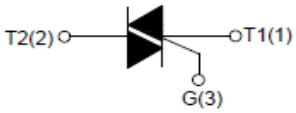
6A TRIACs

BTA06

TO-220



TO-220A
Package
Plastic Insulated
RoHS compliant

DESCRIPTION

With high ability to withstand the shock loading of large current, BTA06 series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, the products especially recommended for use on inductive load.From all three terminals to external heatsink, BTA06A provides a rated insulation voltage of 2500 VRMS, The package is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Parameter	Symbol	Value	Unit
RMS on-state current	$I_{T(RMS)}$	6	A
Non repetitive surge peak Off-state voltage/ Repetitive peak reverse voltage(Tj=25℃)	V_{DRM} /V_{RRM}	600/800	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40-150	℃
Operating junction temperature range		Tj	-40-125	℃
Repetitive peak off-state voltage(Tj=25℃)		V_{DRM}	600/800	V
Repetitive peak reverse voltage(Tj=25℃)		V_{RRM}	600/800	V
RMS on-state current	TO-220A (T_C=100℃)	$I_{T(RMS)}$	6	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	60	A
I^2t value for fusing (tp=10ms)		I^2t	18	A^2s
Critical rate of rise of on-statecurrent(I_G=2×I_{GT})	Ⅰ - Ⅱ - Ⅲ	dI/dt	50	A/μs
	Ⅳ		10	
Peak gate current		I_{GM}	2	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power dissipation		P_{GM}	5	W

ELECTRICAL CHARACTERISTICS at T_a = 25 °C

Parameter	Symbol	Test Condition	Quadrant	Value		Unit
				C	B	
Triggering gate current	I_{GT} (Max)	VD=12V RL=33Ω	Ⅰ-Ⅱ-Ⅲ	25	50	mA
			Ⅳ	50	75	
Triggering gate voltage	V_{GT} (Max)		ALL	1.5		V
Non-triggering gate voltage	V_{GD} (Min)	V_D=V_{DRM} T_j=125°C, R_L=3.3kΩ	ALL	0.2		V
Latching current	I_L (Max)	I_G=1.2I_{GT}	Ⅰ-Ⅲ-Ⅳ	50	70	mA
			Ⅱ	60	80	
Holding current	I_H (Max)	I_T=200mA	ALL	40	60	mA
Critical rate of rise of off-state voltage	dV/dt (Min)	V_D=2/3V_{DRM} Gate Open T_j=125℃		200	500	V/μs

STATIC CHARACTERISTICS

Parameter	Symbol	Test Condition	Temp.	Value (Max)	Unit
Peak on-state voltage drop	V_{TM}	I_{TM} =8.5A t_p=380μs	T_j=25℃	1.5	V
Max. Forward Current	I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	5	μA
Max. Reverse Current	I_{RRM}		T_j=125℃	1	mA

THERMAL RESISTANCES

Parameter	Symbol	Test Condition	Value (Max)	Unit
Junction to case thermal resistance	$R_{th(j-c)}$	Junction to case(AC)	2.9	℃/W

Typical Characteristic curves

FIG.1: Maximum power dissipation versus RMS on-state current

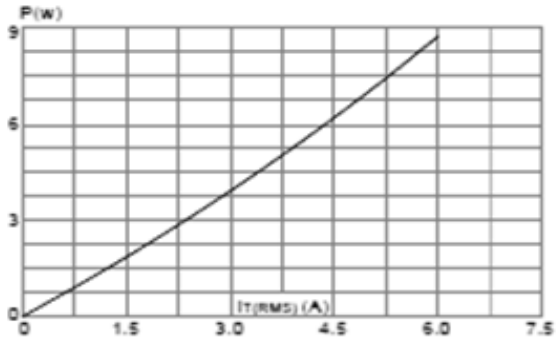


FIG.2: RMS on-state current versus case temperature

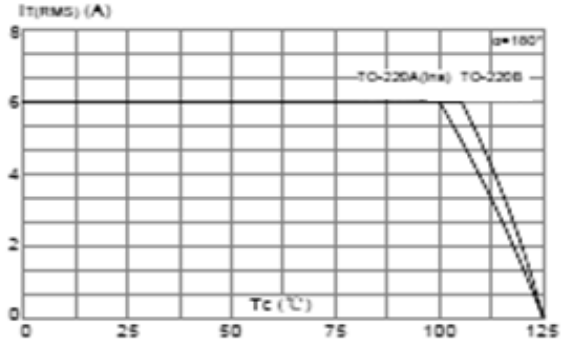


FIG.3: Surge peak on-state current versus number of cycles

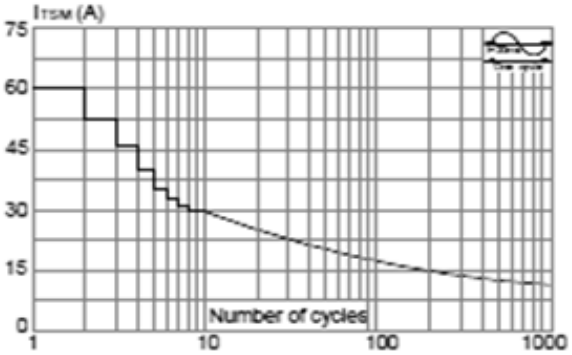


FIG.4: On-state characteristics (maximum values)

