

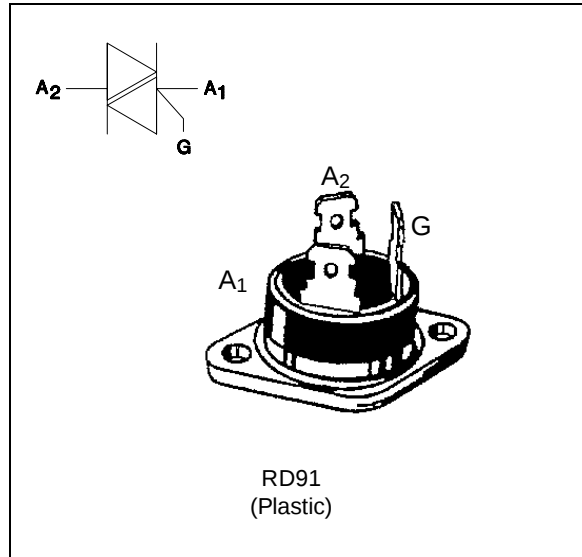
ALTERNISTORS

FEATURES

- HIGH COMMUTATION : > 142 A/ms (400Hz)
- INSULATING VOLTAGE = 2500V_(RMS)
(UL RECOGNIZED : EB1734)
- HIGH VOLTAGE CAPABILITY : V_{DRM} = 1200 V

DESCRIPTION

The TODV 640 ---> 1240 use a high performance passivated glass alternistor technology. Featuring very high commutation levels and high surge current capability, this family is well adapted to power control on inductive load (motor, transformer...)



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I _{T(RMS)}	RMS on-state current (360° conduction angle)	T _c = 75 °C	40	A
I _{TSM}	Non repetitive surge peak on-state current (T _j initial = 25°C)	t _p = 2.5 ms	590	A
		t _p = 8.3 ms	370	
		t _p = 10 ms	350	
I _{2t}	I _{2t} value	t _p = 10 ms	610	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : I _G = 500mA di _G /dt = 1A/μs	Repetitive F = 50 Hz	20	A/μs
		Non Repetitive	100	
T _{stg} T _j	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
TI	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	TODV				Unit
		640	840	1040	1240	
V _{DRM} V _{RRM}	Repetitive peak off-state voltage T _j = 125 °C	600	800	1000	1200	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (c-h)	Contact (case-heatsink) with grease	0.1	°C/W
R _{th} (j-c) DC	Junction to case for DC	1.2	°C/W
R _{th} (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_G (AV) = 1W P_{GM} = 40W (tp = 20 μs) I_{GM} = 8A (tp = 20 μs) V_{GM} = 16V (tp = 20 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant		Value	Unit
I _{GT}	V _D =12V (DC) R _L =33Ω T _j =25°C	I-II-III	MAX	200	mA
V _{GT}	V _D =12V (DC) R _L =33Ω T _j =25°C	I-II-III	MAX	1.5	V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ T _j =125°C	I-II-III	MIN	0.2	V
t _{gt}	V _D =V _{DRM} I _G = 500mA dI _G /dt = 3A/μs T _j =25°C	I-II-III	TYP	2.5	μs
I _L	I _G =1.2 I _{GT} T _j =25°C	I-III	TYP	100	mA
		II		200	
I _H *	I _T = 500mA gate open T _j =25°C		TYP	50	mA
V _{TM} *	I _{TM} = 60A tp= 380μs T _j =25°C		MAX	1.8	V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated T _j =25°C		MAX	0.02	mA
			MAX	8	
dV/dt *	Linear slope up to V _D =67%V _{DRM} gate open T _j =125°C		MIN	500	V/μs
(dI/dt)c *	(dV/dt)c = 200V/μs T _j =125°C		MIN	35	A/ms
	(dV/dt)c = 10V/μs			142	

* For either polarity of electrode A₂ voltage with reference to electrode A₁.

Fig.1 : Maximum RMS power dissipation versus RMS on-state current ($F=50\text{Hz}$).
(Curves are cut off by $(di/dt)_c$ limitation)

