



# CTA/CTB24

25Amp - 400/600/800/1000V - TRIAC

### Applications

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

- > Suitable for General Purpose AC Switching
- > Alternistor/No Snubber Versions for Inductive Loads
- > Logic Level Available for use with Microcontrollers and Low Level Devices
- > IGT Range 35-50 mA (Q1)
- > V<sub>DRM</sub>/V<sub>RMM</sub> 400, 600, 800, 1000V

### Absolute Maximum Ratings

	CONDITIONS	SYMBOL	RATING
RMS On-State Current (full sine wave)	T <sub>c</sub> = 100°C T <sub>c</sub> = 75°C	TO-220AB TO-220AB Iso I <sub>T(RMS)</sub>	25A
Non Repetitive Surge Peak On-State Current (Full Cycle, T <sub>j</sub> Initial = 25°C)	F = 50 Hz F = 60 Hz	I <sub>TSM</sub>	250A 260A
I <sup>2</sup> t Value for fusing	tp = 10 ms	I <sup>2</sup> t	340A <sup>2</sup> s
Critical rate of rise of on-state current I <sub>G</sub> = 2 x I <sub>GT</sub> , tr < 100 ns, T <sub>j</sub> = 125°C		di/dt	100A/μs
Peak Gate Current @ T <sub>j</sub> = 125°C	tp = 20 μs	I <sub>GM</sub>	4A
Average Gate Power Dissipation @ T <sub>j</sub> = 125°C		P <sub>G(AV)</sub>	1W
Storage Temperature Range		T <sub>stg</sub>	-40 to +150°C
Operating Junction Temperature Range		T <sub>j</sub>	-40 to +125°C
Isolation Voltage (CTA Series only)		V <sub>ISO</sub>	2500 V <sub>RMS</sub>

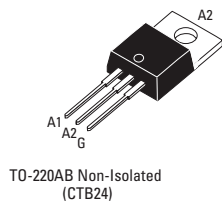
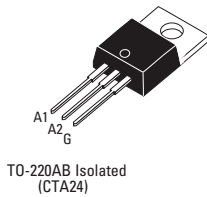
### Electrical Characteristics

#### ALTERNISTOR/NO SNUBBER AND LOGIC LEVEL (3 Quadrants)

		CW	BW
I <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω <sup>NOTE 1</sup>	QI-II-III	35mA	50mA
V <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω	QI-II-III	1.3V	1.3V
V <sub>GD</sub> MIN @ V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3kΩ	T <sub>j</sub> = 125°C	QI-II-III	0.2V
I <sub>H</sub> MAX @ I <sub>T</sub> = 500 mA <sup>NOTE 2</sup>			50mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	QI-III		75mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	Q-II		50mA
dv/dt MIN @ V <sub>D</sub> = 67%V <sub>DRM</sub> (gate open) <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C		80mA
(di/dt) <sub>c</sub> MIN without Snubber <sup>NOTE 2</sup>	T <sub>j</sub> = 125°C		100μs
		13A/ms	22A/ms

#### STANDARD (4 Quadrants)

		B
I <sub>GT</sub> MAX @ V <sub>D</sub> = 12 V, R <sub>L</sub> = 30Ω <sup>NOTE 1</sup>	QI-II-III	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
V <sub>GD</sub> MIN @ V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3kΩ	T <sub>j</sub> = 125°C	Q-All
I <sub>H</sub> MAX @ I <sub>T</sub> = 500 mA <sup>NOTE 2</sup>		80mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	QI-III-IV	70mA
I <sub>L</sub> MAX @ I <sub>G</sub> = 1.2 I <sub>GT</sub>	Q-II	160mA
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
(dv/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



ISO9001 Certified

### GENERAL NOTES

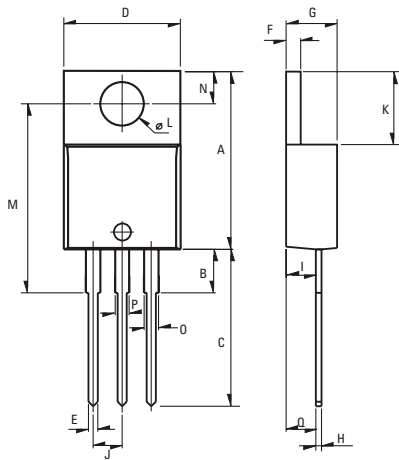
1. Minimum IGT is guaranteed at 5% of IGT max.
2. For both polarities of A2 referenced to A1
3. All parameters at 25 degrees C unless otherwise specified.

