元耀科技股份有限公司
YENYO TECHNOLOGY CO., LTD.

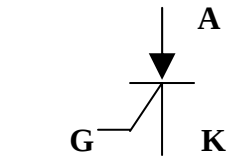
MCR100 Series

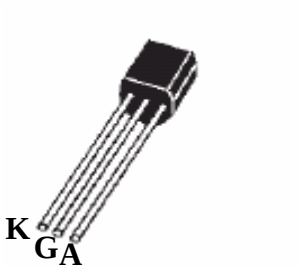
0.8A SCRs

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





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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^2t	I^2t Value for fusing	t_p = 10ms		0.24	A^2s
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℃, unless otherwise specified)

Symbol	Test conditions		MCR100-			Unit
			6S	6	8	
V_{DRM},V_{RRM}			400	400	600	V
I_{GT}(1)	V_D = 7V RL=100 ohm	MAX.	25	200	200	uA
V_{GT}		MAX.	0.8			V
I_H (2)	I_T = 50 mA R_{GK} =1kΩ	MAX.	5			mA
I_L	I_G = 1mA R_{GK} =1kΩ	MAX.	10			mA
dV/dt (2)	V_D = 67 % V_{DRM} R_{GK} =1KΩ Tj = 110℃	MIN.	80	75	75	V/us

Static characteristics

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

Thermal resistance

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

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

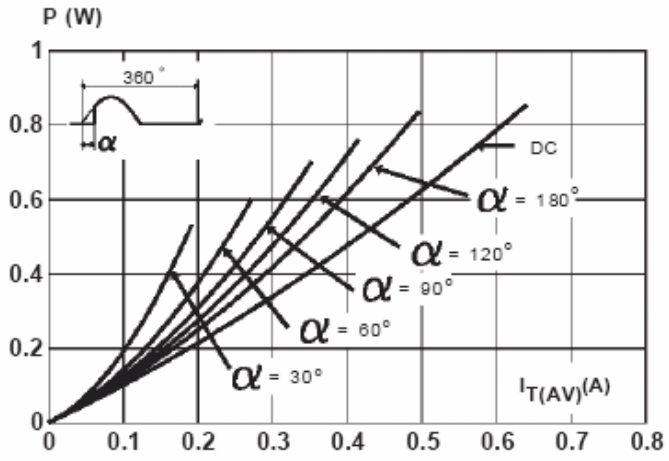

Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Ttab).

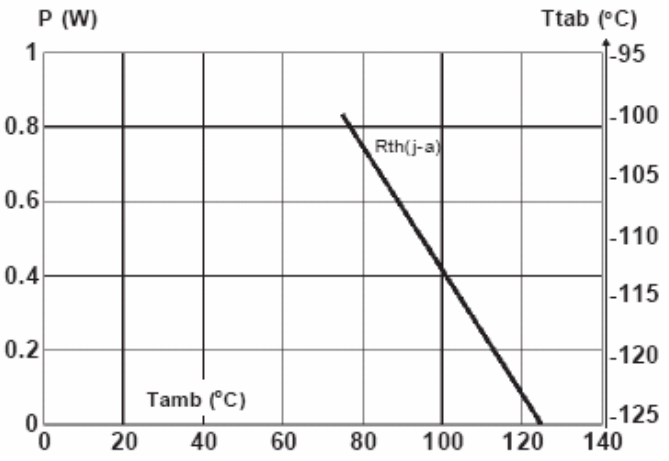

Fig.3 : Average on-state current versus tab temperature.