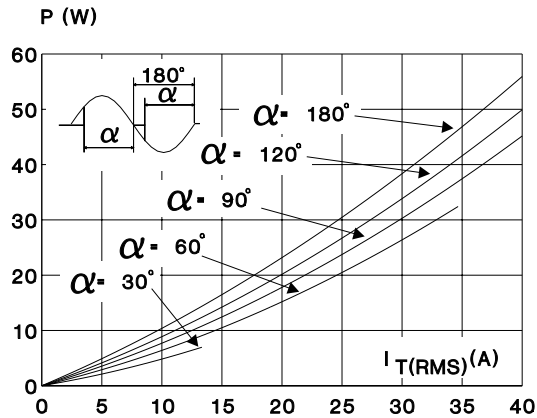


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

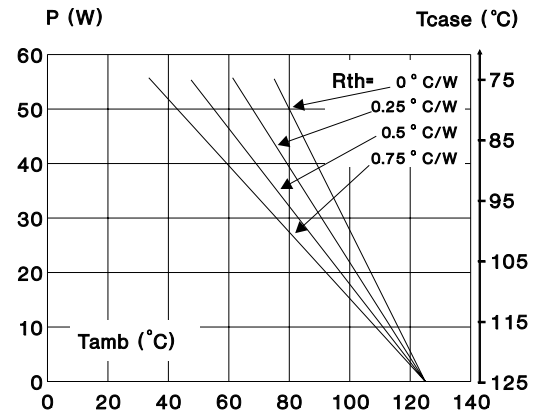


Fig.3 : RMS on-state current versus case temperature.

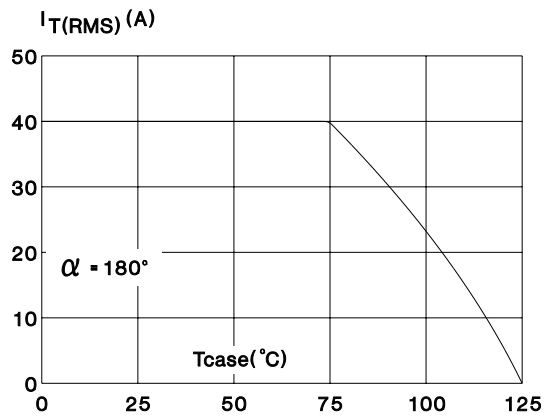


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

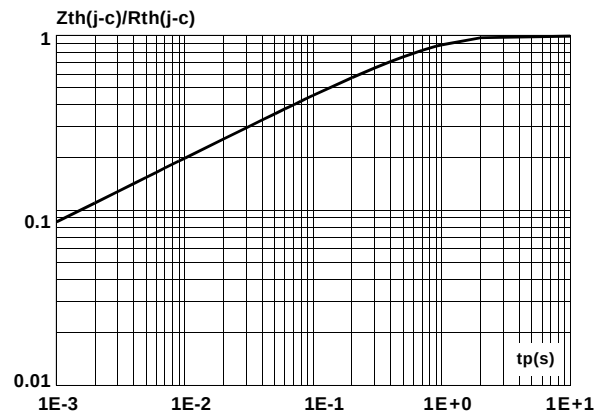


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

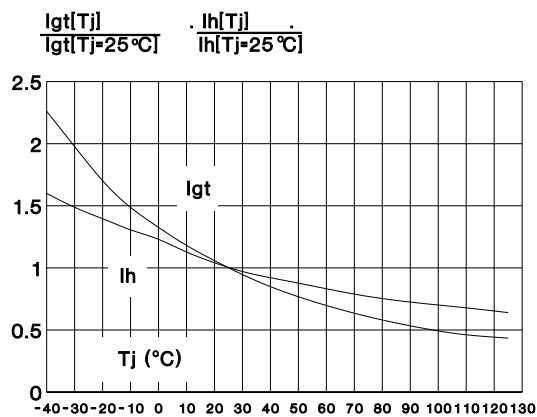


Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.

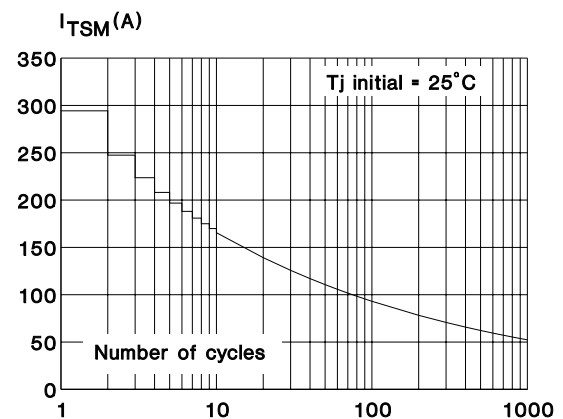


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

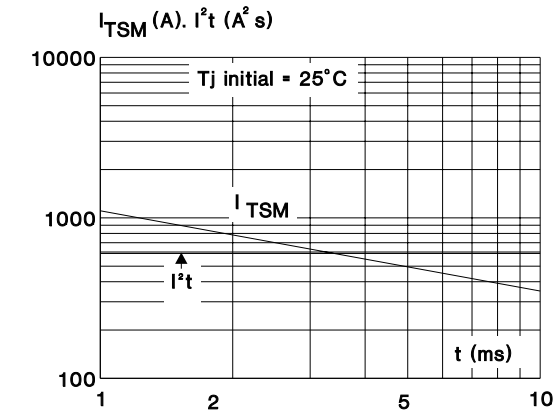


Fig.8 : On-state characteristics (maximum values).

