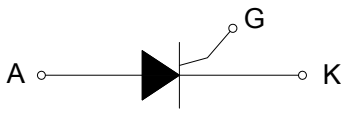
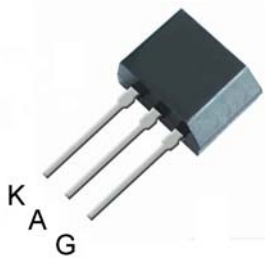
SCRs

General Description

Available either in sensitive or standard gate triggering levels, the 4A SCR series is suitable to fit all modes of control found inapplications such as overvoltage crowbar protection, motor control circuits in power tools and kitchen aids, in-rush current limiting circuits,capacitive discharge ignition, voltage regulation circuits...



TO202-3



Features

- Repetitive Peak Off-State Voltage : 600V/800V
- R.M.S On-State Current ($I_{T(RMS)}$= 4A)
- These are Pb-Free Devices

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj=25°C	X0405MF	600	V
V_{RRM}	Repetitive peak reverse voltage		X0405NF	800	
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , Tc = 90°C		2.5	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , Tc = 90°C		4	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, tp=10ms(50Hz)Tj =25°C		30	A
I^2t	I^2t for Fusing	Tj =25°C,tp =10ms		4.5	A^2S
dI/dt	Critical rate of rise of on-state current	Tj =125°C, tr≤ 100ns		50	A/μs
P_{GM}	Forward Peak Gate Power Dissipation	Tj =125°C, Pulse Width ≤ 20μs		2	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	Tj =25°C, tp =10ms		0.2	W
I_{GM}	Peak Gate Current	Tj =125°C, Pulse Width ≤ 20μs		1.2	A
Tj	Operating Junction Temperature			- 40 ~ 125	°C
T_{STG}	Storage Temperature			- 40 ~ 150	°C

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Electrical Characteristics (T_j = 25°C unless otherwise specified)

Symbol	Items	Conditions		X0405MF/NF	Unit
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	V_{DRM} = V_{RRM}, R_{GK} = 1KΩ Tj = 25°C	Max.	5	uA
		V_{DRM} = V_{RRM}, R_{GK} = 1KΩ Tj = 125°C		1	mA
V_{TM}	Peak On-State Voltage	I_{TM} = 8A, tp = 380 μs	Max.	1.5	V
V_{GD}	Non-Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1KΩ Tj = 125°C	Min.	0.2	V
V_{GT}	Gate Trigger Voltage	V_D = 12V ， R_L = 33Ω	Max.	0.8	V
I_{GT}	Gate Trigger Current		Max.	0.2	mA
I_H	Holding Current	I_T = 0.05A R_{GK} = 1KΩ	Max.	5	mA
I_L	Latching Current	I_G = 1.2 I_{GT} R_{GK} = 1KΩ	Max.	6	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3V_{DRM} gate open R_{GK} = 1KΩ Tj = 125°C	Min.	10	V/μs
$R_{th(j-c)}$	Junction to case		Max.	7.2	°C/W
$R_{th(j-a)}$	Junction to ambient		Max.	100	°C/W

FIG.1: Maximum average power dissipation (Single phase half wave)

