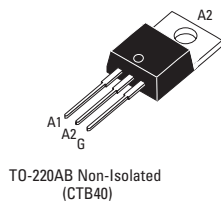




**Applications**

- Phase Control
- Static Switching
- Light Dimming
- Motor Speed Control
- Kitchen Equipment
- Power Tools
- Solenoid Valve Controls:
  - Dishwashers
  - Washing Machines

- **400A Surge**
- **Suitable for General Purpose AC Switching**
- **IGT 50 mA**
- **V<sub>DRM</sub>/V<sub>RMM</sub> 400, 600, 800V**



**Absolute Maximum Ratings**

	CONDITIONS	SYMBOL	RATING
RMS On-State Current (full sine wave)	T <sub>c</sub> = 110°C	I <sub>T(RMS)</sub>	40A
Non Repetitive Surge Peak On-State Current (Full Cycle, T <sub>j</sub> Initial = 25°C)	F = 50 Hz	I <sub>TSM</sub>	380A
	F = 60 Hz		400A
I <sup>2</sup> t Value for fusing	t <sub>p</sub> = 10 ms	I <sup>2</sup> t	660A <sup>2</sup> s
Critical rate of rise of on-state current I <sub>G</sub> = 2 x I <sub>GT</sub> , t <sub>r</sub> < 100 ns, T <sub>j</sub> = 125°C		di/dt	100A/μsec
Peak Gate Current @ T <sub>j</sub> = 125°C	t <sub>p</sub> = 20 μs	I <sub>GM</sub>	4A
Average Gate Power Dissipation @ T <sub>j</sub> = 125°C		PG(AV)	1W
Storage Temperature Range		T <sub>stg</sub>	-40 to +150°C
Operating Junction Temperature Range		T <sub>j</sub>	-40 to +150°C

**Electrical Characteristics**

	CONDITIONS	“B”	“BW”
I <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω <sup>NOTE 1</sup>	QI-II-III	50mA	50mA
I <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω <sup>NOTE 1</sup>	QIV	100mA	–
V <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω	Q-All	1.3V	1.3V
V <sub>GD</sub> MIN @ V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3kΩ	Q-All	0.2V	0.2V
I <sub>H</sub> MAX @ I <sub>T</sub> = 100 mA <sup>NOTE 2</sup>		75mA	75mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	QI-III-IV	75mA	75mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	Q-II	100mA	100mA
dv/dt MIN @ V <sub>D</sub> = 67%V <sub>DRM</sub> (gate open) <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C	500V/μs	1000V/μs
(di/dt) <sub>c</sub> MIN @ (di/dt) <sub>c</sub> = 13.3 A/ms <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C	10V/μs	50V/μs
(di/dt) <sub>c</sub> MIN without snubber <sup>NOTES 2 &amp; 4</sup>	T <sub>j</sub> = 125°C	–	22A/ms

**Static Characteristics**

V <sub>T</sub> MAX @ I <sub>TM</sub> = 17 A, t <sub>p</sub> = 380μs <sup>NOTE 2</sup>	T <sub>j</sub> = 25°C	1.6V
V <sub>t0</sub> MAX @ Threshold Voltage <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C	0.8V
R <sub>d</sub> MAX @ Dynamic Resistance <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C	16mΩ
I <sub>DRM</sub> MAX @ V <sub>DRM</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 25°C	5μA
I <sub>RRM</sub> MAX @ V <sub>DRM</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 125°C	3mA

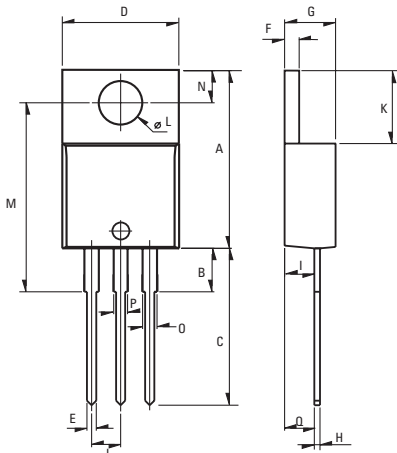
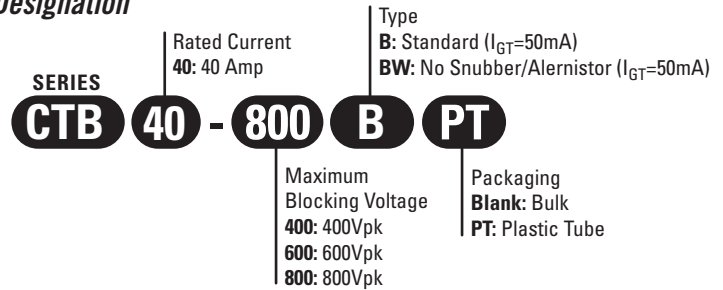
**GENERAL NOTES**

