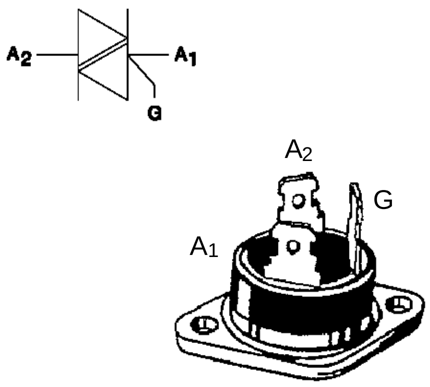
SGS-THOMSON
MICROELECTRONICS

BTA40 A/B

STANDARD TRIACS

FEATURES

- HIGH SURGE CURRENT CAPABILITY
- COMMUTATION : (dV/dt)c > 10V/µs
- BTA Family :
  INSULATING VOLTAGE = 2500V$_{(RMS)}$
  (UL RECOGNIZED : E81734)



RD91
(Plastic)

DESCRIPTION

The BTA40 A/B triac family are high performance glass passivated PNPN devices.
These parts are suitables for general purpose applications where high surge current capability is required. Application such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	Tc = 75 °C	40	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	315	A
		tp = 10 ms	300	
I^2t	I^2t value	tp = 10 ms	450	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : I_G = 500mA di_G/dt = 1A/µs	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	BTA40-... A/B				Unit
		400	600	700	800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125 °C	400	600	700	800	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-c) DC	Junction to case for DC	1.2	°C/W
Rth (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		Suffix		Unit
					A	B	
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III	MAX	100	50	mA
			IV	MAX	150	100	
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III-IV	MAX	1.5		V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj=125°C	I-II-III-IV	MIN	0.2		V
tgt	V_D=V_{DRM} I_G = 500mA dI_G/dt = 3A/µs	Tj=25°C	I-II-III-IV	TYP	2.5		µs
I_L	I_G=1.2 I_{GT}	Tj=25°C	I-III-IV	TYP	70	60	mA
			II		200	180	
I_H *	I_T= 500mA gate open	Tj=25°C		MAX	100	80	mA
V_{TM} *	I_{TM}= 60A tp= 380µs	Tj=25°C		MAX	1.8		V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated	Tj=25°C		MAX	0.01		mA
		Tj=125°C		MAX	6		
dV/dt *	Linear slope up to V_D=67%V_{DRM} gate open	Tj=125°C		MIN	250		V/µs
(dV/dt)c *	(dI/dt)c = 18A/ms	Tj=125°C		MIN	10		V/µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

ORDERING INFORMATION

Package	$I_{T(RMS)}$	V_{DRM} / V_{RRM}	Sensitivity Specification	
	A	V	A	B
BTA (Insulated)	40	400	X	X
		600	X	X
		700	X	X
		800	X	X

Fig.1 : Maximum RMS power dissipation versus RMS on-state current (F=50Hz).
(Curves are cut off by (dI/dt)c limitation)

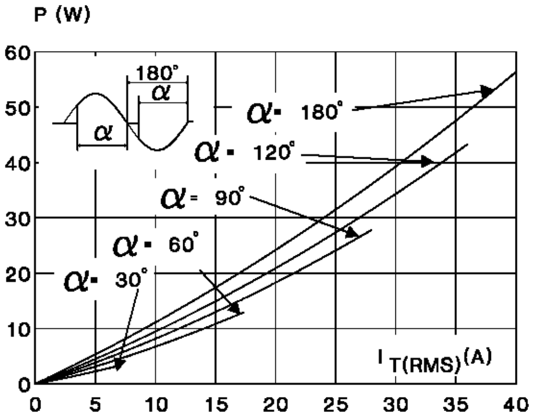


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

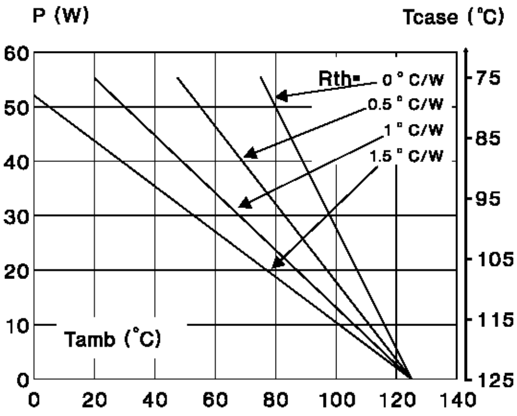


Fig.3 : RMS on-state current versus case temperature.

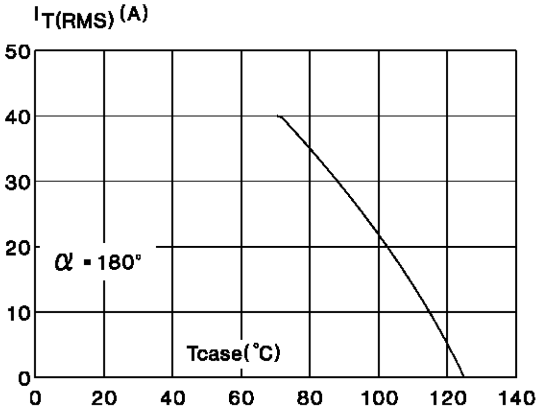


Fig.4 : relative variation of thermal impedance junction to case versus pulse duration.

