Liown semiconductor

$I_{T(RMS)}$ = 4 A

V_{DRM}/V_{RRM} = 800 V

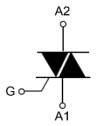
I_{GT} = 5 to 25 mA

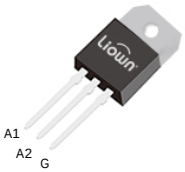
LTR04
4A Triacs

Description

The LTR04 series is suitable for general purpose AC switching applications. They can be found in applications such as home appliances (electrovalve, pump, door lock, small lamp control), fan speed controllers,...

Different gate current sensitivities are available, allowing optimized performances when controlled directly from microcontrollers.





Absolute maximum ratings

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)		T_{amb} = 25° C	4	A
			T_l = 30° C		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25° C)	F = 50 Hz	t = 20 ms	40	A
		F = 60 Hz	t = 16.7 ms	21	
I^2t	I^2t Value for fusing	t_p = 10 ms		2.2	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , $t_r \leq$ 100 ns	F = 120 Hz	T_j = 125° C	20	A/µs
I_{GM}	Peak gate current	t_p = 20 µs	T_j = 125° C	1.2	A
$P_{G(AV)}$	Average gate power dissipation		T_j = 125° C	0.2	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	° C

Electrical Characteristics (Tj = 25° C, unless otherwise specified)

Symbol	Test Conditions	Quadrant		LTR04				Unit
				02	05	09	10	
I_{GT} (1)	V_D = 12 V R_L = 30 Ω	I - II - III - IV	MAX.	5	10	15	25	mA
V_{GT}		ALL	MAX.	1.3				V
V_{GD}	V_D = V_{DRM} R_L = 3.3 kΩ T_j = 125° C	ALL	MIN.	0.2				V
I_H (2)	I_T = 50 mA		MAX.	3	5	10	25	mA
I_L	I_G = 1.2 I_{GT}	I - III - IV	MAX.	6	10	15	25	mA
		II		12	15	25	50	
dV/dt (2)	V_D = 6 % V_{DRM} gate open T_j = 110° C		MIN.	10	20	100	200	V/µs
(dV/dt)c (2)	(dI/dt)c = 1.8 A/ms T_j = 110° C		MIN.	0.5	1	2	5	V/µs

1. minimum IGT is guaranted at 5% of IGT max.
2. for both polarities of A2 referenced to A1.

Static Characteristics

Symbol	Test Conditions			Value	Unit
V_{TM} (1)	I_{TM} = 5.5 A t_p = 380 µs	T_j = 25°C	MAX.	1.35	V
V_{to} (1)	Threshold voltage	T_j = 125°C	MAX.	0.95	V
R_d (1)	Dynamic resistance	T_j = 125°C	MAX.	180	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	T_j = 25°C	MAX.	5	µA
		T_j = 125°C		0.5	mA

1. for both polarities of A2 referenced to A1.

Thermal resistances

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead (AC)	15	° C/W
$R_{th(j-a)}$	Junction to ambient	100	° C/W

Figure 1. Maximum power dissipation versus RMS on-state current (full cycle)

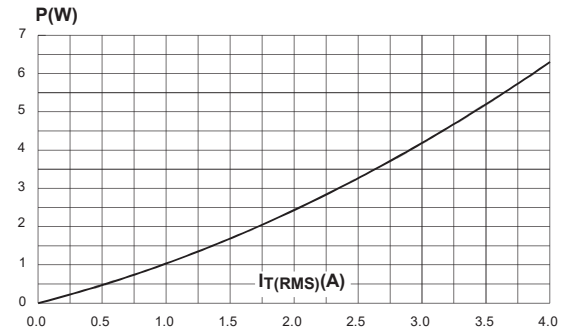


Figure 2. RMS on-state current versus ambient temperature (full cycle)

