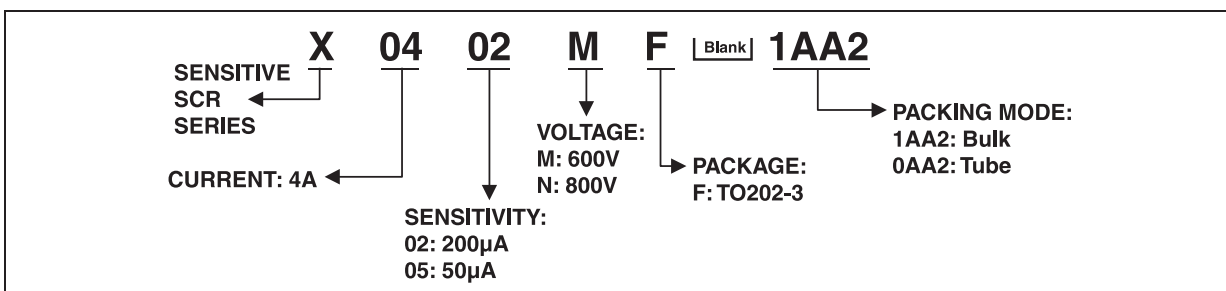
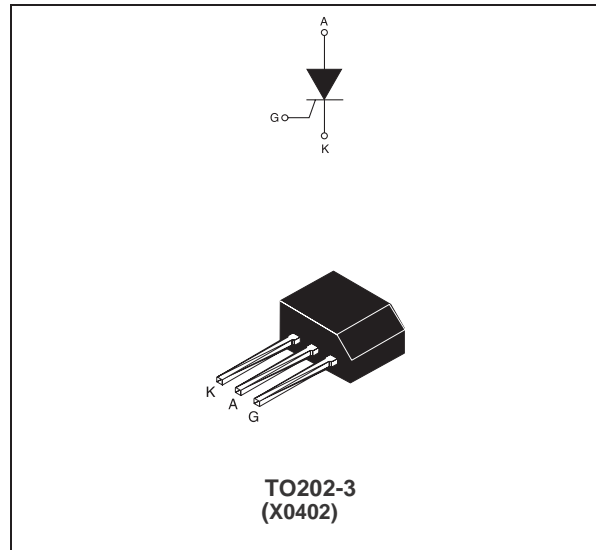


MAIN FEATURES:

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

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

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

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

THERMAL RESISTANCES

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

PRODUCT SELECTOR

Part Number	Voltage		Sensitivity	Package
	600 V	800 V		
X0402MF	X		200 μA	TO202-3
X0402NF		X	200 μA	TO202-3
X0405MF	X		50 μA	TO202-3
X0405NF		X	50 μA	TO202-3