1. Minimum IGT is guaranteed at 5% of IGT max.
2. For both polarities of A2 referenced to A1
3. All parameters at 25 degrees C unless otherwise specified.
4. Commutating dv/dt = 50V/μs, (exponential to 200Vpk)

**Thermal Resistances**

		SYMBOL	RATING
Junction to Case (AC)	TO-220AB	$R_{th(j-c)}$	0.78°C/W
Junction to Ambient	TO-220AB	$R_{th(j-a)}$	60°C/W

**Part Number Designation**



Weight: 2.3g (0.08 oz)

**Dimensions**

REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.24		15.75	0.6		0.62
B		3.23			0.127	
C	12.78		13.79	0.503		0.543
D	9.96		10.36	0.392		0.408
E	0.69		0.94	0.027		0.037
F	1.22		1.32	0.048		0.052
G	4.62		4.83	0.182		0.19
H	0.46		0.61	0.018		0.024
I	2.49		2.84	0.098		0.112
J	2.39		2.69	0.094		0.106
K	6.48		6.88	0.255		0.271
L	3.78		3.89	0.149		0.153
M	15.49	16	16.51	0.61	0.63	0.65
N	2.59		2.9	0.102		0.114
O	0.99		1.55	0.039		0.061
P	0.99		1.55	0.039		0.061
Q		2.67			0.105	

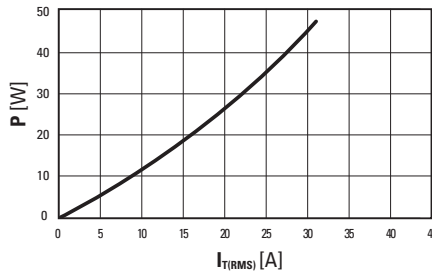


Fig. 1: Power dissipation versus RMS on-state current (full cycle).

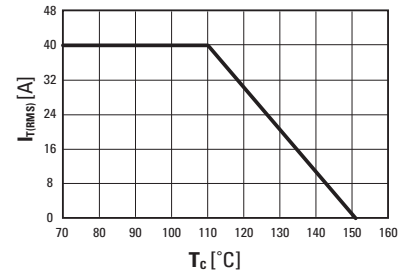


Fig. 2: RMS on-state current versus case temperature (full cycle)

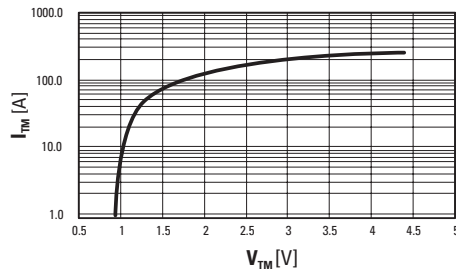


Fig. 3: On-state current versus on-state voltage (instantaneous values)

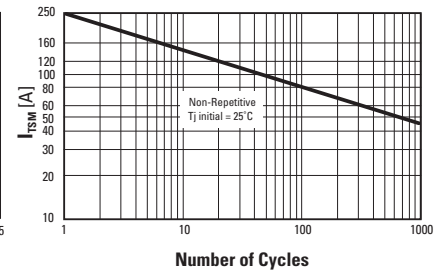


Fig. 4: Non-repetitive surge peak on-state current versus number of cycles.

**ISO9001 Certified**

**Approvals**

UL - Pending

**USA**

Sales & Tech Support (866) 258-5057  
 Email: sales@cynergy3.com

Cynergy3 Components  
 2320 Paseo de las Americas, Suite 104  
 San Diego, CA 92154

**EUROPE - UK**

Telephone +44 (0) 1202 897969  
 Fax +44 (0) 1202 891918

Email: sales@cynergy3.com  
 Cynergy3 Components Ltd.  
 7 Cobham Road  
 Ferndown Industrial Estate  
 Wimborne, Dorset BH21 7PE

**ASIA - Thailand**

Telephone +66 (0)2 665 2517  
 Fax +66 (0)2 665 2588

Cynergy 3 Components, Asia  
 18/8 Fico Place 12th Floor  
 Soi Sukhumvit 21 (Asoke)  
 Klongtoey Nua, Wattana  
 Bangkok, Thailand 10110