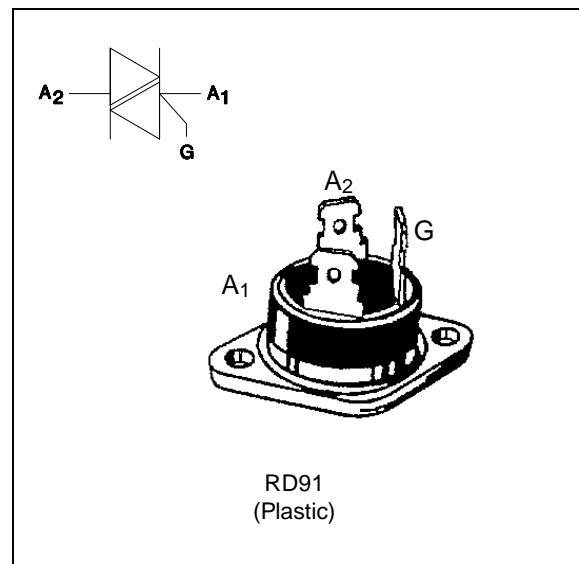


ALTERNISTORS**FEATURES**

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

**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
$I_T(\text{RMS})$	RMS on-state current (360° conduction angle)	40	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 2.5 \text{ ms}$	590
		$t_p = 8.3 \text{ ms}$	370
		$t_p = 10 \text{ ms}$	350
I_{2t}	I_{2t} value	$t_p = 10 \text{ ms}$	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : $I_G = 500\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$	Repetitive $F = 50 \text{ Hz}$	$\text{A}/\mu\text{s}$
		Non Repetitive	100
T_{stg} T_j	Storage and operating junction temperature range	- 40 to + 150 - 40 to + 125	°C °C
T_I	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 $T_j = 125 \text{ °C}$	600	800	1000	1200	V

TODV 640 ---> 1240

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
		T _j =125°C		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)

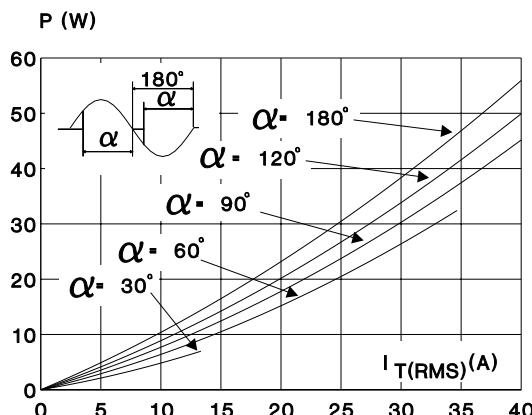


Fig.3 : RMS on-state current versus case temperature.

