

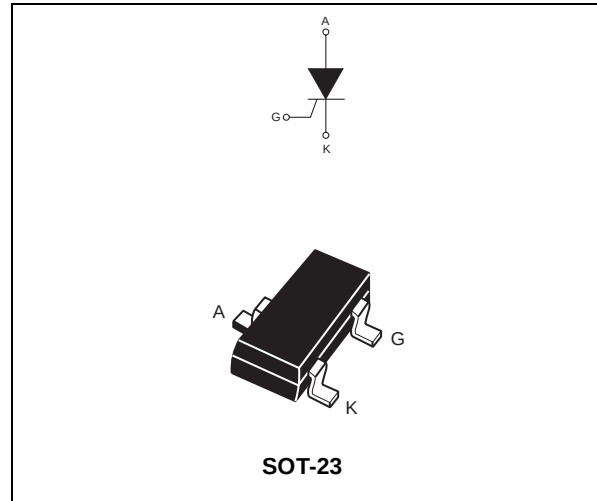
MAIN FEATURES:

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 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)		T _{amb} = 30°C	0.25	A
I _{T(AV)}	Average on-state current (180° conduction angle)		T _{amb} = 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 ² _t	I ² _t Value for fusing	tp = 10 ms	Tj = 25°C	0.18	A ² s
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 ($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions		P0102BL	Unit
I_{GT}	$V_D = 12\text{ V}$ $R_L = 140\ \Omega$	MAX.	200	μA
V_{GT}		MAX.	0.8	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $R_{GK} = 1\text{ k}\Omega$	$T_j = 125^\circ\text{C}$	MIN.	0.1
V_{RG}	$I_{RG} = 10\ \mu\text{A}$		MIN.	8
I_H	$I_T = 50\text{ mA}$ $R_{GK} = 1\text{ k}\Omega$		MAX.	6
I_L	$I_G = 1\text{ mA}$ $R_{GK} = 1\text{ k}\Omega$		MAX.	7
dV/dt	$V_D = 67\ \% V_{DRM}$ $R_{GK} = 1\text{ k}\Omega$	$T_j = 125^\circ\text{C}$	MIN.	200
V_{TM}	$I_{TM} = 0.4\text{ A}$ $t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.7
V_{T0}	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	1.0
R_d	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	1000
I_{DRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	1
I_{RRM}		$T_j = 125^\circ\text{C}$		100

THERMAL RESISTANCES

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

PRODUCT SELECTOR

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

ORDERING INFORMATION

P 01 02 B L [Blank] 5AA4 SENSITIVE SCR SERIES ← P CURRENT: 0.25A ← 01 SENSITIVITY: 02: 200μA ← 02 VOLTAGE: B: 200V ← B PACKAGE: L: SOT-23 ← L PACKING MODE: Tape & Reel ← 5AA4

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.

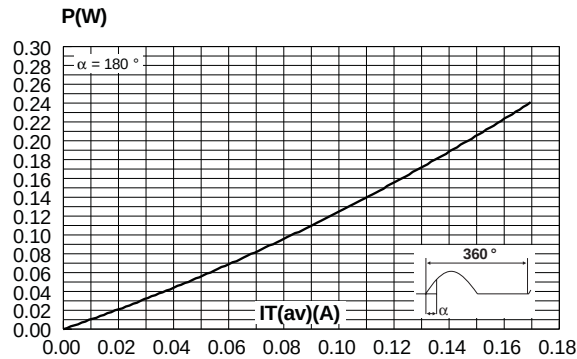


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

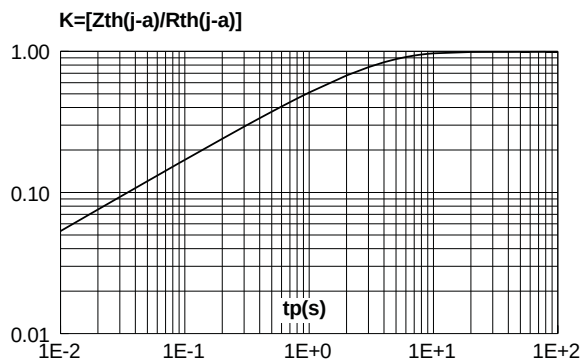


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

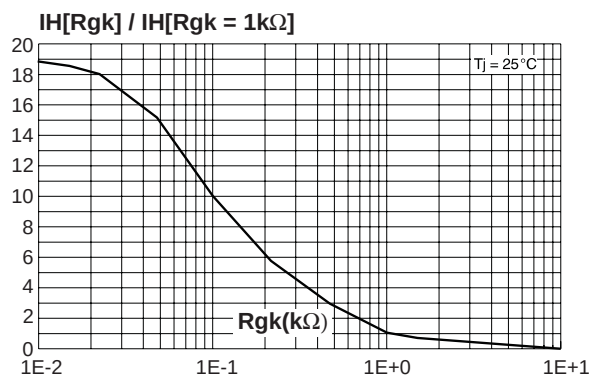


Fig. 2: Average and D.C. on-state current versus ambient temperature.

