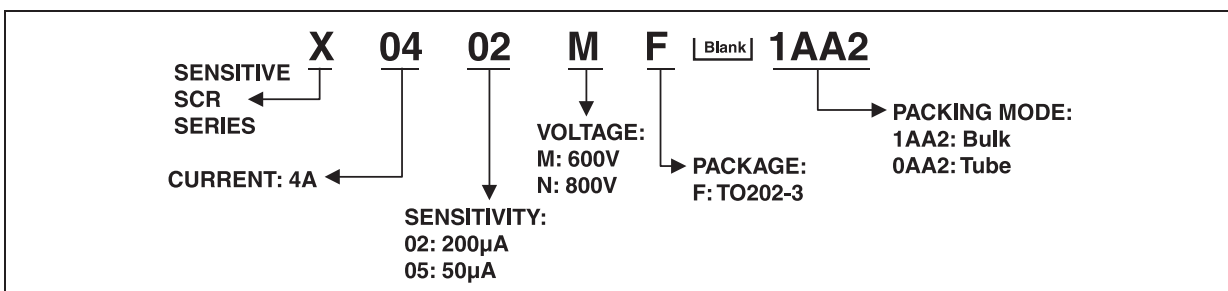
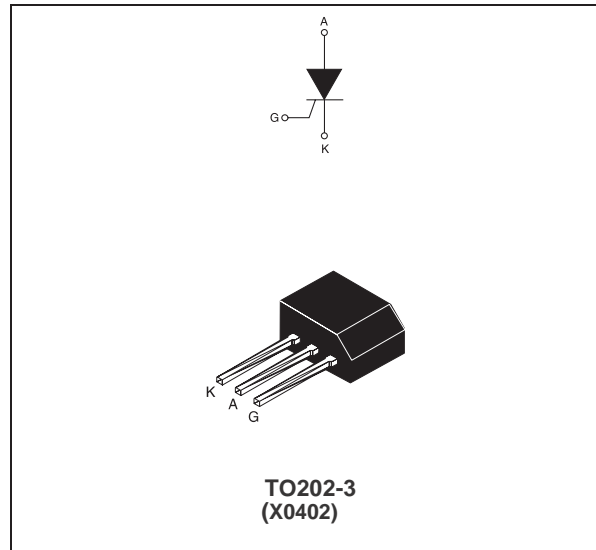


**MAIN FEATURES:**

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM}/V_{RRM}$	600 and 800	V
$I_{GT}$	50 to 200	$\mu A$

**DESCRIPTION**

Thanks to highly sensitive triggering levels, the X04 SCR series is suitable for all applications where the available gate current is limited, such as capacitive discharge ignitions, motor control in kitchen aids, overvoltage crowbar protection in low power supplies...



**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		$T_I = 60^{\circ}C$	4	A
			$T_{amb} = 25^{\circ}C$	1.35	
$I_{T(AV)}$	Average on-state current (180° conduction angle)		$T_I = 60^{\circ}C$	2.5	A
			$T_{amb} = 25^{\circ}C$	0.9	
$I_{TSM}$	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^{\circ}C$	33	A
		$t_p = 10 \text{ ms}$		30	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^{\circ}C$	4.5	$A^2S$
$di/dt$	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , $t_r \leq 100ns$	$F = 60 \text{ Hz}$	$T_j = 125^{\circ}C$	50	$A/\mu s$
$I_{GM}$	Peak gate current	$t_p = 20 \mu s$	$T_j = 125^{\circ}C$	1.2	A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125^{\circ}C$	0.2	W
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	$^{\circ}C$

**ELECTRICAL CHARACTERISTICS** ( $T_j = 25^{\circ}C$ , unless otherwise specified)

Symbol	Test Conditions		X04xx		Unit		
			02	05			
$I_{GT}$	$V_D = 12 \text{ V}$ $R_L = 140 \Omega$		MIN.	-	20	$\mu A$	
			MAX.	200	50		
$V_{GT}$			MAX.	0.8		V	
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ $R_{GK} = 1 \text{ k}\Omega$	$T_j = 125^{\circ}C$	MIN.	0.1		V	
$V_{RG}$	$I_{RG} = 10 \mu A$		MIN.	8		V	
$I_H$	$I_T = 50mA$ $R_{GK} = 1k\Omega$		MAX.	5		mA	
$I_L$	$I_G = 1mA$ $R_{GK} = 1k\Omega$		MIN.	6		mA	
$dV/dt$	$V_D = 67\% V_{DRM}$ $R_{GK} = 1k\Omega$	$T_j = 110^{\circ}C$	MIN.	10	15	$V/\mu s$	
$V_{TM}$	$I_{TM} = 8 \text{ A}$ $t_p = 380 \mu s$	$T_j = 25^{\circ}C$	MAX.	1.8		V	
$V_{t0}$	Threshold voltage		$T_j = 125^{\circ}C$	MAX.	0.95		V
$R_d$	Dynamic resistance		$T_j = 125^{\circ}C$	MAX.	100		$m\Omega$
$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM}$ $R_{GK} = 1 \text{ k}\Omega$		$T_j = 25^{\circ}C$	MAX.	5		$\mu A$
			$T_j = 125^{\circ}C$		1		mA