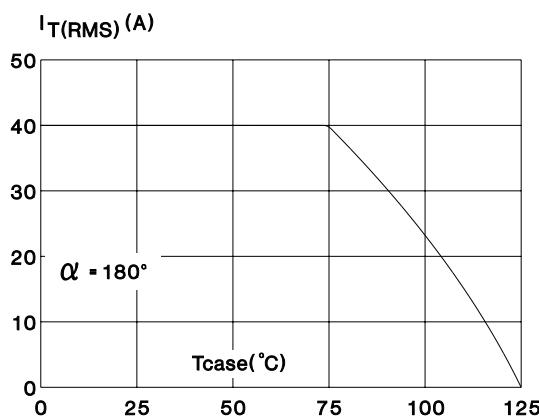


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

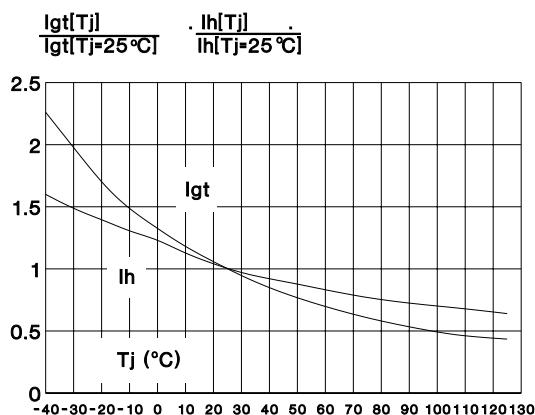


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

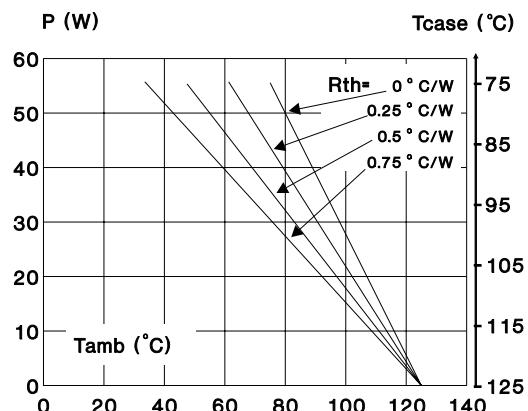


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

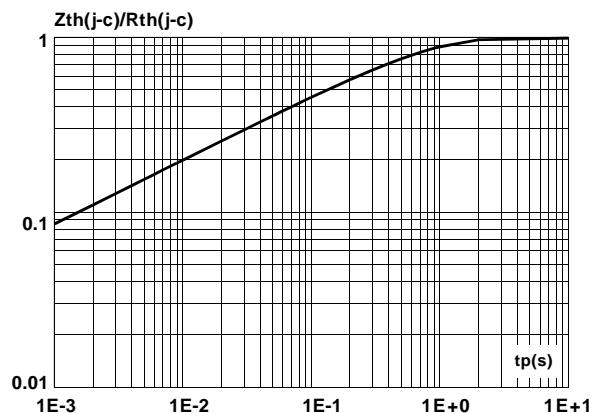
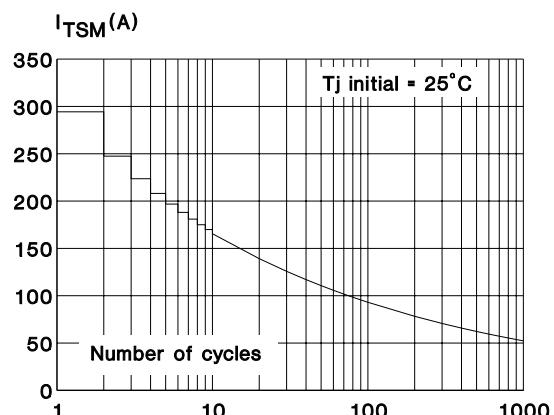


Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.



TODV 640 ---> 1240

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 .

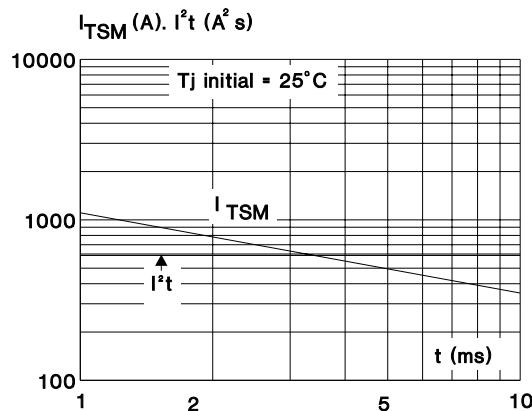


Fig.8 : On-state characteristics (maximum values).

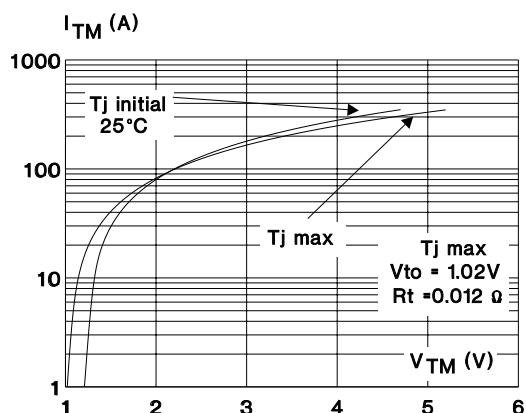
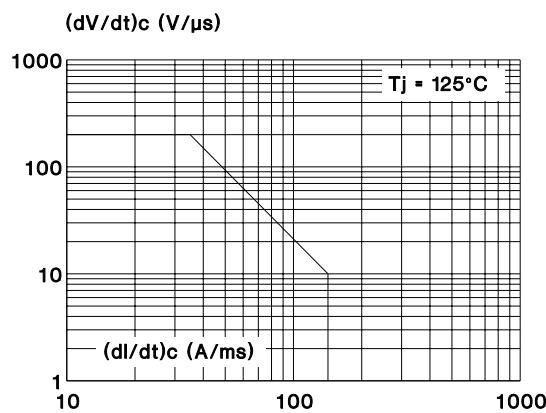
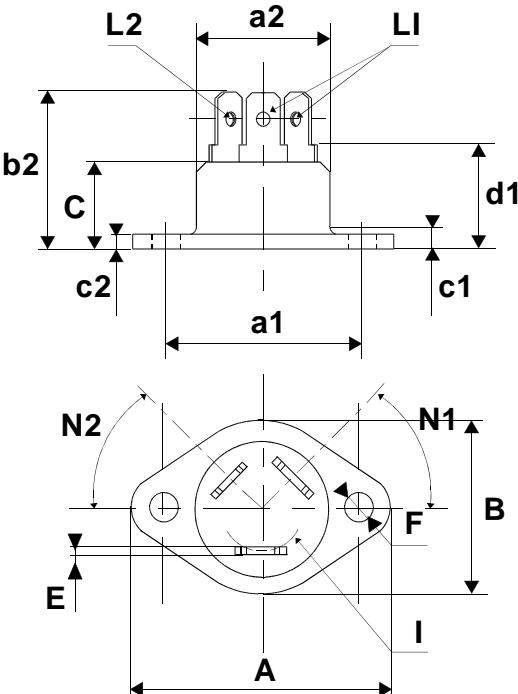


Fig.9 : Safe operating area.



PACKAGE MECHANICAL DATA

RD91 Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	40.00		1.575	
a1	29.90	30.30	1.177	1.193
a2		22.00		0.867
B		27.00		1.063
b1	13.50	16.50	0.531	0.650
b2		24.00		0.945
C	14.00		0.551	
c1	3.50		0.138	
c2	1.95	3.00	0.077	0.118
E	0.70	0.90	0.027	0.035
F	4.00	4.50	0.157	0.177
I	11.20	13.60	0.441	0.535
L1	3.10	3.50	0.122	0.138
L2	1.70	1.90	0.067	0.075
N1	33°	43°	33°	43°
N2	28°	38°	28°	38°

Marking : type number

Weight : 20 g

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