

0.8A SCRs

Sensitive Gate / Silicon Controlled Rectifiers

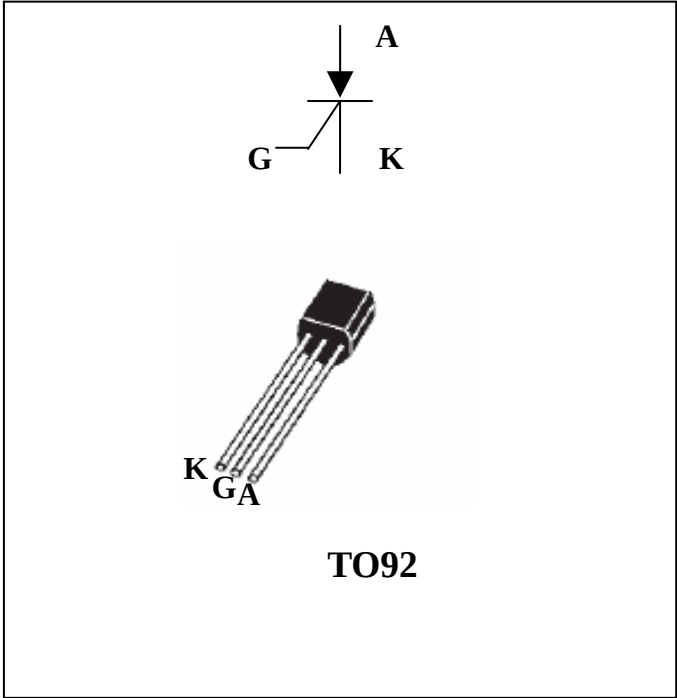
Main features

Symbol	Value	Unit
$I_{T(RMS)}$	0.8A	A
V_{DRM}/V_{RRM}	400 and 600	V
$I_{GT(Q1)}$	200	uA

DESCRIPTION

These devices are intened to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

Weight : 0.22 gram



Absolute maximum ratings

Symbol	Parameter			Value	Unit
I _{T(RMS)}	RMS on-state current (180° conduction angle)			0.8	A
I _{TSM}	Non repetitive surge on-state current (1/2 Cycle,Sine Wave , Tj initial=25℃)	F = 50Hz	t = 10ms	7	A
		F = 60Hz	t = 8.3ms	8	
I ² t	I ² t Value for fusing	t _p = 10ms		0.24	A ² s
di/dt	Critical rate of rise of on-state current I _G = 10mA di _G = 0.1A/us			30	A/us
I _{GM}	Peak gate current			1	A
P _{G(AV)}	Average gate power dissipation			0.1	W
T _{stg} T _j	Storage junction temperature range Operating junction temperature range			-40 to +150 -40 to +110	℃

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

Symbol	Test conditions		MCR100-			Unit
			6S	6	8	
$V_{\text{DRM}}, V_{\text{RRM}}$			400	400	600	V
$I_{\text{GT}}(1)$	$V_D = 7\text{V}$ $R_L = 100\ \Omega$	MAX.	25	200	200	μA
V_{GT}		MAX.	0.8			V
$I_H(2)$	$I_T = 50\ \text{mA}$ $R_{\text{GK}} = 1\text{k}\Omega$	MAX.	5			mA
I_L	$I_G = 1\text{mA}$ $R_{\text{GK}} = 1\text{k}\Omega$	MAX.	10			mA
$dV/dt(2)$	$V_D = 67\ \% V_{\text{DRM}}$ $R_{\text{GK}} = 1\text{k}\Omega$ $T_j = 110^\circ\text{C}$	MIN.	80	75	75	V/ μs

Static characteristics

Symbol	Test conditions				Value	Unit
$V_T(2)$	$I_{TM} = 1A$	$tp = 380\ us$	$Tj = 25^{\circ}C$	MAX.	1.7	V
I_{DRM} I_{RRM}	$V_{DRM}=V_{RRM}$		$Tj = 25^{\circ}C$	MAX.	10	uA
			$Tj = 110^{\circ}C$		0.1	mA

Thermal resistance

Symbol	Parameter	Value	Unit
$R_{\text{th}}(j-l)$	Junction to lead for DC	80	$^\circ\text{C}/\text{W}$
$R_{\text{th}}(j-a)$	Junction to ambient	150	$^\circ\text{C}/\text{W}$



