

LTR41A, LTR41B 41A standard Triacs

Symbol	LTR41A	LTR41B	Unit
IT(RMS)	41	41	A
VDRM/VRRM	800	800	V
IGT	30 to 100	30 to 100	mA

Features

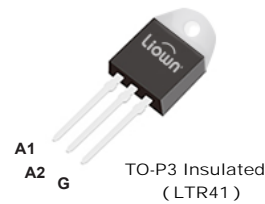
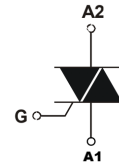
- High current TRIAC
- Low thermal resistance with clip bonding
- High commutation capability

Applications

- On/off function in static relays, heating regulation, induction motor starting circuits
- Phase control operations in light dimmers, motor speed controllers, and similar

Description

Available in high power packages, the LTR41A and LTR41B series is suitable for general purpose AC switching.



Absolute maximum ratings

Symbol	Parameter		Value	Unit		
$I_{T(RMS)}$	On-state rms current (full sine wave)	TOP3	$T_c = 95\text{ }^\circ\text{C}$	41 j	A	
		RD91 / TOP ins.	$T_c = 80\text{ }^\circ\text{C}$			
I_{TSM}	Non repetitive surge peak on-state current (full cycle, $T_{initial} = 25\text{ }^\circ\text{C}$)	F = 50 Hz	t = 20 ms	410	A	
		F = 60 Hz	t = 16.7 ms	420		
I^2t	I^2t Value for fusing	$t_p = 10\text{ ms}$		1000	A^2s	
dI/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$	F = 120 Hz	$T_j = 125\text{ }^\circ\text{C}$	50	A/ μs	
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	$t_p = 10\text{ ms}$	$T_j = 25\text{ }^\circ\text{C}$	$V_{DSM}/V_{RSM} + 100$	V	
I_{GM}	Peak gate current	$t_p = 20\text{ }\mu\text{s}$	$T_j = 125\text{ }^\circ\text{C}$	8	A	
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125\text{ }^\circ\text{C}$	1	W	
T_{stg} T_j	Storage junction temperature range Operating junction temperature range				- 40 to + 150 - 40 to + 125	$^\circ\text{C}$

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

Symbol	Parameter		Value	Unit	
I _{GT} ⁽¹⁾	V _D = 12 V R _L = 33 Ω	I - II - III IV	MAX.	30 100	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 = 500 mA		MAX.	80	mA
I _L	I _G = 1.2 I _{GT}	I - III - IV	MAX.	70	mA
		II		160	
dV/dt ⁽²⁾	V _D = 67% V _{DRM} gate open	T _j = 125 °C	MIN.	500	V/μs
(dV/dt) _C ⁽²⁾	(dI/dt) _C = 20 A/ms	T _j = 125 °C	MIN.	10	V/μs

1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.
2. for both polarities of A2 referenced to A1

Static characteristics

Symbol	Test conditions		Value	Unit	
V _T ⁽¹⁾	I _{TM} = 60 A t _p = 380 μs	T _j = 25 °C	MAX.	1.4	V
V _{th} ⁽²⁾	Threshold voltage	T _j = 125 °C	MAX.	0.85	V
R _d ⁽²⁾	Dynamic resistance	T _j = 125 °C	MAX.	10	mΩ
I _{DRM} I _{RDM}	V _{DRM} = V	T _j = 25 °C	MAX.	5	μA
		T _j = 125 °C		5	mA

Thermal resistance

Symbol	Test conditions		Value	Unit
R _{th(j-c)}	Junction to case (AC)	RD91 (insulated) / TOP3 insulated	0.9	°C/W
		TOP3	0.6	
R _{th(j-a)}	Junction to ambient	TOP3 / TOP3 insulated	50	°C/W

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

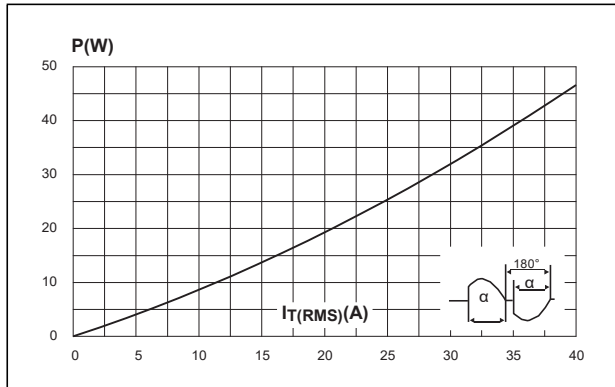


Figure 2. On-state rms current versus case temperature (full cycle)

