P0102BL

SENSITIVE

0.25A SCR_s

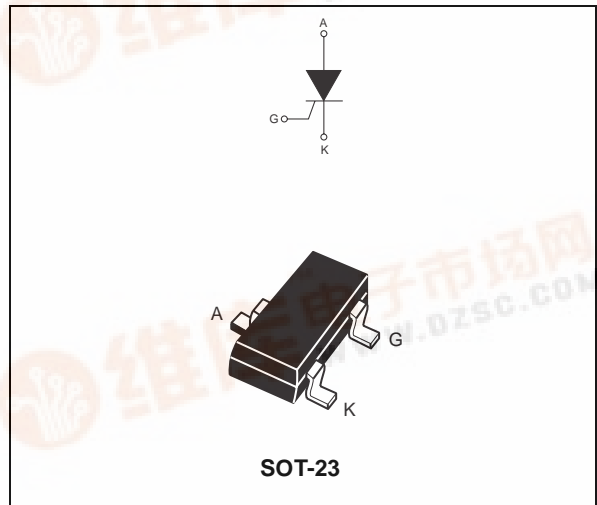
MAIN FEATURES:

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

DESCRIPTION

Thanks to highly sensitive triggering levels, the P0102BL 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)		$T_{amb} = 30^{\circ}C$	0.25 A
$I_{T(AV)}$	Average on-state current (180° conduction angle)		$T_{amb} = 30^{\circ}C$	0.17 A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^{\circ}C$	7 A
		$t_p = 10 \text{ ms}$		6 A
I^2t	I^2t Value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^{\circ}C$	0.18 A ² s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ns}$	$F = 60 \text{ Hz}$	$T_j = 125^{\circ}C$	50 A/ μs
I_{GM}	Peak gate current	$t_p = 20 \mu s$	$T_j = 125^{\circ}C$	0.5 A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125^{\circ}C$	0.02 W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125 °C



ELECTRICAL CHARACTERISTICS (T_j = 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	T _j = 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	T _j = 125°C	MIN.	200	V/μs
V _{TM}	I _{TM} = 0.4 A tp = 380 μs	T _j = 25°C	MAX.	1.7	V
V _{t0}	Threshold voltage	T _j = 125°C	MAX.	1.0	V
R _d	Dynamic resistance	T _j = 125°C	MAX.	1000	mΩ
I _{DRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	1	μA
I _{RRM}		T _j = 125°C		100	

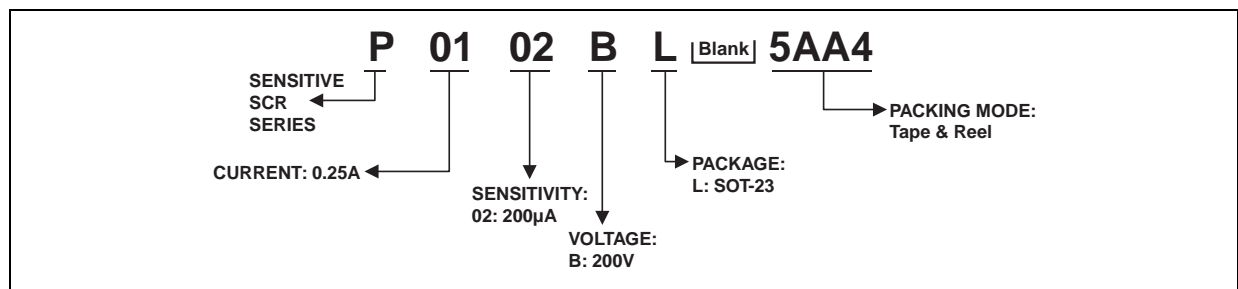
THERMAL RESISTANCES

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.