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

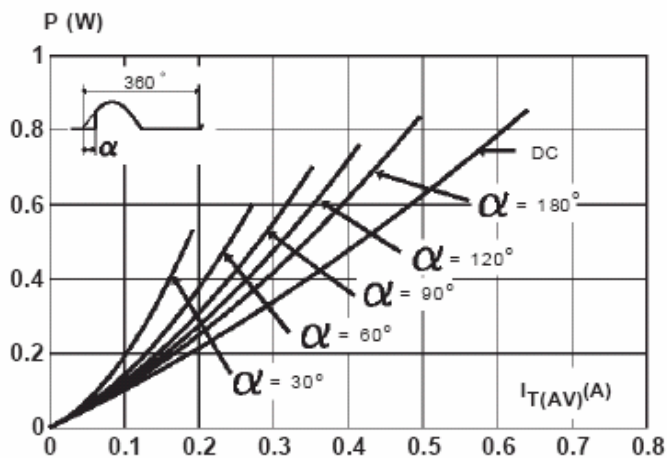


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{tab}).

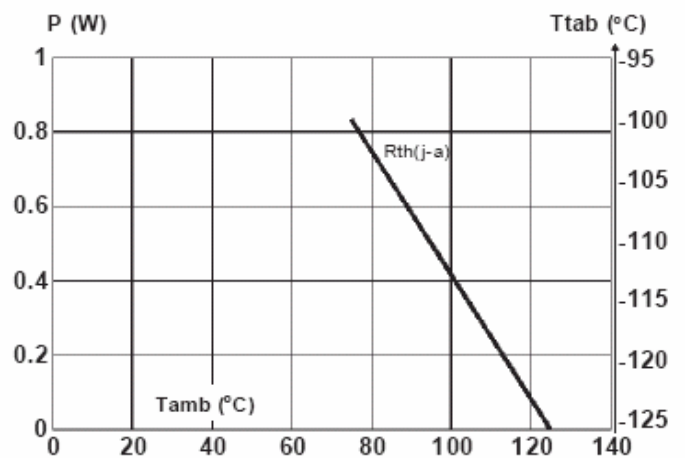


Fig.3 : Average on-state current versus tab temperature.