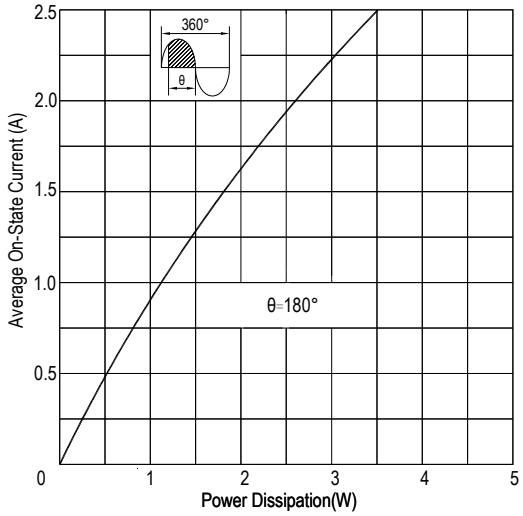


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

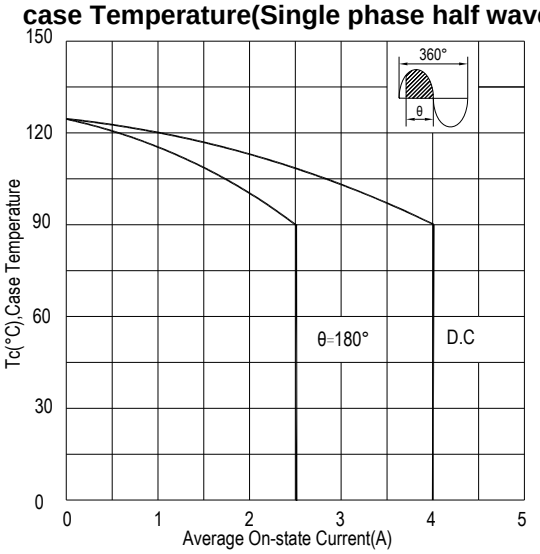


FIG.3: Gate trigger current VS Junction temperature

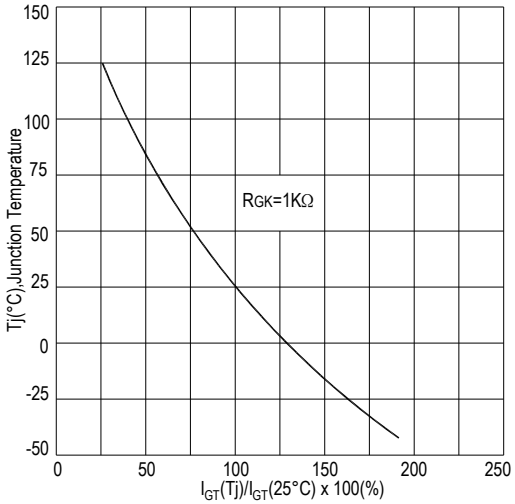


FIG.4: Rated surge on-state current (Non-Repetitive)

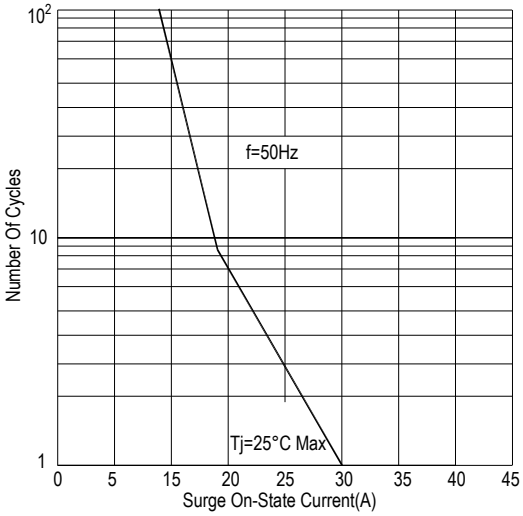


FIG.5: On-state characteristics(Max)