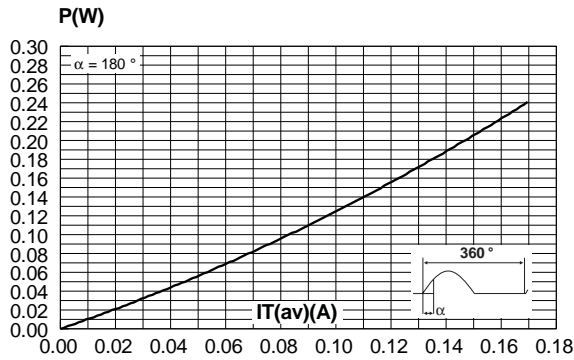


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

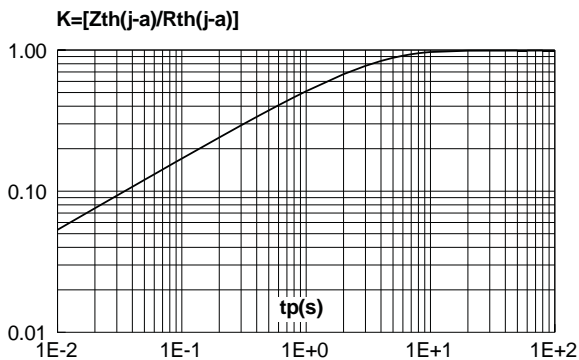


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

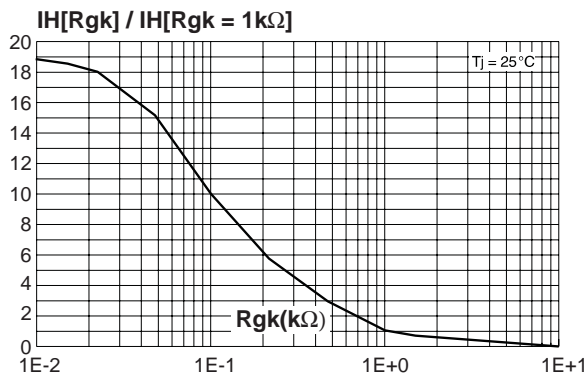


Fig. 2: Average and D.C. on-state current versus ambient temperature.

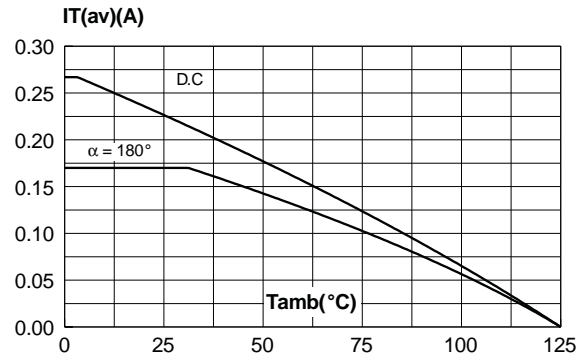


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

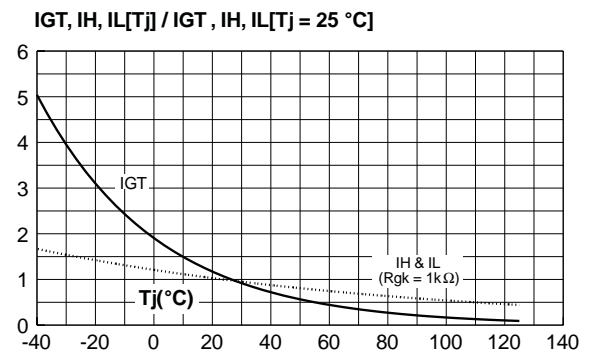


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

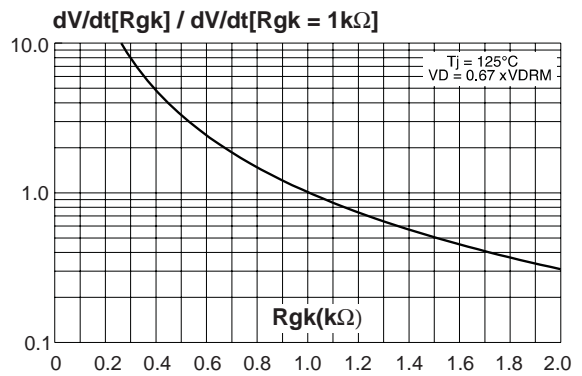


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

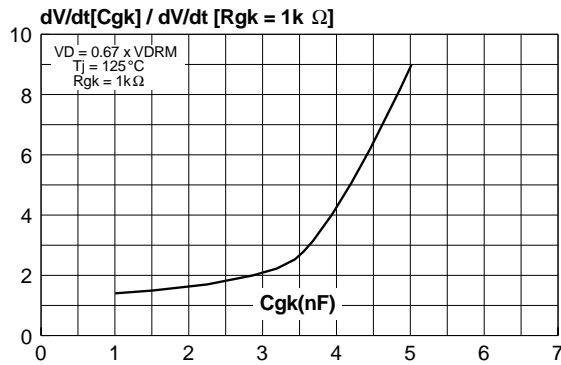


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

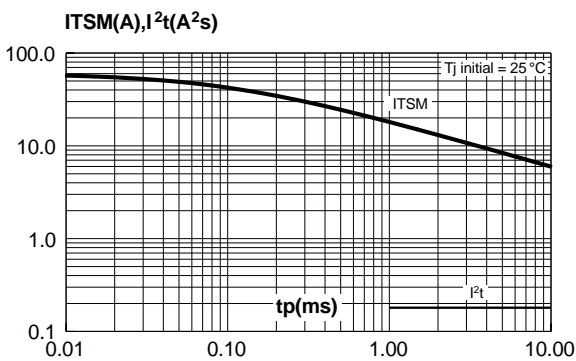


Fig. 11: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 μm).

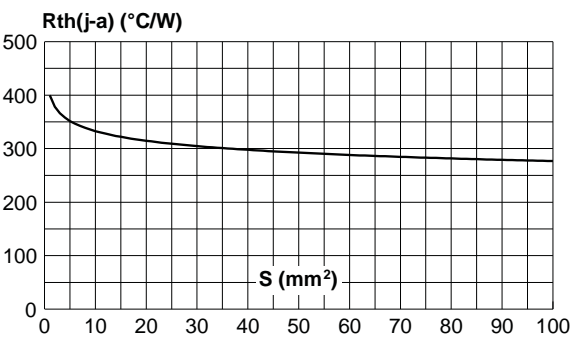


Fig. 8: Surge peak on-state current versus number of cycles.