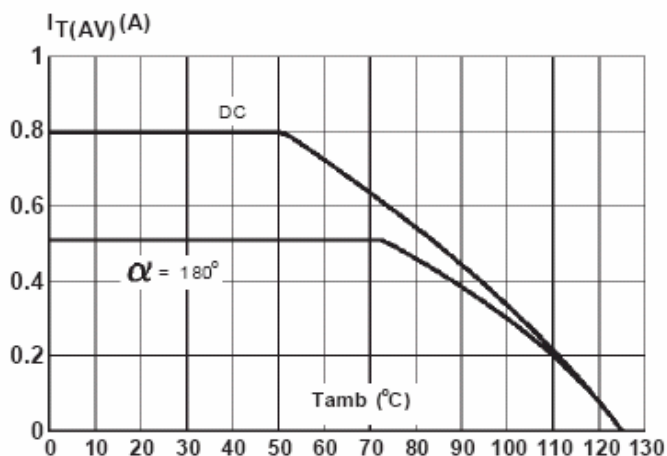


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

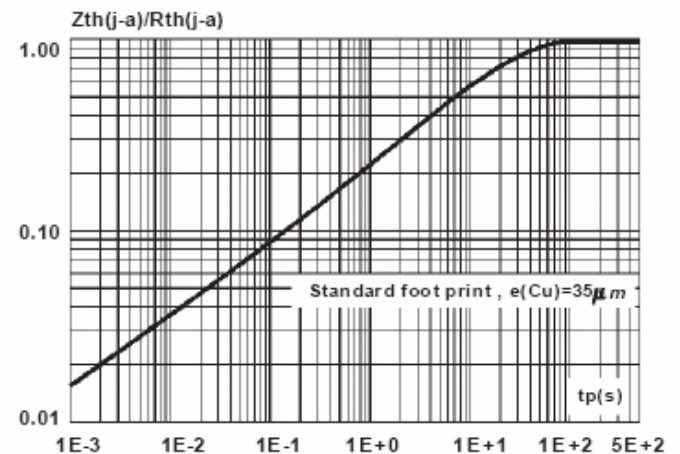


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

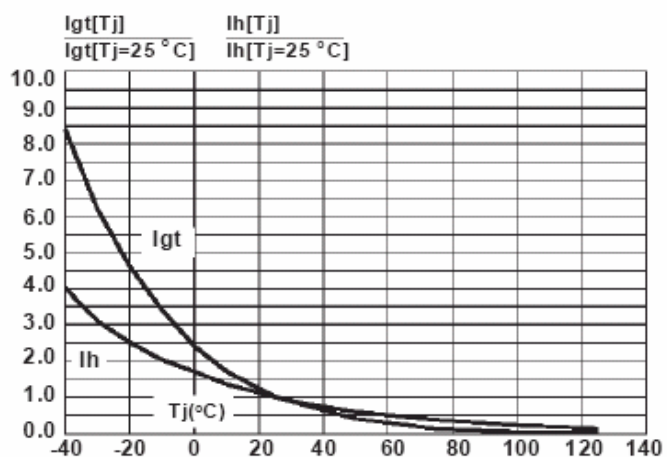


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

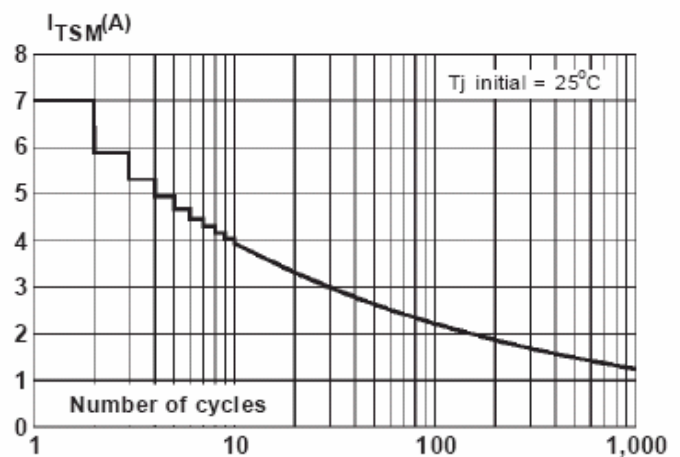


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p @ 10\text{ms}$, and corresponding value of I^2t .

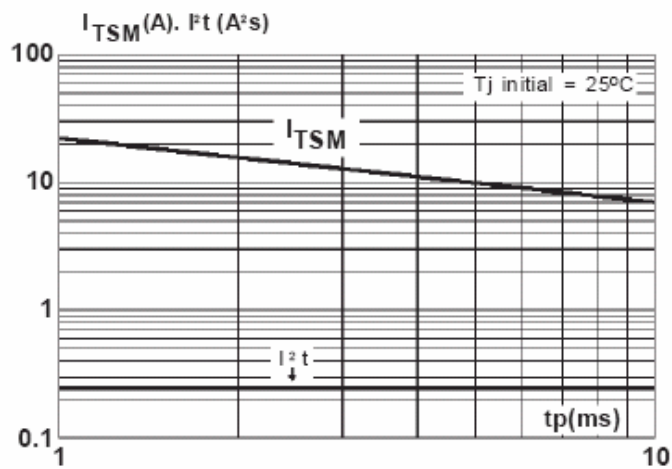


Fig.8 : On-state characteristics (maximum values).

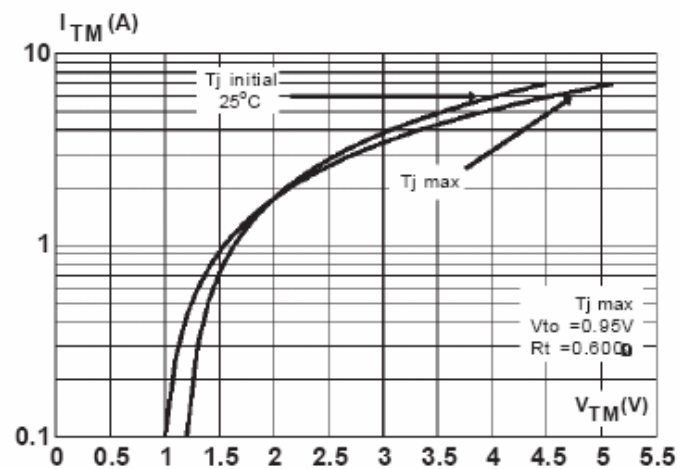


Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).