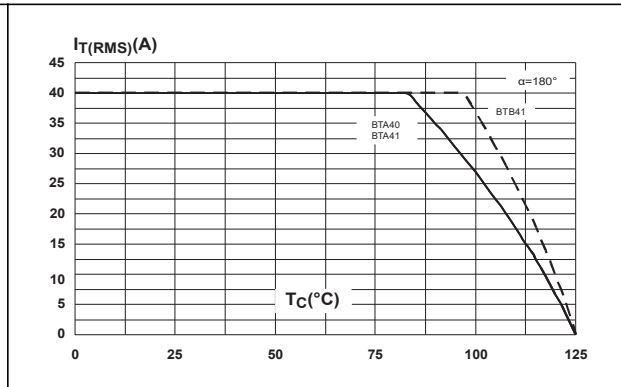


Figure 3. Relative variation of thermal impedance versus pulse duration

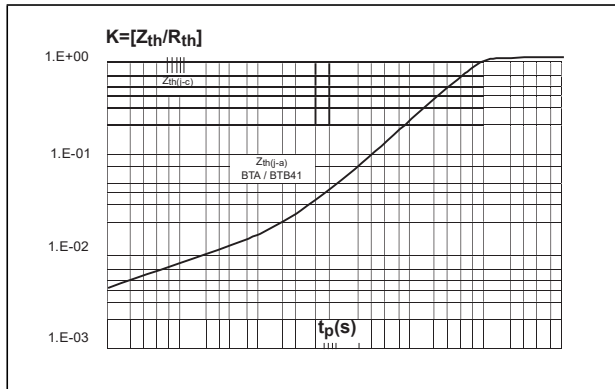


Figure 4. On-state characteristics (maximum values)

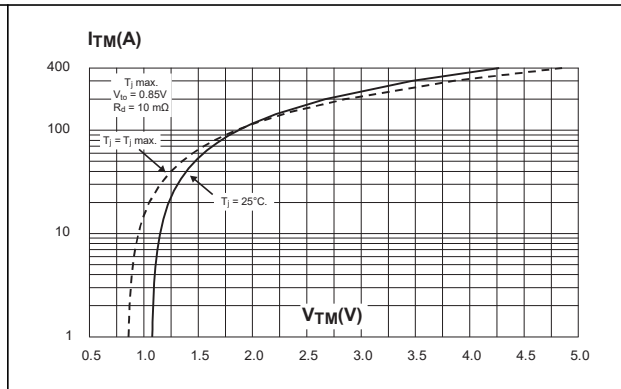


Figure 5. Surge peak on-state current versus number of cycles

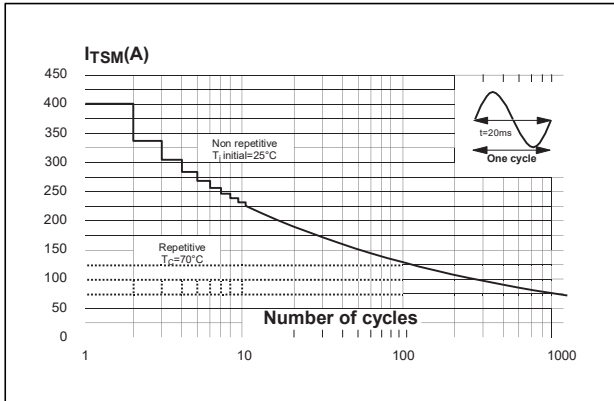


Figure 6. Non-repetitive surge peak on-state current for a sinusoidal pulse and corresponding value of I^2t

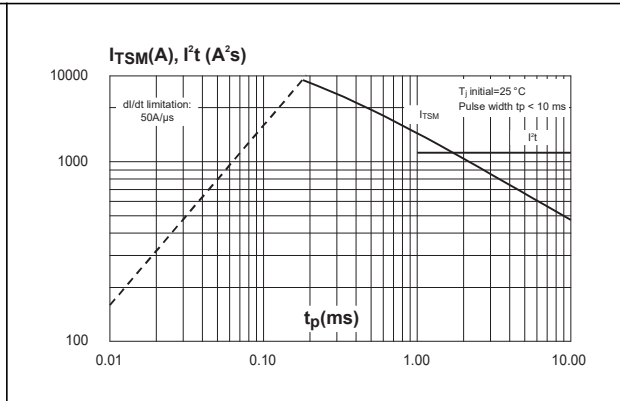


Figure 7. Relative variation of gate trigger, holding and latching current versus junction temperature

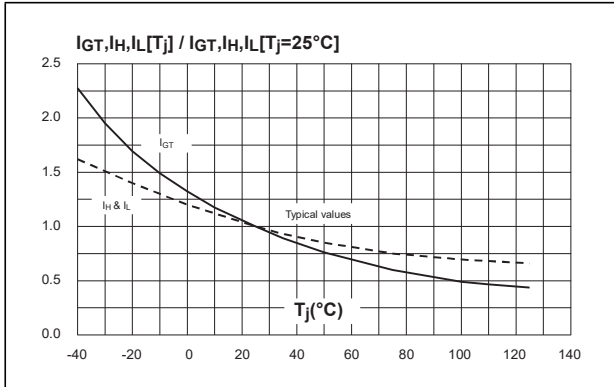


Figure 8. Relative variation of critical rate of decrease of main current versus $(dV/dt)c$ (typical values)

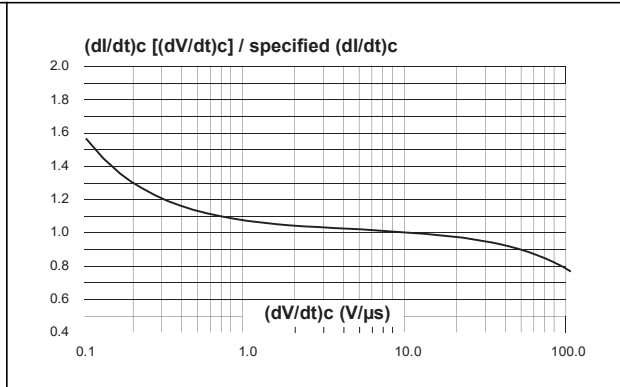


Figure 9. Relative variation of critical rate of decrease of main current versus $(dV/dt)c$

