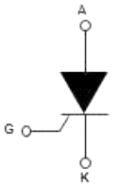
$I_{T(AV)}$	12 A
V_{DRM}/V_{RRM}	800 V
I_{GT}	15 mA
T_J	-40°C to +125°C

LCR812
12A standard SCRs

Features

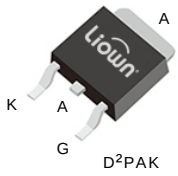
- IT(RMS) = 18 A
- VDRM/VRRM = 800 V
- IGT = 15 mA



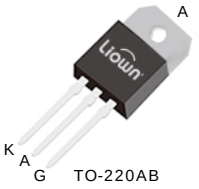
Description

The standard LCR812 12A SCRs series is suitable for general purpose applications.

Using clip assembly technology, they provide a superior performance in surge current capabilities.



D²PAK



TO-220AB

Absolute ratings (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (180 °Conduction angle)		T_c = 110 °C	18	A
$I_{T(AV)}$	Average on-state current (180 °Conduction angle)		T_c = 110 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current	t_p = 8.3 ms	T_j = 25 °C	180	A
		t_p = 10 ms		170	
I^2t	I^2t Value for fusing	t_p = 10 ms	T_j = 25 °C	180	A^2_S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , t_r ≤ 100 ns	F = 60 Hz	T_j = 125 °C	50	A/µs
I_{GM}	Peak gate current	t_p = 20 µs	T_j = 125 °C	4	A
$P_{G(AV)}$	Average gate power dissipation		T_j = 125 °C	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C
V_{RGM}	Maximum peak reverse gate voltage			5	V

Electrical characteristics (T_j = 25 °C, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D = 12 V R_L = 33 Ω		MIN.	2	mA
			MAX.	15	
V_{GT}			MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ	T_j = 125 °C	MIN.	0.2	V
I_H	I_T = 500 mA Gate open		MAX.	40	mA
I_L	$I_G = 1.2 \times I_{GT}$		MAX.	60	mA
dV/dt	V_D = 67 % V_{DRM} Gate open	T_j = 125 °C	MIN.	500	V/µs
V_{TM}	I_{TM} = 32 A t_p = 380 µs	T_j = 25 °C	MAX.	1.35	V
V_{t0}	Threshold voltage	T_j = 125 °C	MAX.	0.77	V
R_d	Dynamic resistance	T_j = 125 °C	MAX.	23	mΩ
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	T_j = 25 °C	MAX.	5	µA
		T_j = 125 °C		2	mA

Thermal resistance

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case (DC)			1.1	°C/W
$R_{th(j-a)}$	Junction to ambient (DC)	S = 01 cm^2	D^2PAK	45	°C/W
			TO-220AB	60	

S = copper surface under tab

Figure 1. Maximum average power dissipation versus average on-state current

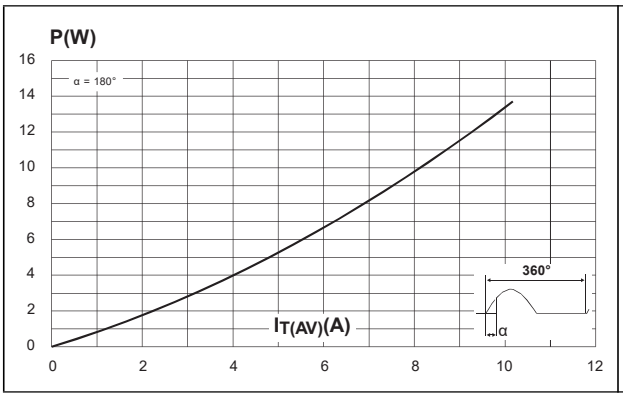


Figure 2. Average and D.C. on-state current versus case temperature

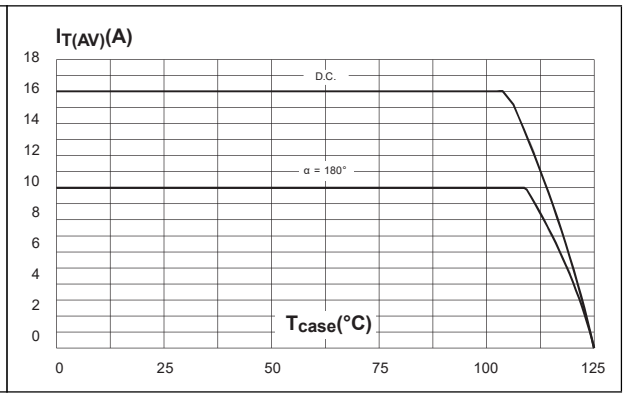


Figure 3. Average and D.C. on-state current versus ambient temperature (copper surface under tab: S=1cm^2) (D^{2}PAK)