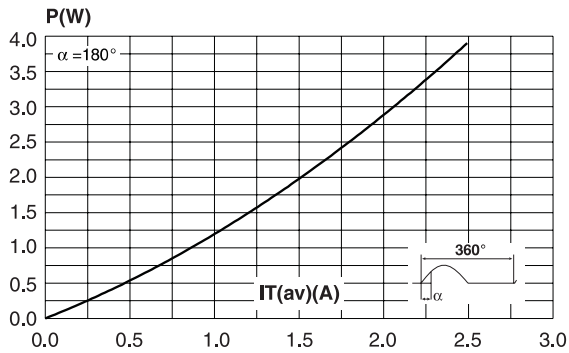
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads (DC)	15	$^{\circ}C/W$
$R_{th(j-a)}$	Junction to ambient (DC)	100	

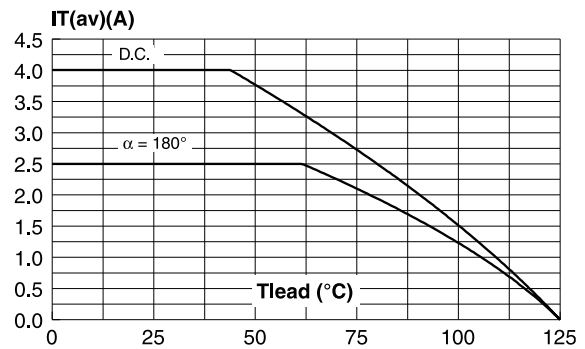
**PRODUCT SELECTOR**

Part Number	Voltage		Sensitivity	Package
	600 V	800 V		
X0402MF	X		200 $\mu A$	TO202-3
X0402NF		X	200 $\mu A$	TO202-3
X0405MF	X		50 $\mu A$	TO202-3
X0405NF		X	50 $\mu A$	TO202-3

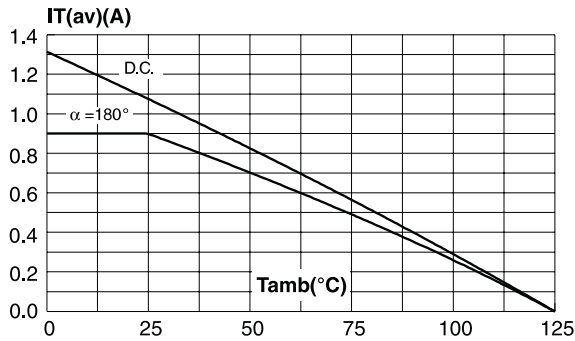
**Fig. 1:** Maximum average power dissipation versus average on-state current.



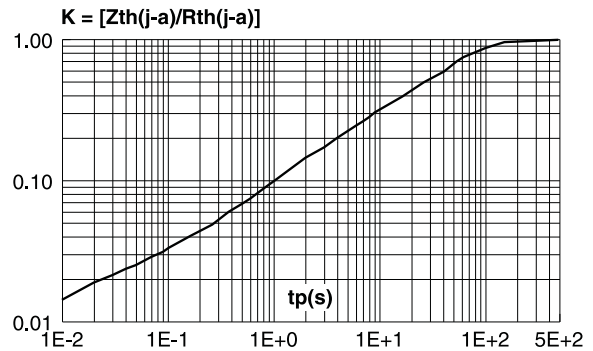
**Fig. 2-1:** Average and D.C. on-state current versus lead temperature.



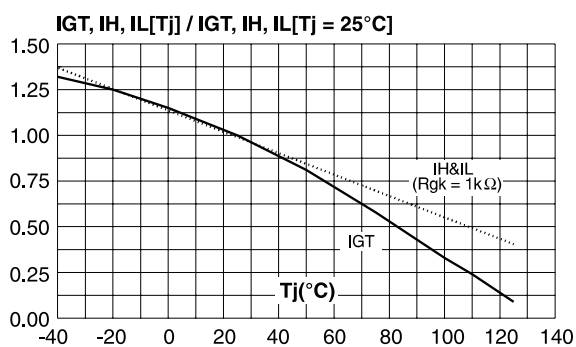
**Fig. 2-2:** Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).



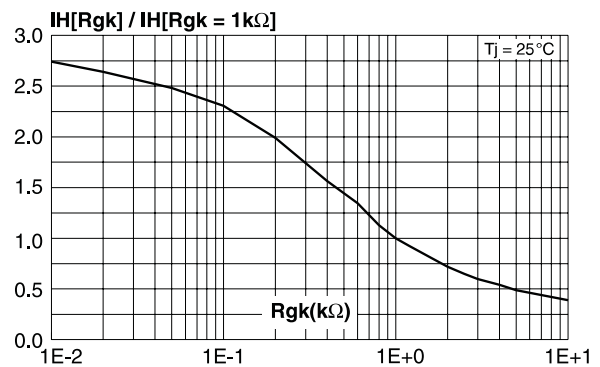
**Fig. 3:** Relative variation of thermal impedance junction to ambient versus pulse duration.