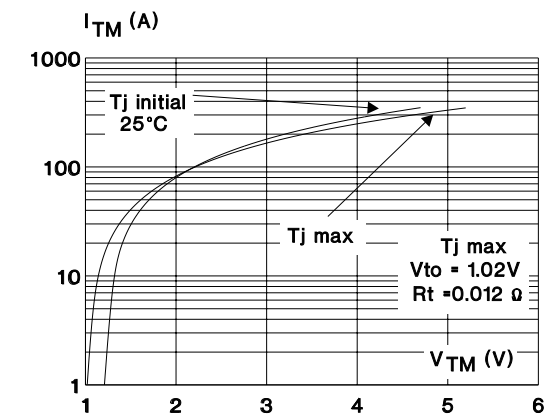
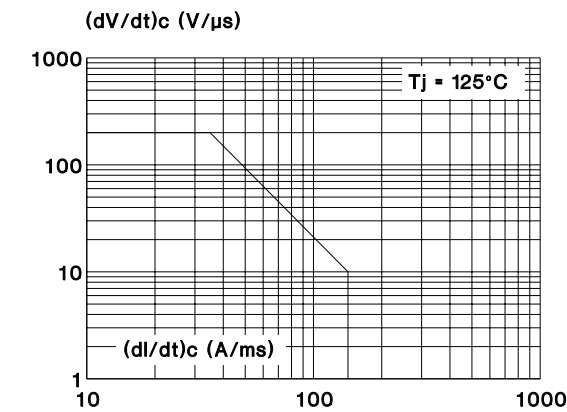
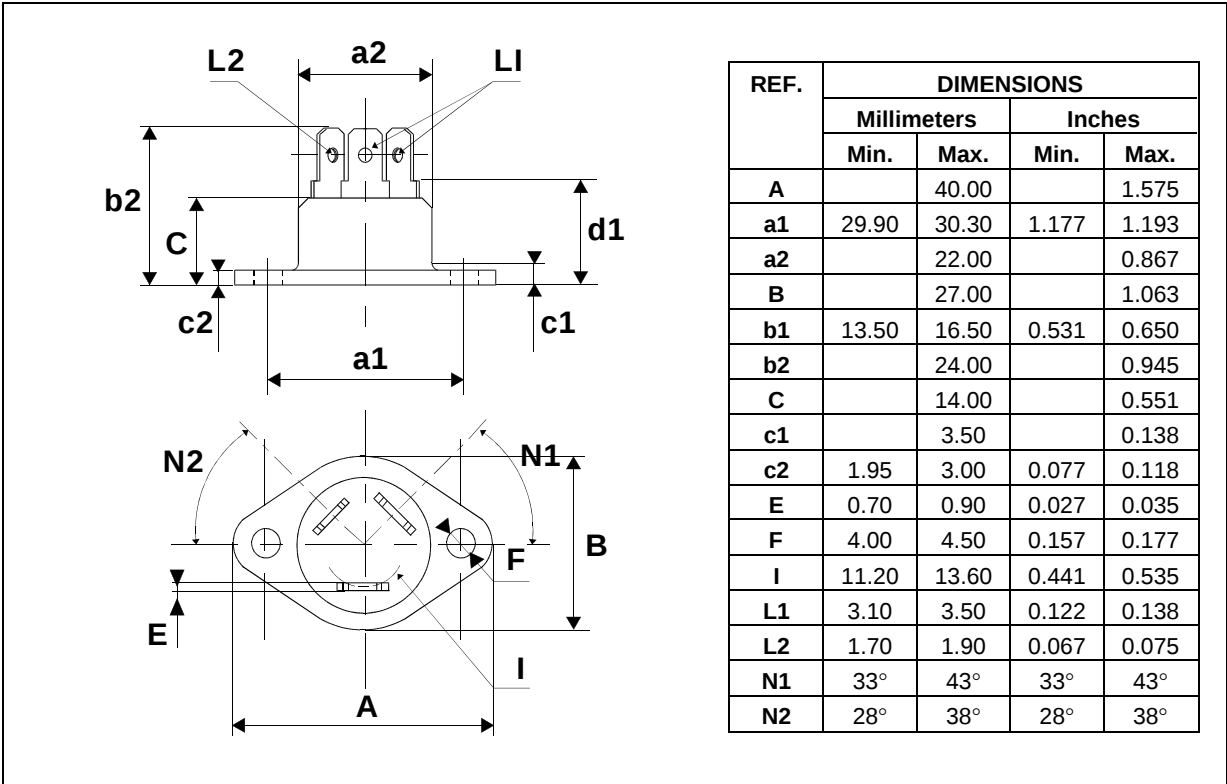


Fig.9 : Safe operating area.



PACKAGE MECHANICAL DATA

RD91 Plastic



Marking : type number
Weight : 20 g

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