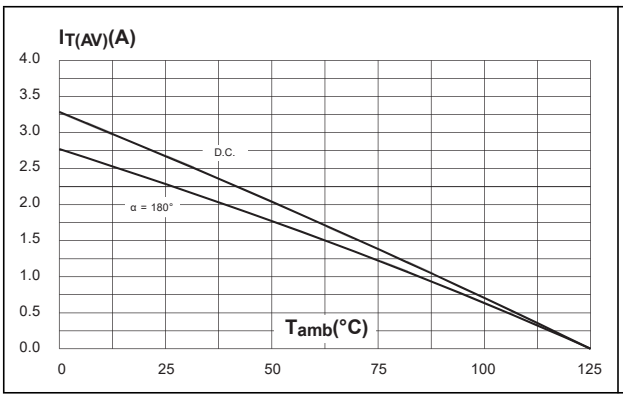


Figure 4. Relative variation of thermal impedance versus pulse duration

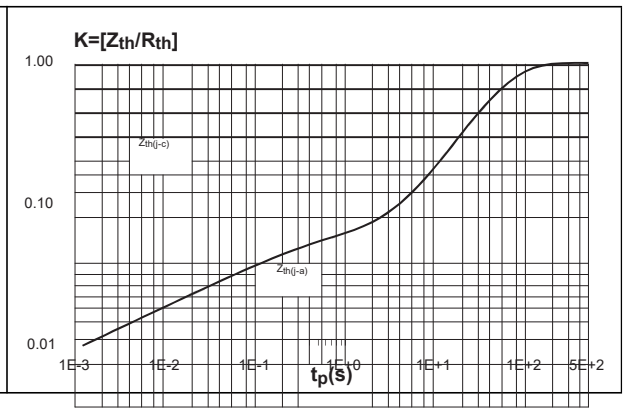


Figure 5. Relative variation of gate trigger current, holding current and latching current versus junction temperature

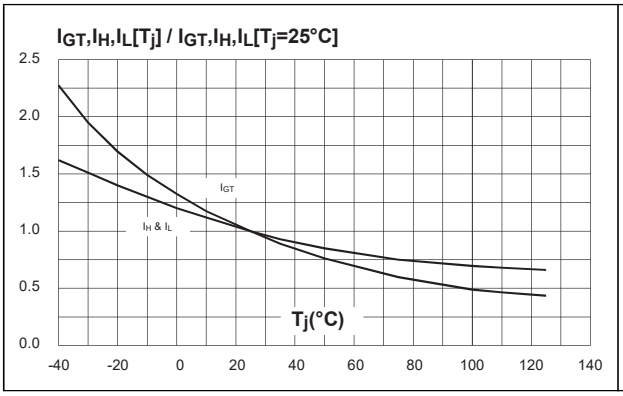


Figure 6. Surge peak on-state current versus number of cycles

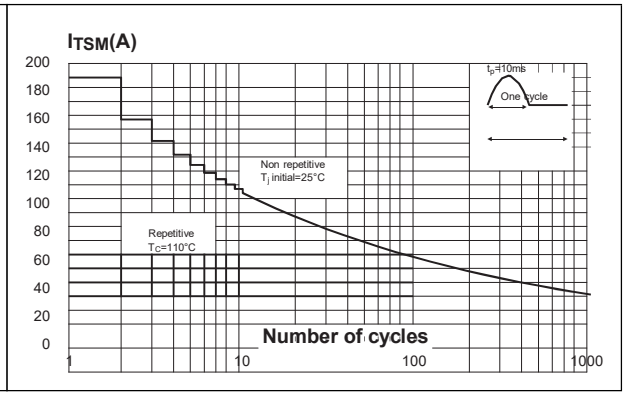


Figure 7. Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p < 10 ms, and corresponding values of I^2t

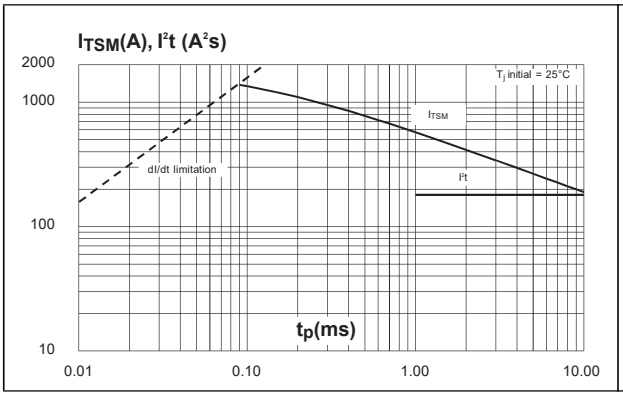


Figure 8. On-state characteristics (maximum values)

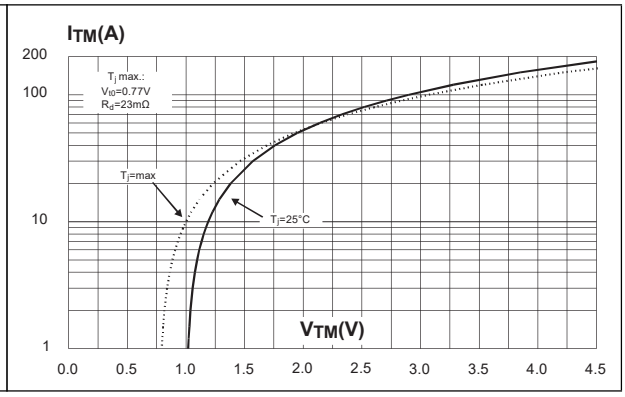


Figure 9. Thermal resistance junction to ambient versus copper surface under tab (epoxy printed circuit board FR4, copper thickness: 35 µm) (D^2PAK)