

## SENSITIVE GATE SCR

<p><b>TO220-AB</b></p>	<p><b>On-State Current</b> 8 Amp</p> <p><b>Gate Trigger Current</b> &lt; 200 <math>\mu</math>A</p> <p><b>Off-State Voltage</b> 200 V ÷ 600 V</p>
<p>These series of <b>Silicon Controlled Rectifier</b> use a high performance PNPN technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required using surface mount technology.</p>	

## Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Min.	Max.	Unit
$I_{T(RMS)}$	On-state Current	180° Conduction Angle, $T_c = 110\text{ }^\circ\text{C}$		8	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $= 180^\circ$ , $T_c = 110\text{ }^\circ\text{C}$		5	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 60 Hz		73	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 50 Hz		70	A
$I^2t$	Fusing Current	$t_p = 10\text{ms}$ , Half Cycle		24.5	$A^2s$
$V_{GRM}$	Peak Reverse Gate Voltage	$I_{GR} = 10\text{ }\mu\text{A}$		8	V
$I_{GM}$	Peak Gate Current	20 $\mu$ s max.		4	A
$P_{GM}$	Peak Gate Dissipation	20 $\mu$ s max.		5	W
$P_{G(AV)}$	Gate Dissipation	20ms max.		1	W
$T_j$	Operating Temperature		-40	+125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		-40	+150	$^\circ\text{C}$
$T_{sld}$	Soldering Temperature	10s max.		260	$^\circ\text{C}$

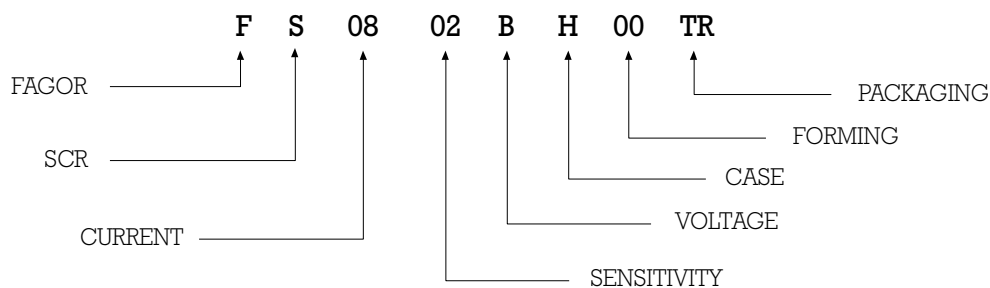
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE			Unit
			B	D	M	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	$R_{GK} = 1\text{ K}$	200	400	600	V

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## Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS		SENSITIVITY		Unit
					02	
$I_{GT}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 140 \Omega$	$T_j = 25^\circ C$	MAX	200	$\mu A$
$I_{DRM} / I_{RRM}$	Off-State Leakage Current	$V_D = V_{DRM}, R_{GK} = 220 \Omega$	$T_j = 125^\circ C$	MAX	1	mA
		$V_R = V_{RRM}$	$T_j = 25^\circ C$	MAX	5	$\mu A$
$V_{TM}$	On-state Voltage	at $I_T = 16 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$		MAX	1.6	V
$V_{GT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 140 \Omega$	$T_j = 25^\circ C$	MAX	0.8	V
$V_{GD}$	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3 K \Omega, R_{GK} = 220 \Omega$	$T_j = 125^\circ C$	MIN	0.1	V
$I_H$	Holding Current	$I_T = 50 \text{ mA}, R_{GK} = 1 K \Omega$	$T_j = 25^\circ C$	MAX	5	mA
$I_L$	Latching Current	$I_G = 1 \text{ mA}, R_{GK} = 1 K \Omega$		MAX	6	mA
$dv / dt$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, R_{GK} = 220 \Omega, T_j = 125^\circ C$		MIN	5	V/ $\mu s$
$di / dt$	Critical Rate of Current Rise	$I_G = 2 \times I_{GT}, T_r = 100 \text{ ns}, F = 60 \text{ Hz}, T_j = 125^\circ C$		MIN	50	A/ $\mu s$
$R_{th(j-c)}$	Thermal Resistance Junction-Case for DC				20	$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Amb for DC				60	$^\circ C/W$
$V_{t0}$	Threshold Voltage	$T_j = 125^\circ C$		MAX	0.85	V
$R_d$	Dynamic resistance	$T_j = 125^\circ C$		MAX	46	m