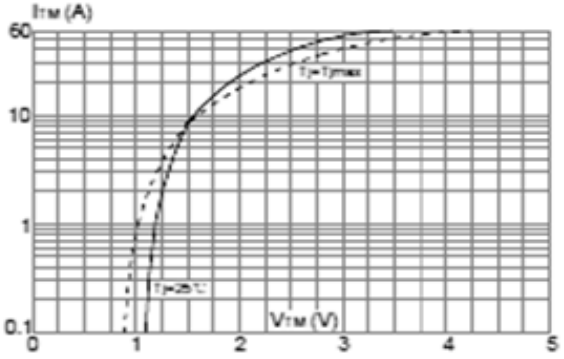


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I²t (Ⅰ-Ⅱ-Ⅲ:dI/dt < 50A/μs; Ⅳ:dI/dt < 10A/μs)

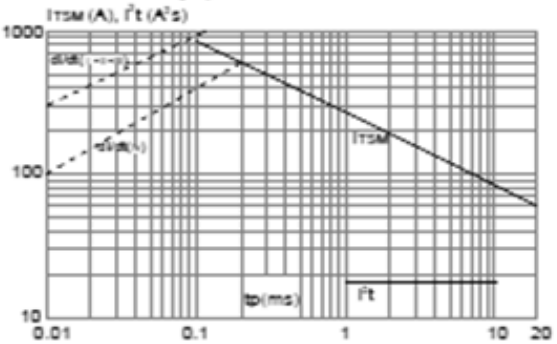
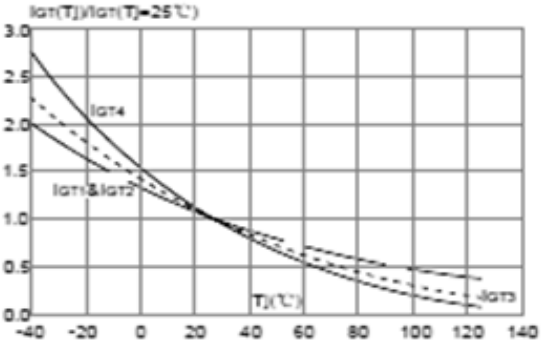


FIG.6: Relative variations of gate trigger current versus junction temperature



Typical Characteristic curves (continoue…..)

FIG.7: Relative variations of holding current versus junction temperature

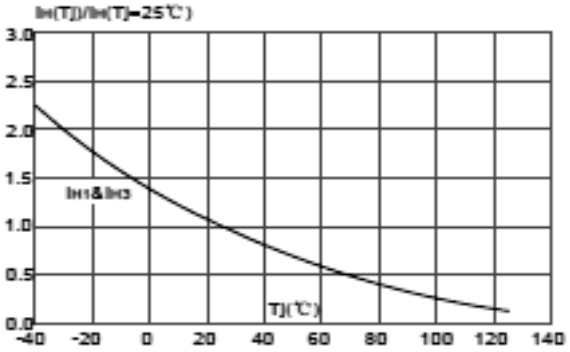
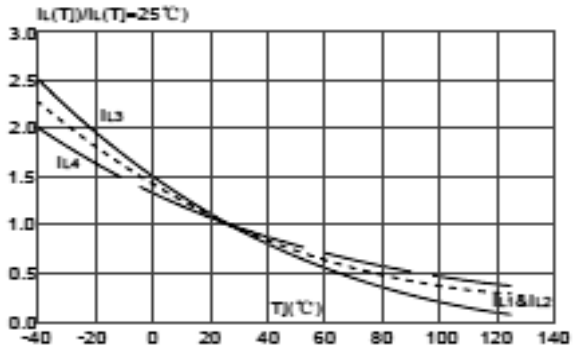
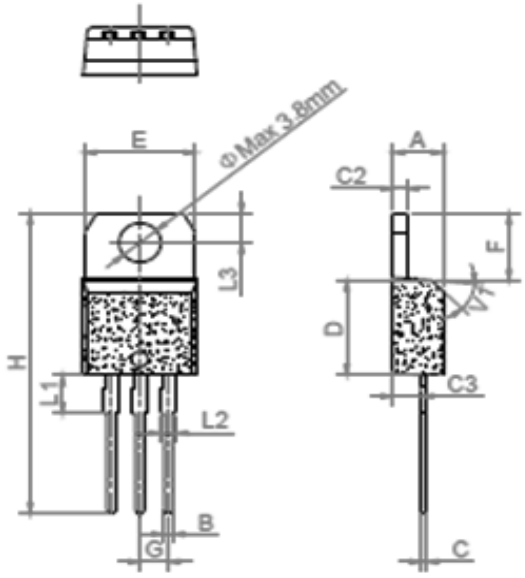


FIG.8: Relative variations of latching current versus junction temperature



Package Details

PACKAGE MECHANICAL DATA



TO-220A Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

Note: For AECQ compliant products, please suffix -AH in the part number while ordering

PACKAGE	WEIGHT (Per PCS)	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	2.308 gm	TUBE	50	1,000	8,000

Recommended Product Storage Environment for Diode and Transistors

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature **5 °C to 30 °C**
- Humidity between **40 to 70 %RH**
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years, the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start. For this the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤ 30 °C / 85% RH
2	1 Year	≤ 30 °C / 60% RH
2a	4 Weeks	≤ 30 °C / 60% RH
3	168 Hours	≤ 30 °C / 60% RH
4	72 Hours	≤ 30 °C / 60% RH
5	48 Hours	≤ 30 °C / 60% RH
5a	24 Hours	≤ 30 °C / 60% RH
6	Time on Label(TOL)	≤ 30 °C / 60% RH

Figure 1 Floor Life according to JEDEC MSL Level

Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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