## Static Characteristics

$V_T$ MAX @ $I_{TM} = 35$ A, $t_p = 380\mu s$ NOTE 2	$T_j = 25^\circ C$	1.55V
$V_{to}$ MAX @ Threshold Voltage NOTE 2	$T_j = 125^\circ C$	0.85V
$R_d$ MAX @ Dynamic Resistance NOTE 2	$T_j = 125^\circ C$	16m $\Omega$
$I_{DRM}$ MAX @ $V_{DRM} = V_{RRM}$	$T_j = 25^\circ C$	5 $\mu$ A
$I_{RRM}$ MAX @ $V_{DRM} = V_{RRM}$	$T_j = 125^\circ C$	3mA

## Thermal Resistances

		SYMBOL	RATING
Junction to Case (AC)	TO-220AB	$R_{th(j-c)}$	0.8°C/W
Junction to Case (AC)	TO-220AB Isolated	$R_{th(j-c)}$	1.7°C/W
Junction to Ambient	TO-220AB	$R_{th(j-a)}$	60°C/W
Junction to Ambient	TO-220AB Isolated	$R_{th(j-a)}$	60°C/W



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	

## Part Number Selection

Part Number	Voltage [Vpk]	$I_{GT}$ [mA]	Type	Package
CTA/CTB24-xxxB	400, 600, 800, 1000	50mA	Standard	TO-220AB
CTA/CTB24-xxxBW	400, 600, 800, 1000	50mA	Alternistor/No Snubber	TO-220AB
CTA/CTB24-xxxCW	400, 600, 800, 1000	35mA	Alternistor/No Snubber	TO-220AB

## Part Number Designation

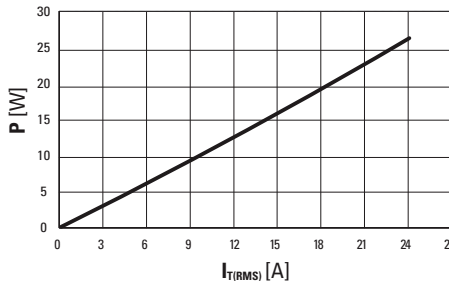
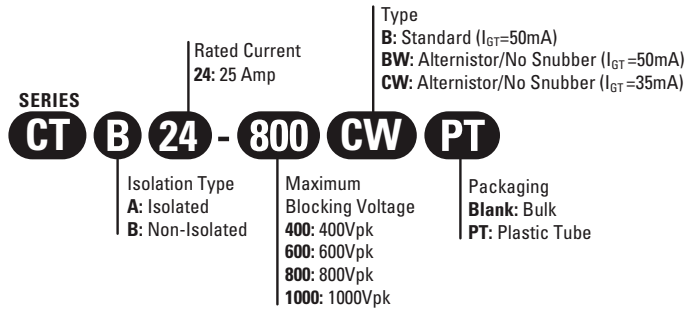


Fig. 1: Power dissipation versus RMS on-state current (full cycle).

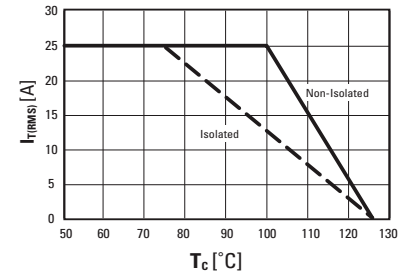


Fig. 2: RMS on-state current versus case temperature (full cycle)

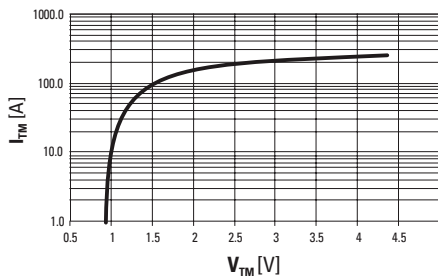


Fig. 3: On-state current versus on-state voltage (instantaneous values)

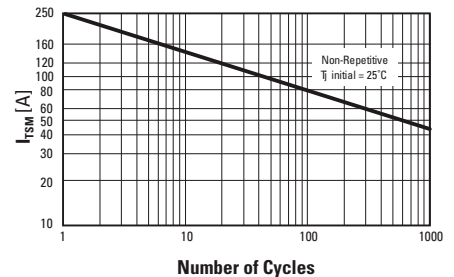


Fig. 4: Non-repetitive surge peak on-state current versus number of cycles.

## ISO9001 Certified

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## Approvals

UL Recognized Component - E72445

(For CTA series)