## PART NUMBER INFORMATION



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

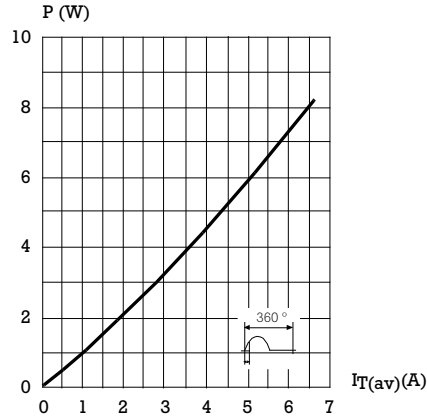


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

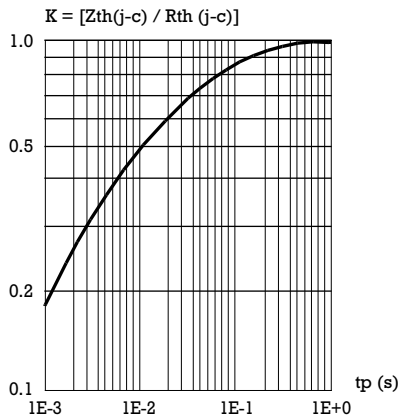


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

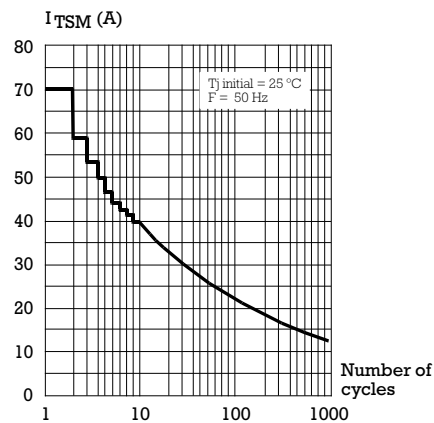


Fig. 2: Average and D.C. on-state current versus case temperature.

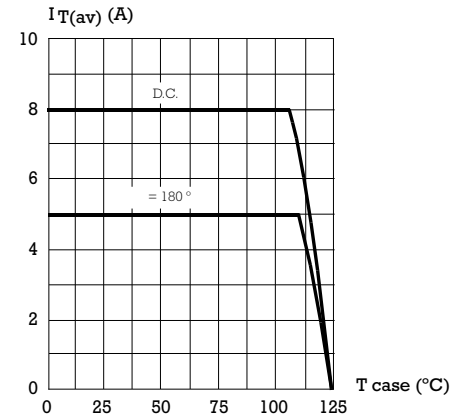


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

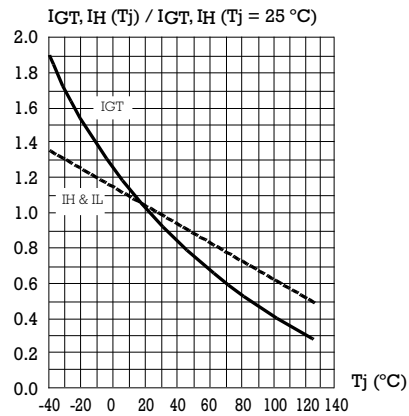
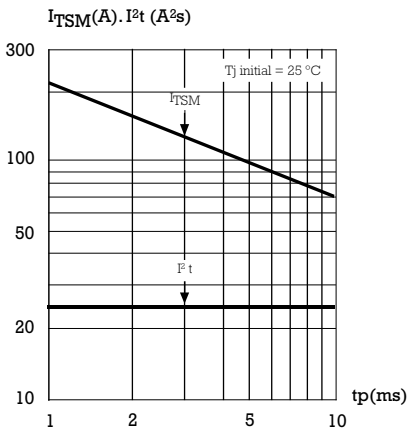
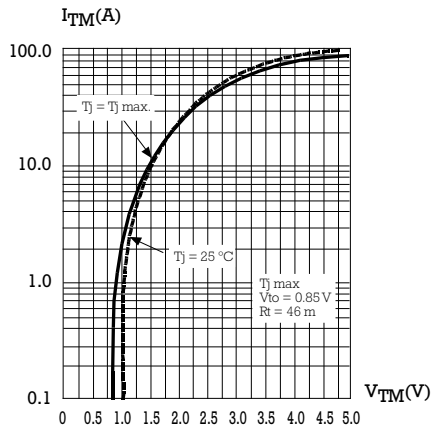


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width:  $t_p < 10$  ms, and corresponding value of  $I^2t$ .



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Fig. 7: On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

TO-220AB

REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	15.20		15.90
a1		3.75	
a2	13.00		14.00
B	10.00		10.40
b1	0.61		0.88
b2	1.23		1.32
C	4.40		4.60
c1	0.49		0.70
c2	2.40		2.72
e	2.40		2.70
F	6.20		6.60
I	3.75		3.85
I4	15.80	16.40	16.80
L	2.65		2.95
I2	1.14		1.70
I3	1.14		1.70
M		2.60	