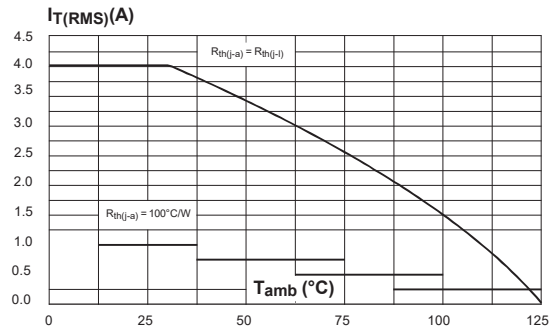


Figure 3. Relative variation of thermal impedance versus pulse duration

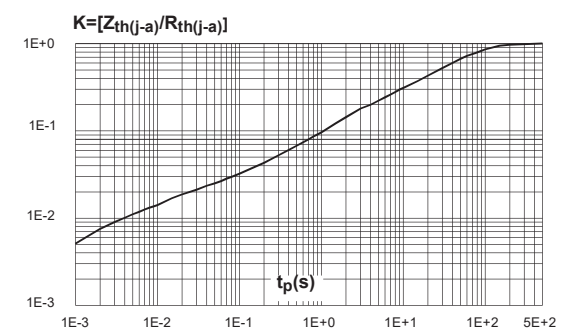


Figure 4. Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

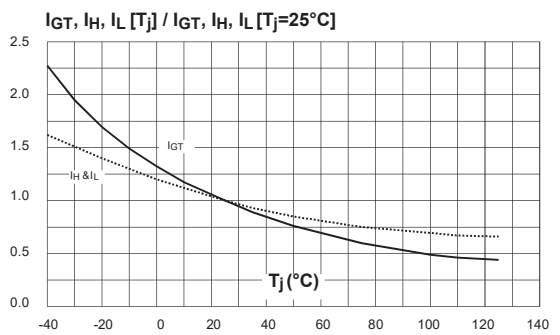


Figure 5. Surge peak on-state current versus number of cycles

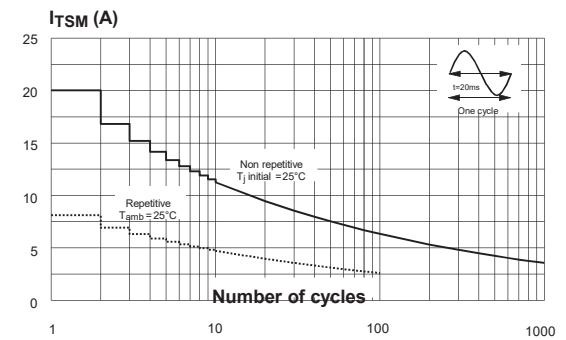


Figure 6. Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p < 10 ms and corresponding value of I^2t

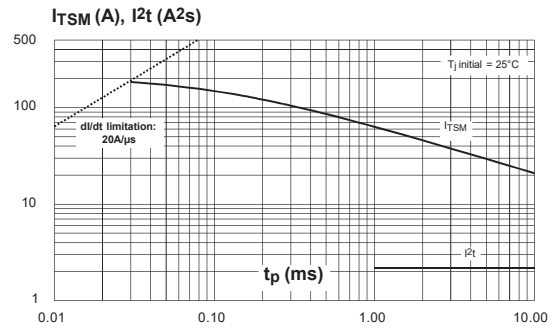


Figure 7. On-state characteristics (maximum values)

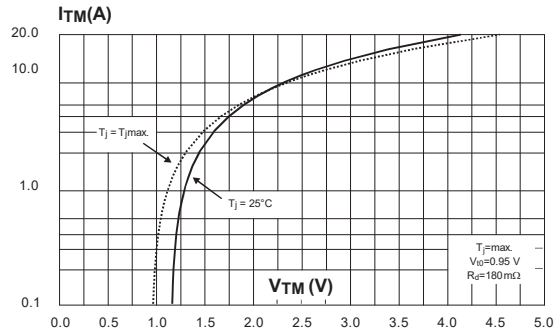


Figure 8. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values)

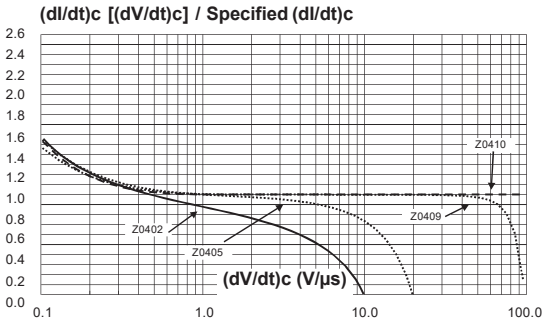


Figure 9. Relative variation of critical rate of decrease of main current versus junction temperature