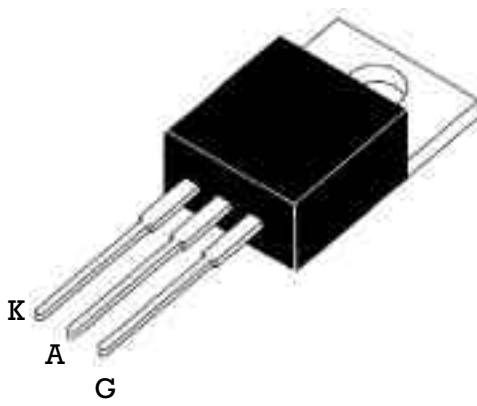


## STANDARD SCR

<p><b>TO220-AB</b></p> 	<p><b>On-State Current</b> 12 Amp</p> <p><b>Gate Trigger Current</b> &gt; 0.5 mA to &lt; 25 mA</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 PNP technology.</p> <p>These parts are intended for general purpose high current applications where moderate gate insensitivity is required.</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, $T_c = 110\text{ °C}$		12	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $= 180\text{ °}$ , $T_c = 110\text{ °C}$		8	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 60 Hz		154	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 50 Hz		140	A
$I^2t$	Fusing Current	$t_p = 10\text{ms}$ , Half Cycle		98	A <sup>2</sup> s
$V_{GRM}$	Peak Reverse Gate Voltage	$I_{GR} = 10\text{ }\mu\text{A}$		8	V
$I_{GM}$	Peak Gate Current	20 $\mu\text{s}$ max.		4	A
$P_{GM}$	Peak Gate Dissipation	20 $\mu\text{s}$ max.		10	W
$P_{G(AV)}$	Gate Dissipation	20ms max.		1	W
$T_j$	Operating Temperature		-40	+125	°C
$T_{stg}$	Storage Temperature		-40	+150	°C
$T_{sld}$	Soldering Temperature	10s max.		260	°C

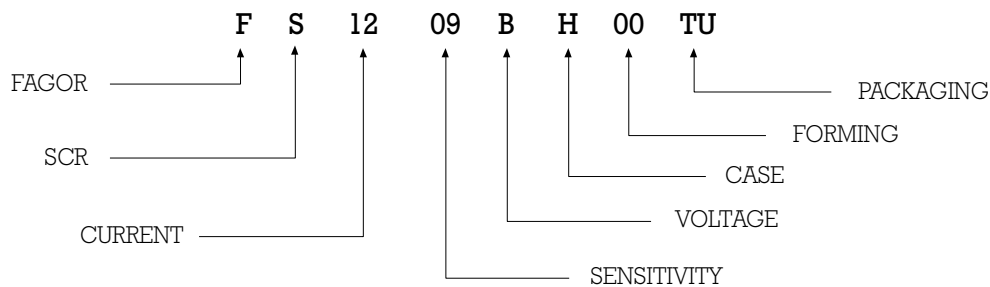
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE			Unit
			B	D	M	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	$R_{GK} = 1\text{ K}$	200	400	600	V

## STANDARD SCR

## Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY			Unit	
			08	09	10		
$I_{GT}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33 \Omega, T_j = 25^\circ C$	MIN	0.5	2	2	mA
			MAX	5	15	25	
$I_{DRM} / I_{RRM}$	Off-State Leakage Current	$V_D = V_{DRM}, R_{GK} = 220 \Omega, T_j = 125^\circ C$	MAX	2		mA	
		$V_R = V_{RRM}, T_j = 25^\circ C$	MAX	5			$\mu A$
$V_{TM}$	On-state Voltage	at $I_T = 24 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$	MAX	1.6		V	
$V_{GT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33 \Omega, T_j = 25^\circ C$	MAX	1.3		V	
$V_{GD}$	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3K \Omega, R_{GK} = 220 \Omega, T_j = 125^\circ C$	MIN	0.2		V	
$I_H$	Holding Current	$I_T = 500 \text{ mA}, \text{ Gate open}$	MAX	15	30	40	mA
$I_L$	Latching Current	$I_G = 1.2 I_{GT}$	MAX	30	60	60	
$dv / dt$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{ Gate open}$	MIN	50	200	250	$V/\mu s$
$di / dt$	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			1.3		$^\circ C/W$	
$R_{th(j-a)}$	Thermal Resistance Junction-Amb ( $S = 0.5 \text{ cm}^2$ )			60		$^\circ C/W$	
$V_{10}$	Threshold Voltage	$T_j = 125^\circ C$	MAX	0.85		V	
$R_d$	Dynamic resistance	$T_j = 125^\circ C$	MAX	30		m	

## PART NUMBER INFORMATION



## STANDARD SCR

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

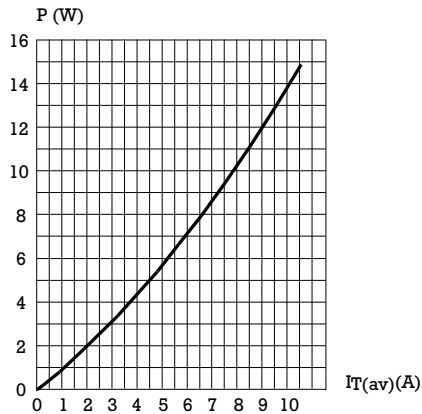


Fig. 2: Average and D.C. on-state current versus case temperature.