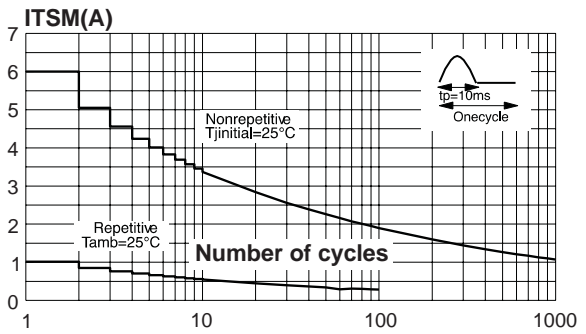
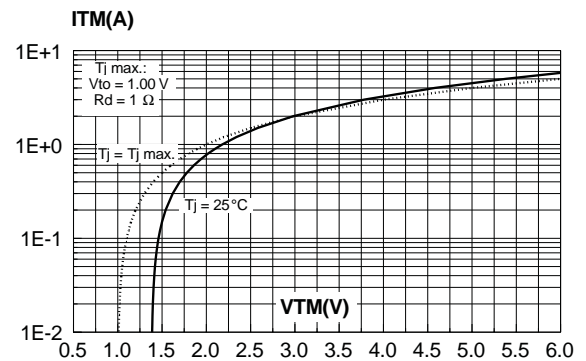
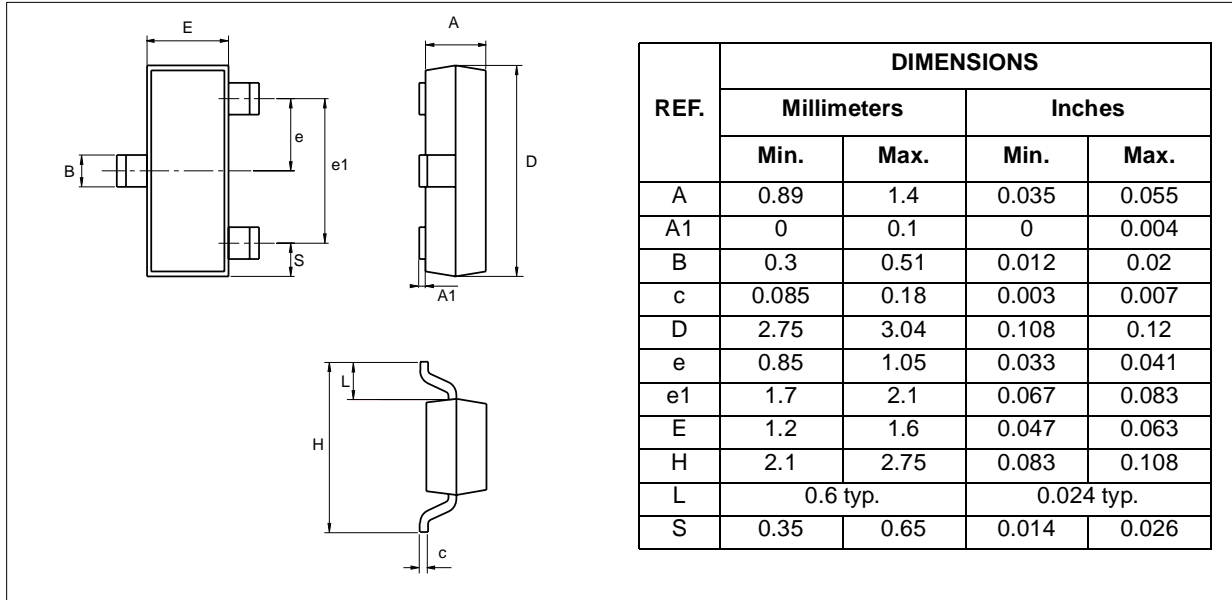


Fig. 10: On-state characteristics (maximum values).



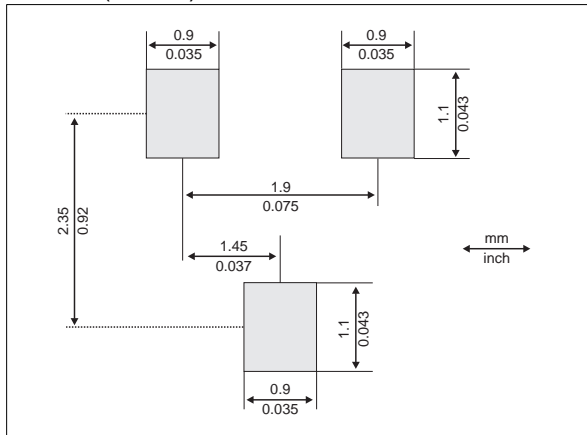
PACKAGE MECHANICAL DATA

SOT-23 (Plastic)



FOOTPRINT DIMENSIONS (in millimeters)

SOT-23 (Plastic)



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