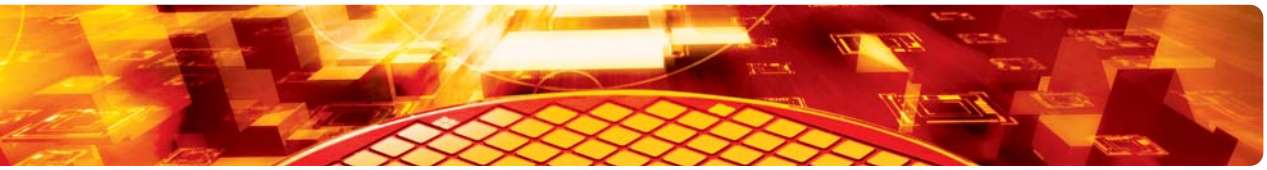
cynergy3 components™

CTB 40

High Temperature 150˚C Series

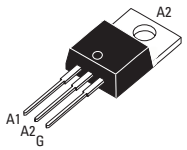
40Amp - 400/600/800V - TRIAC



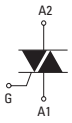
Applications

- *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_{DRM}/V_{RMM} 400, 600, 800V***



TO-220AB Non-Isolated
(CTB40)



Absolute Maximum Ratings

		CONDITIONS	SYMBOL	RATING
RMS On-State Current (full sine wave)	Tc = 110˚C	TO-220AB	$I_{T(RMS)}$	40A
Non Repetitive Surge Peak On-State Current (Full Cycle, Tj Initial = 25˚C)		F =50 Hz F =60 Hz	I_{TSM}	380A 400A
I^2t Value for fusing		tp = 10 ms	I^2t	$660A^2s$
Critical rate of rise of on-state current I_G=2 x I_{GT}, tr<100 ns, Tj = 125˚C			di/dt	100A/µsec
Peak Gate Current @ Tj = 125˚C		tp = 20 µs	I_{GM}	4A
Average Gate Power Dissipation @ Tj = 125˚C			PG(AV)	1W
Storage Temperature Range			Tstg	-40 to +150˚C
Operating Junction Temperature Range			Tj	-40 to +150˚C

Electrical Characteristics

		CONDITIONS	"B"	"BW"
I_{GT} MAX @ V_D =12 V, R_L = 30Ω NOTE 1		QI-II-III	50mA	50mA
I_{GT} MAX @ V_D =12 V, R_L = 30Ω NOTE 1		QIV	100mA	–
V_{GT} MAX @ V_D =12 V, R_L = 30ΩΩ		Q-AII	1.3V	1.3V
V_{GD} MIN @ V_D =V_{DRM}, R_L = 3.3kΩ	Tj = 125˚C	Q-AII	0.2V	0.2V
I_H MAX @ I_T = 100 mA NOTE 2			75mA	75mA
I_L MAX @ I_G = 1.2 I_{GT}		QI-III-IV	75mA	75mA
I_L MAX @ I_G = 1.2 I_{GT}		Q-II	100mA	100mA
dv/dt MIN @ V_D = 67%V_{DRM} (gate open) NOTE 2	Tj = 125˚C		500V/µs	1000V/µs
(di/dt)c MIN @ (di/dt)c = 13.3 A/ms NOTE 2	Tj = 125˚C		10V/µs	50V/µs
(di/dt)c MIN without snubber NOTES 2 & 4	Tj = 125˚C		–	22A/ms

Static Characteristics

V_T MAX @ I_{TM} =17 A, tp = 380µs NOTE 2	Tj = 25˚C	1.6V
V_{to} MAX @ Threshold Voltage NOTE 2	Tj = 125˚C	0.8V
R_d MAX @ Dynamic Resistance NOTE 2	Tj = 125˚C	16mΩ
I_{DRM} MAX @ V_{DRM} = V_{RRM}	Tj = 25˚C	5µA
I_{RRM} MAX @ V_{DRM} = V_{RRM}	Tj = 125˚C	3mA

GENERAL NOTES

1. Minimum IGT is guaranted 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)

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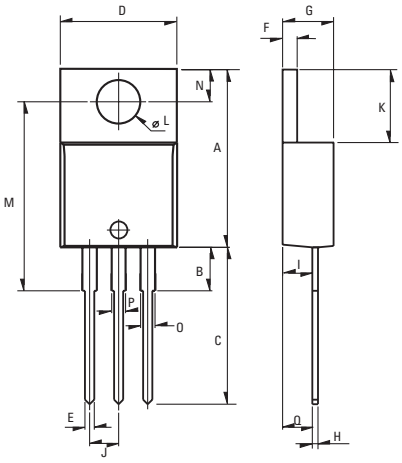
Thermal Resistances

		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

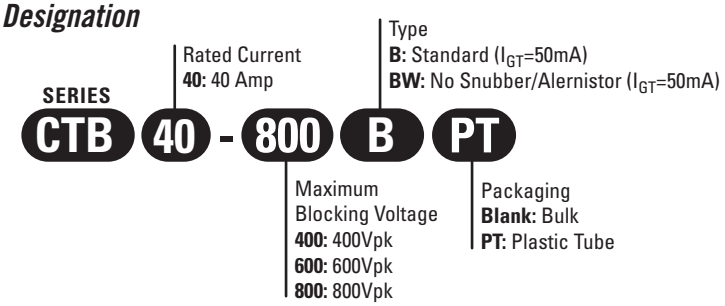


Weight: 2.3g (0.08 oz)

Dimensions

	Millimeters			Inches		
REF.	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	

Part Number Designation



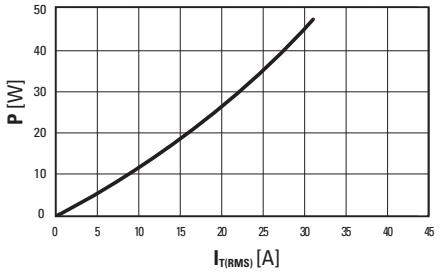


Fig. 1: Power dissipation versus RMS on-state current (full cycle).

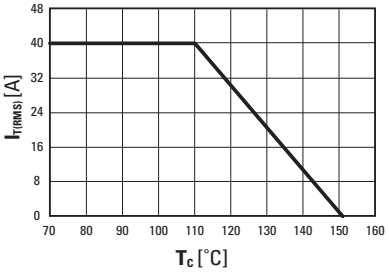


Fig. 2: RMS on-state current versus case temperature (full cycle)

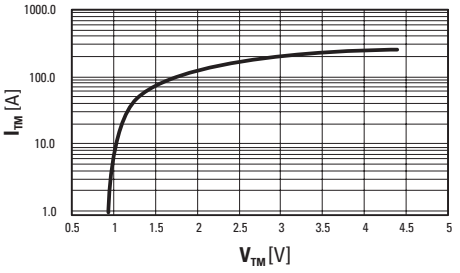


Fig. 3: On-state current versus on-state voltage (instantaneous values)

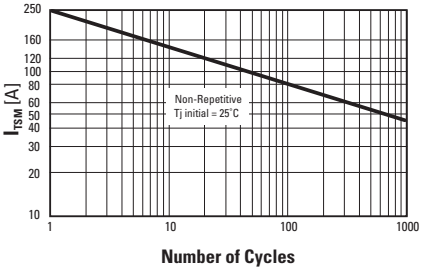


Fig. 4: Non-repetitive surge peak on-state current versus number of cycles.

ISO9001 Certified

Approvals

UL - Pending

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