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

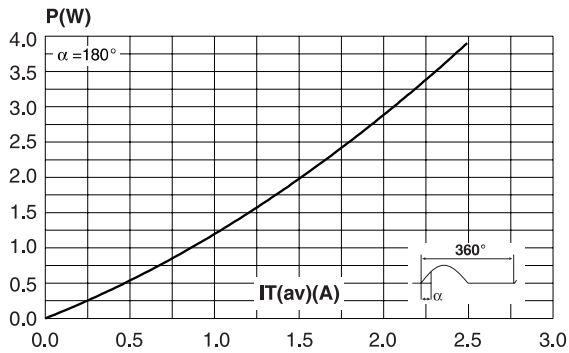


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

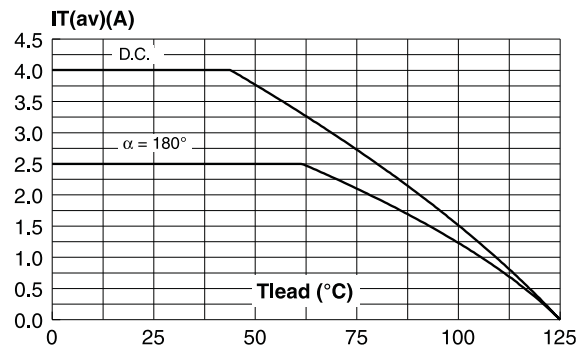


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

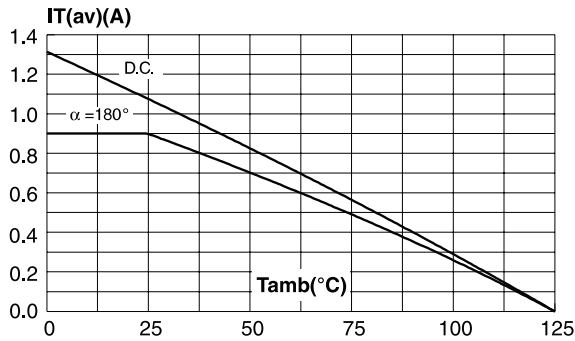


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

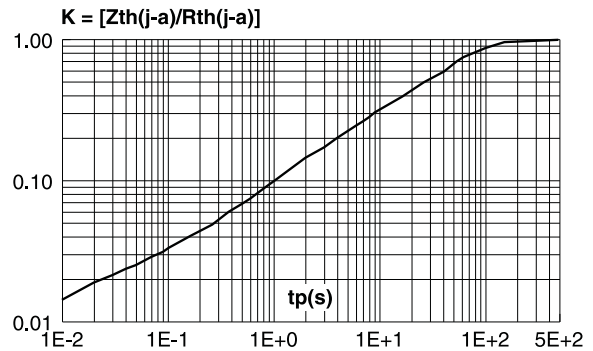


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

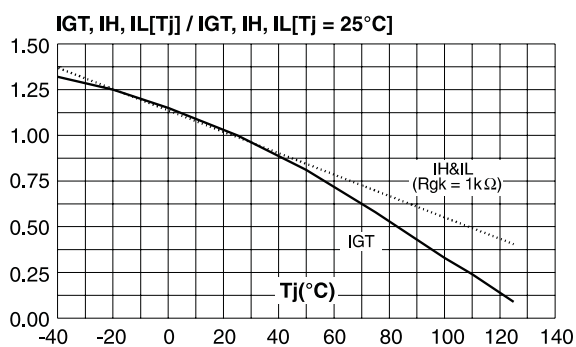
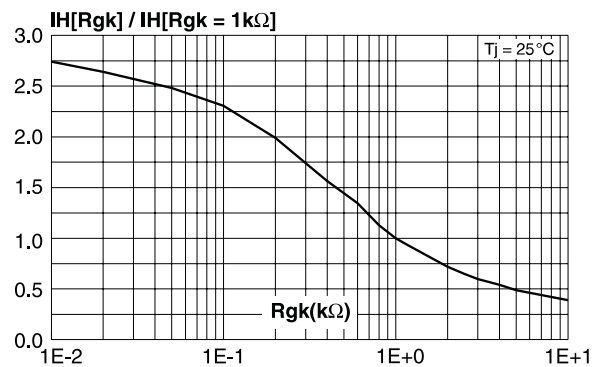


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).