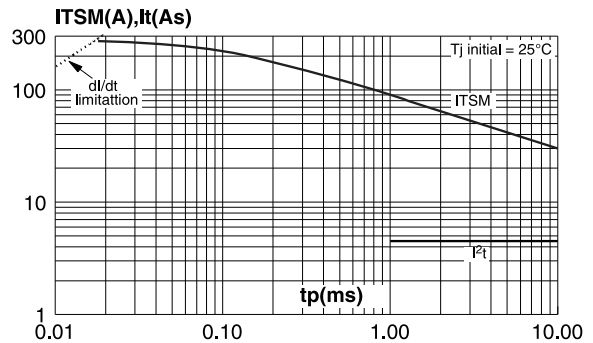
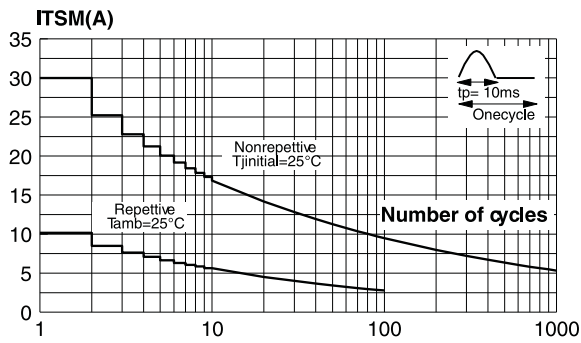


**Fig. 4:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

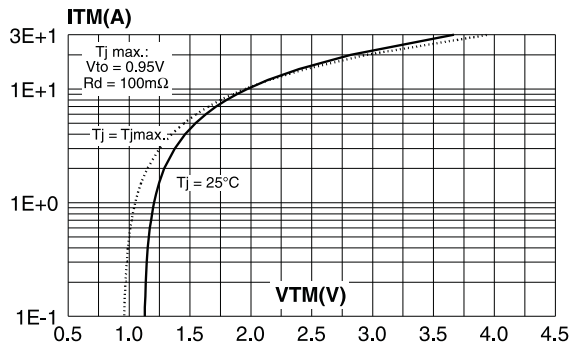


**Fig. 5:** Relative variation of holding current versus gate-cathode resistance (typical values).



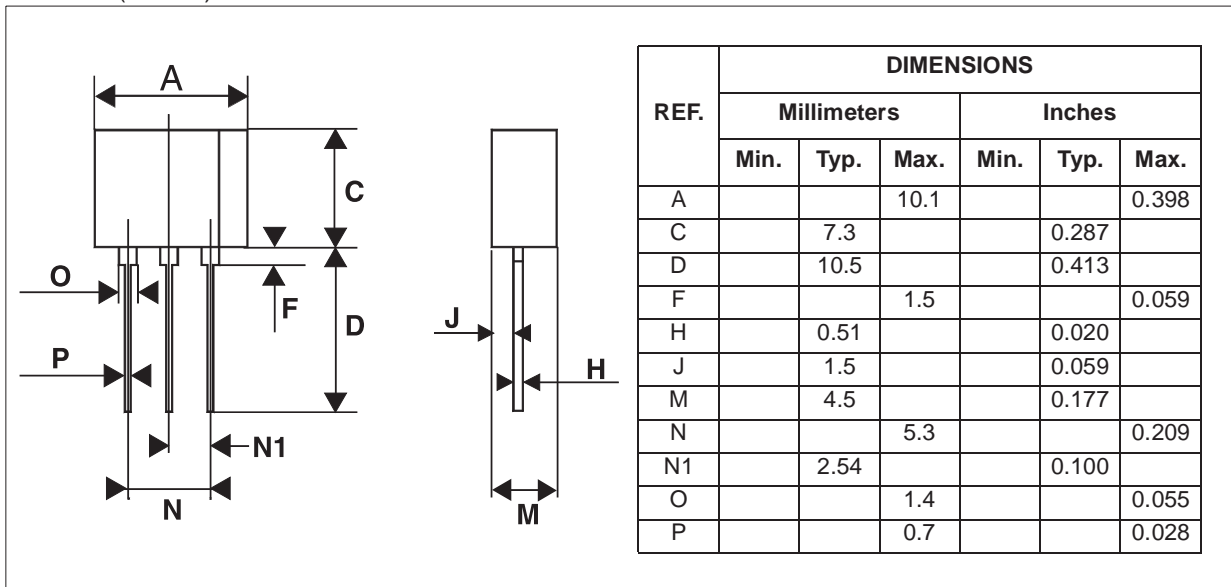


**Fig. 10:** On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

TO202-3 (Plastic)



**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

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