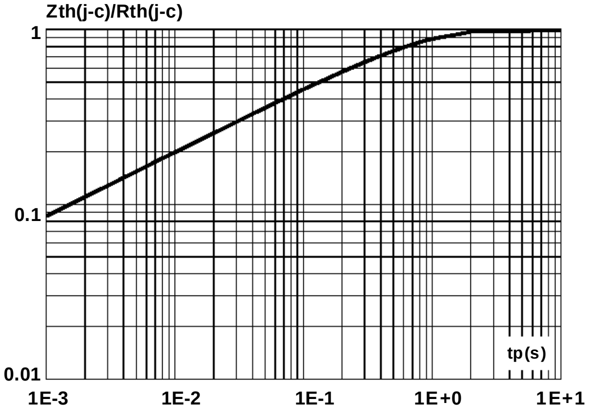


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

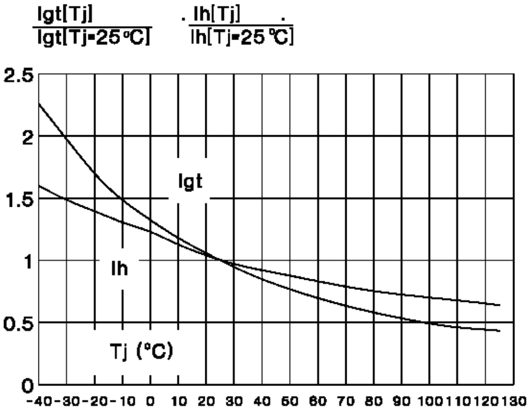


Fig.6 : Non Repetitive surge peak on-state current versus number of cycles.

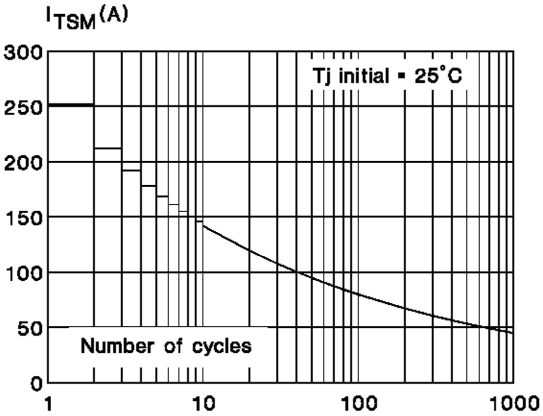


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10ms, and corresponding value of I^2t.

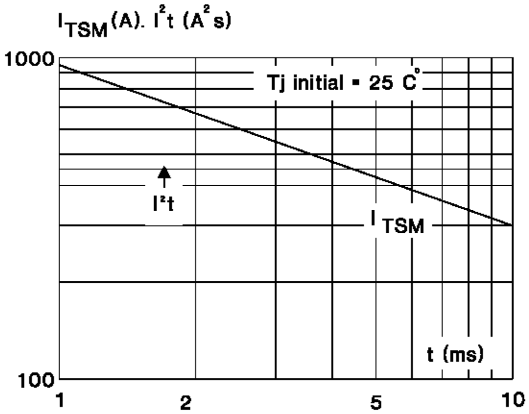
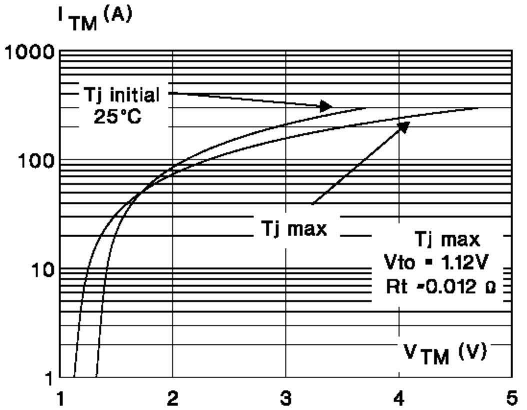
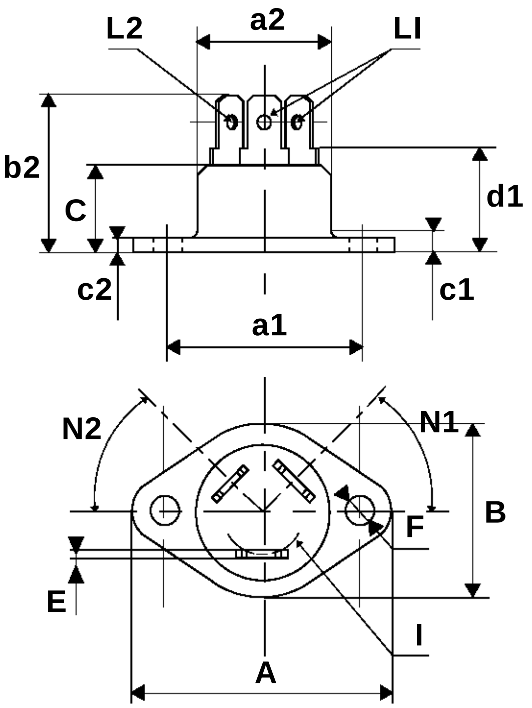


Fig.8 : On-state characteristics (maximum values).



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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