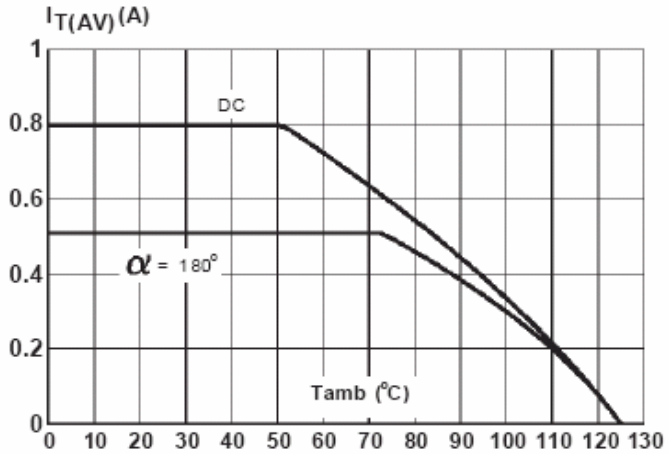

Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

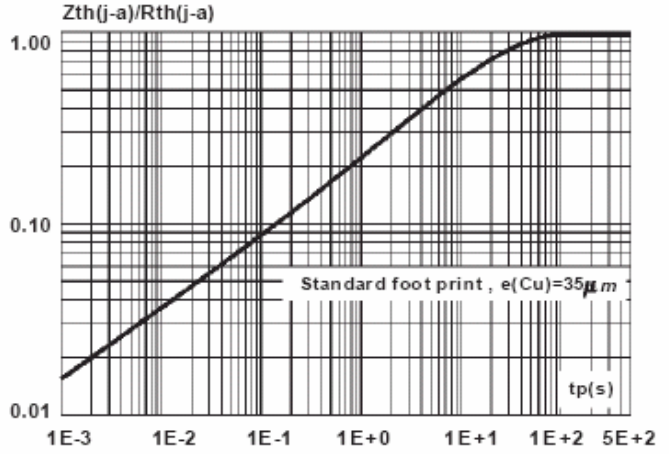

Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

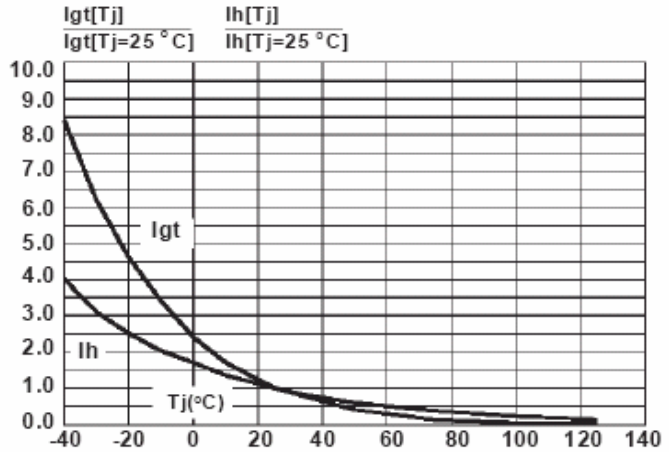

Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

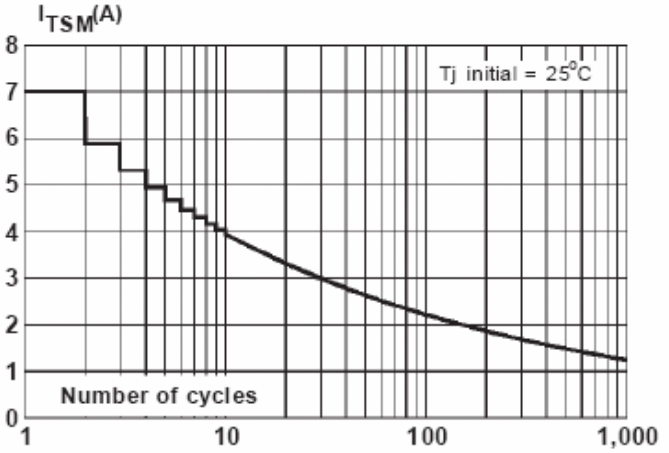

Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ® 10ms, and corresponding value of I^2t.

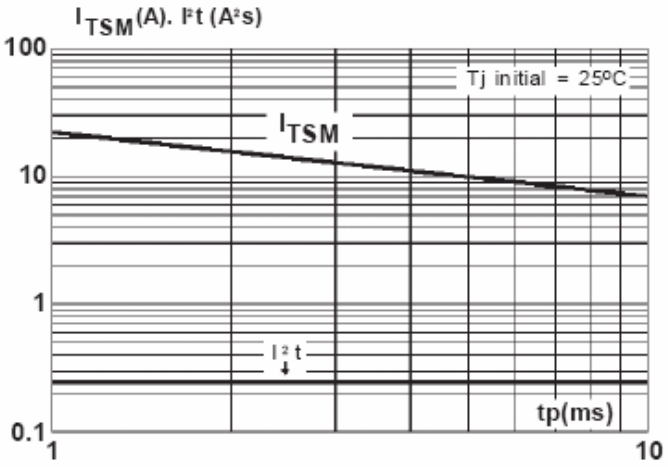

Fig.8 : On-state characteristics (maximum values).

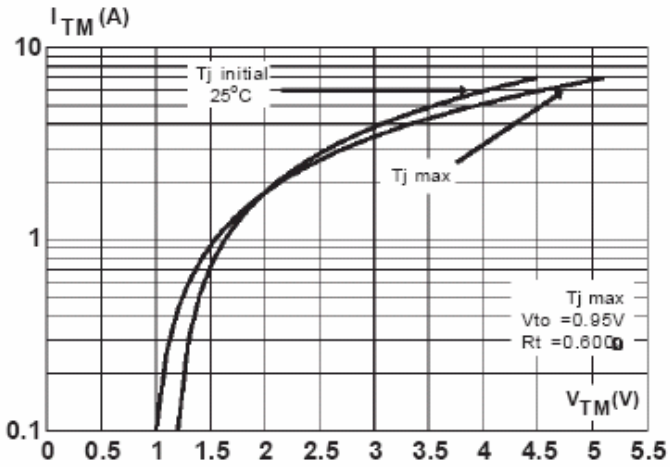

Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).