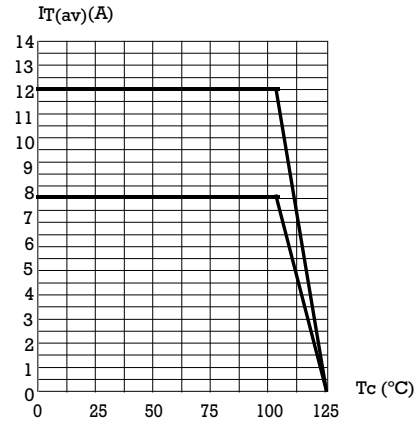


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

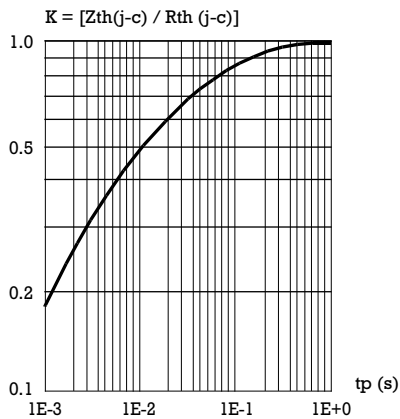


Fig. 4: Relative variation of gate trigger current and holding current versus junction temperature.

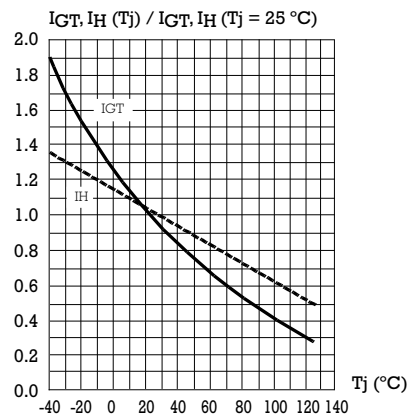
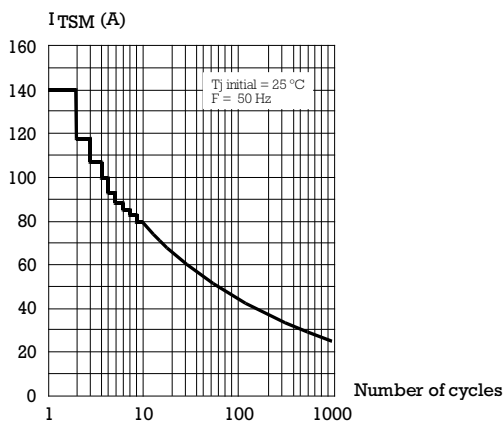
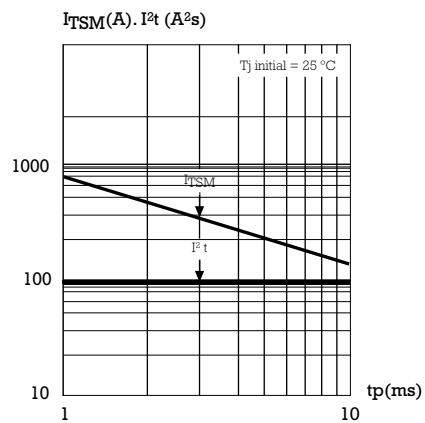
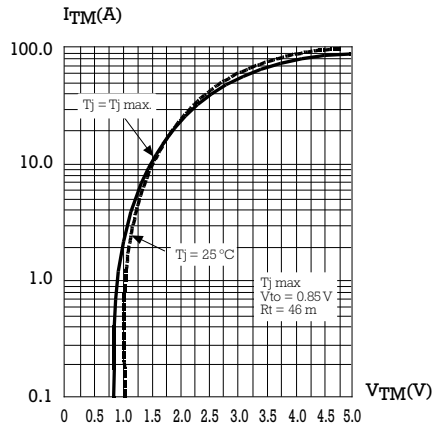


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.


 Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width:  $t_p < 10 \text{ ms}$ , and corresponding value of  $I^2t$ .


## STANDARD SCR

Fig. 8: On-state characteristics (maximum values).



### PACKAGE MECHANICAL DATA

TO-220AB