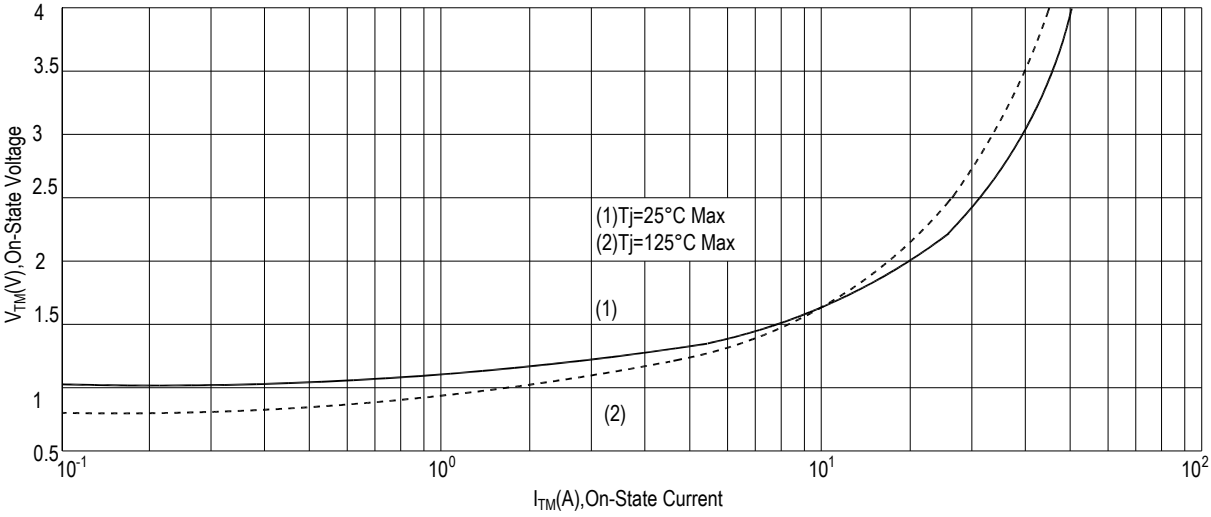


FIG.6:Holding current and Latching current VS Junction temperature

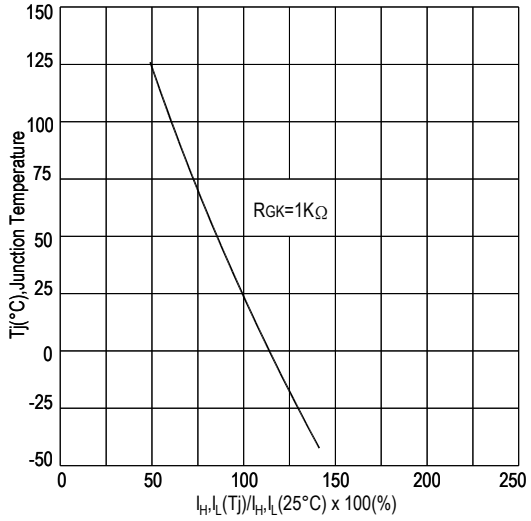
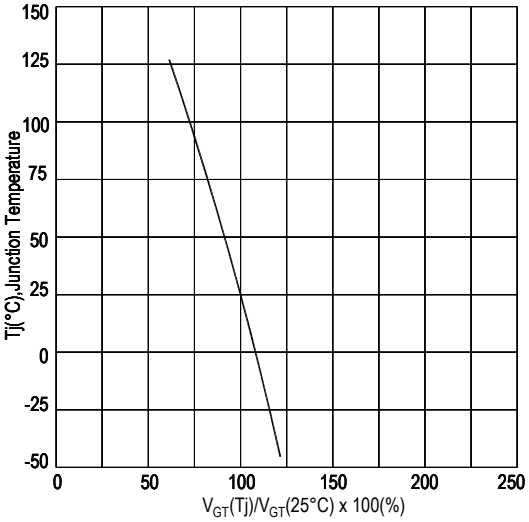
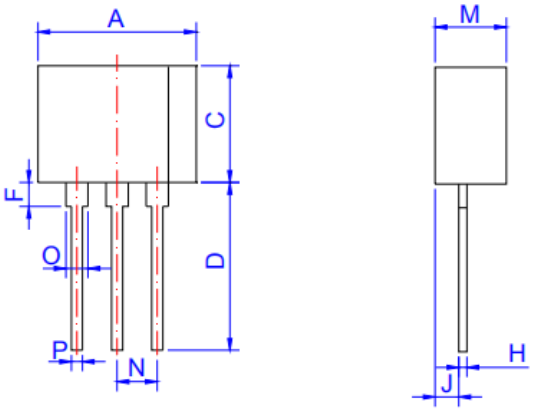


FIG.7: Gate trigger voltage VS Junction temperature



PACKAGE MECHANICAL DATA

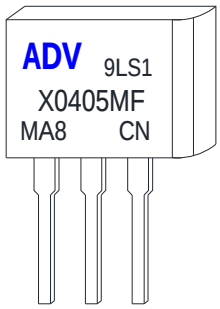
TO-202-3 Package Dimension

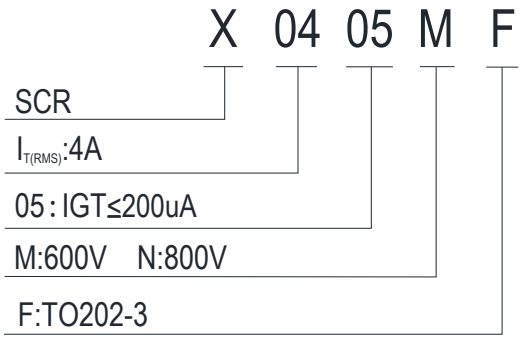


TO-202-3

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.30		9.90	0.366		0.390
C	7.0		7.6	0.276		0.299
D	10.5		11.5	0.413		0.453
F	1.50		2.50	0.059		0.098
H	0.45		0.55	0.018		0.022
J	1.50		1.90	0.059		0.075
M	4.40		4.70	0.173		0.185
N		2.54			0.100	
O	1.20		1.50	0.047		0.059
P	0.60		0.80	0.024		0.031

Making Diagram





Ordering information

Part number	Package	Marking	Packing	Quantity
X0405MF	TO202-3	X0405MF	Tube	50pcs
			Bulk	250pcs
X0405NF	TO202-3	X0405NF	Tube	50pcs
			Bulk	250pcs

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