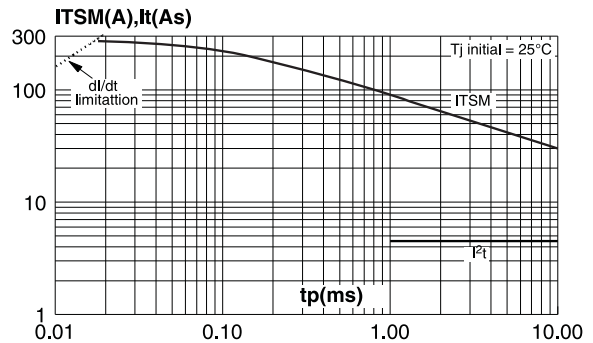
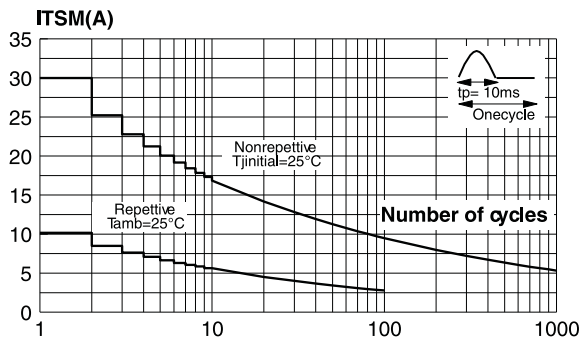
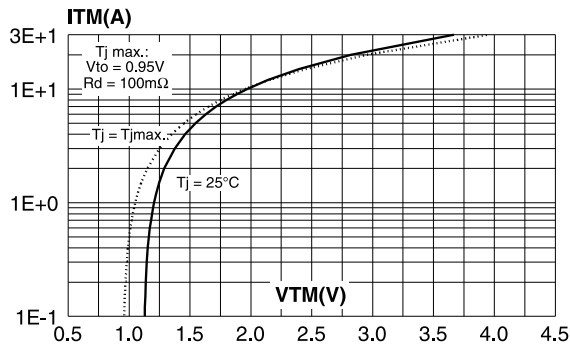
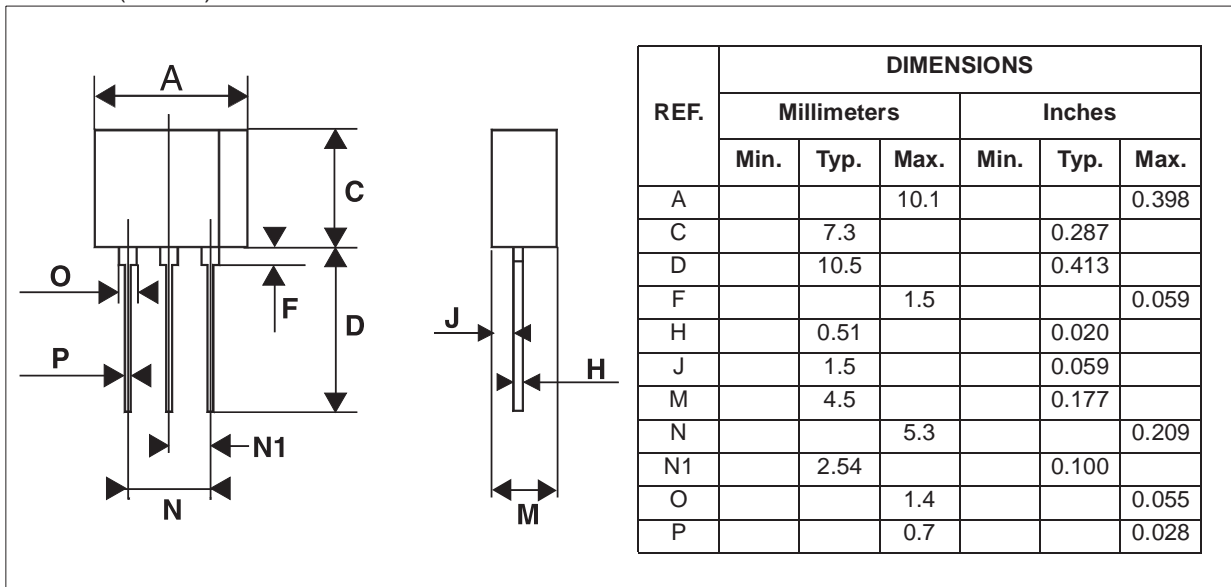


Fig. 10: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO202-3 (Plastic)



IMPORTANT NOTICE – PLEASE READ CAREFULLY

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