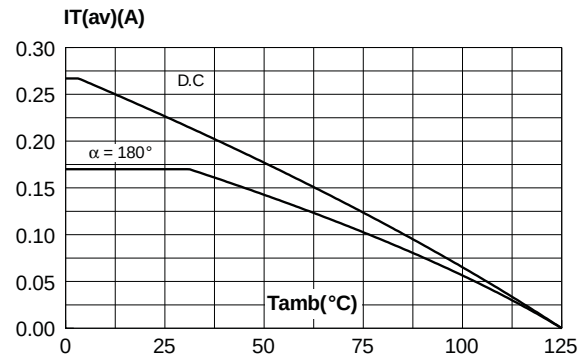


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

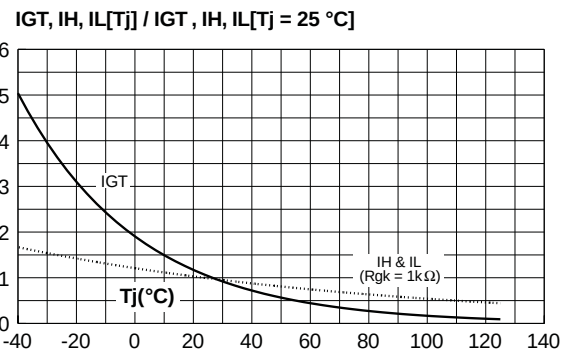


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

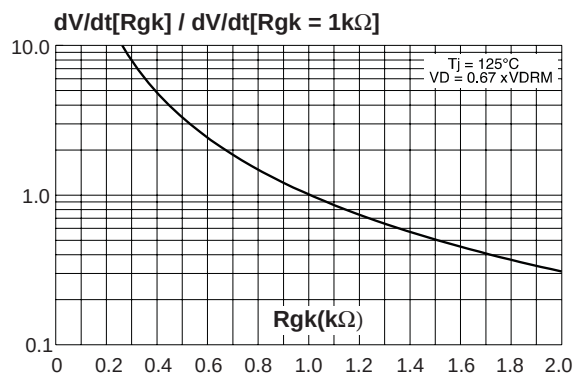


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

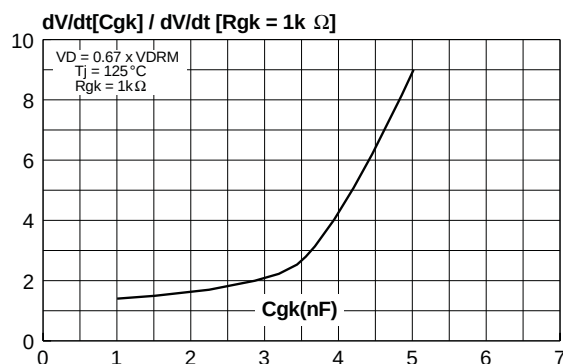


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

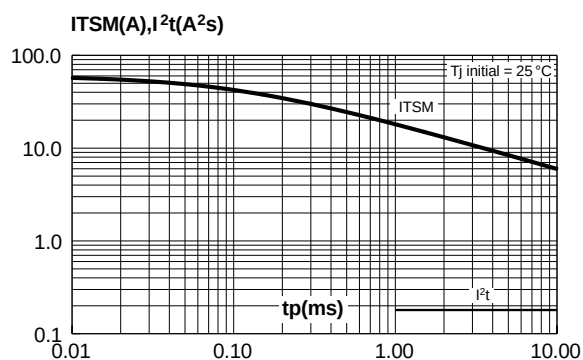


Fig. 11: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: $35 \mu m$).

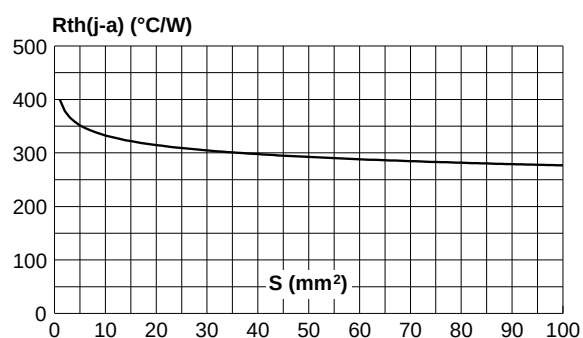


Fig. 8: Surge peak on-state current versus number of cycles.

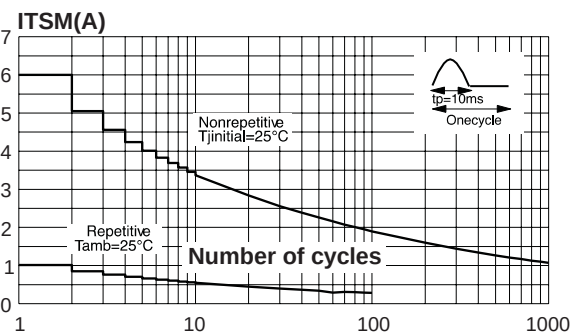
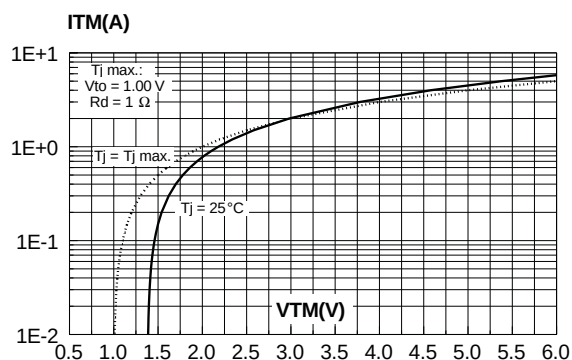
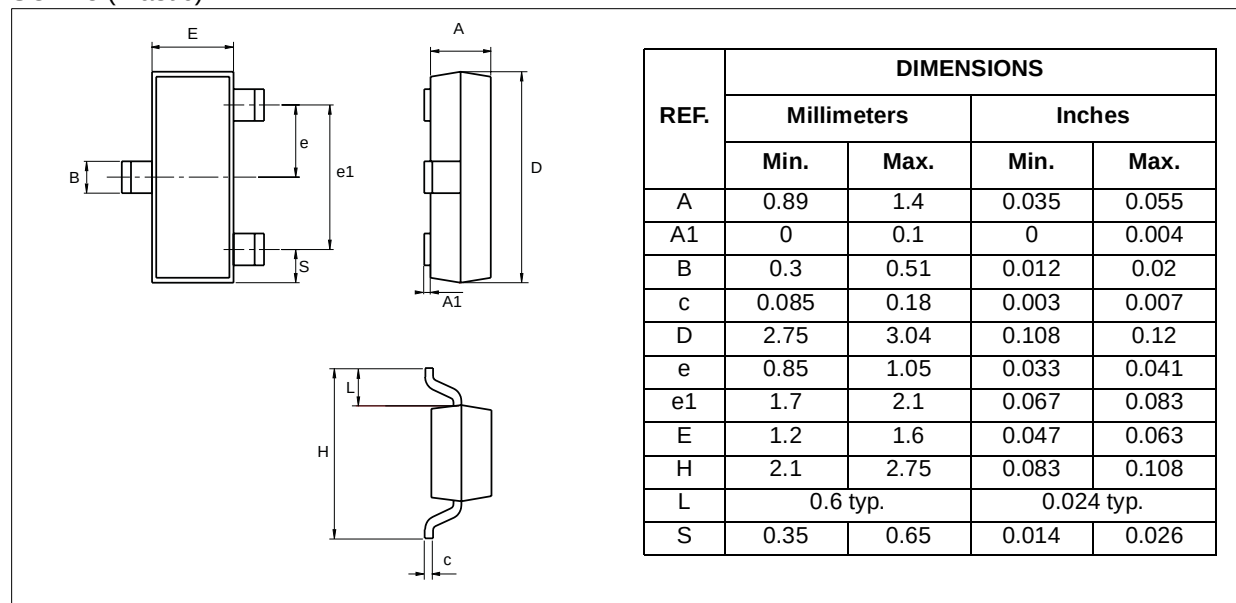


Fig. 10: On-state characteristics (maximum values).



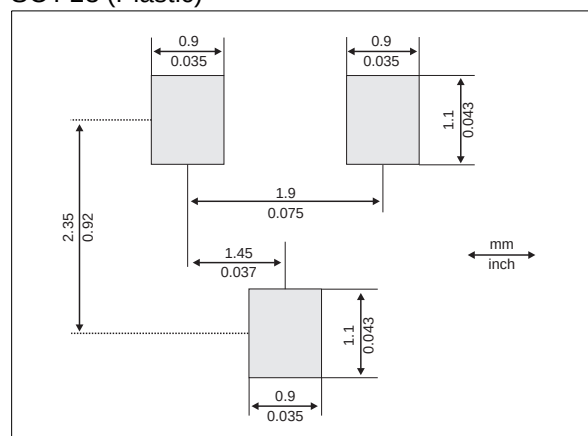
PACKAGE MECHANICAL DATA

SOT-23 (Plastic)



FOOTPRINT DIMENSIONS (in millimeters)

SOT-23 (Plastic)



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