



CTA/CTB24

24Amp - 400/600/800/1200V - 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_{DRM}/V_{RMM} 400, 600, 800, 1200V

Absolute Maximum Ratings

	CONDITIONS	SYMBOL	RATING
RMS On-State Current (full sine wave)	$T_c = 100^\circ\text{C}$ $T_c = 75^\circ\text{C}$	$I_{T(RMS)}$	24A
Non Repetitive Surge Peak On-State Current (Full Cycle, T_j Initial = 25°C)	$F = 50\text{ Hz}$ $F = 60\text{ Hz}$	I_{TSM}	250A 260A
I^2t Value for fusing	$t_p = 10\text{ ms}$	I^2t	$340\text{ A}^2\text{s}$
Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r < 100\text{ ns}$, $T_j = 125^\circ\text{C}$	$F = 120\text{ Hz}$	di/dt	$50\text{ A}/\mu\text{s}$
Peak Gate Current @ $T_j = 125^\circ\text{C}$	$t_p = 20\text{ }\mu\text{s}$	I_{GM}	4A
Average Gate Power Dissipation @ $T_j = 125^\circ\text{C}$		$P_{G(AV)}$	1W
Storage Temperature Range		T_{stg}	-40 to $+150^\circ\text{C}$
Operating Junction Temperature Range		T_j	-40 to $+125^\circ\text{C}$
Isolation Voltage (CTA Series only)		V_{ISO}	2500 V_{RMS}

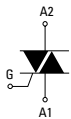
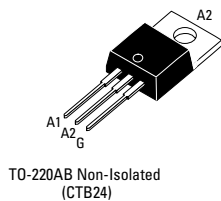
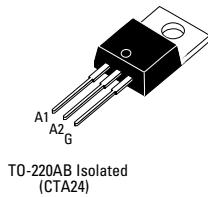
Electrical Characteristics

ALTERNISTOR/NO SNUBBER AND LOGIC LEVEL (3 Quadrants)

		CW	BW
$I_{GT}\text{ MAX @ }V_D = 12\text{ V}, R_L = 30\Omega$ NOTE 1	QI-II-III	35mA	50mA
$V_{GT}\text{ MAX @ }V_D = 12\text{ V}, R_L = 30\Omega$	QI-II-III	1.3V	1.3V
$V_{GD}\text{ MIN @ }V_D = V_{DRM}, R_L = 3.3k\Omega$ $T_j = 125^\circ\text{C}$	QI-II-III	0.2V	0.2V
$I_H\text{ MAX @ }I_T = 500\text{ mA}$ NOTE 2		50mA	75mA
$I_L\text{ MAX @ }I_G = 1.2\text{ I}_{GT}$	QI-III	50mA	70mA
$I_L\text{ MAX @ }I_G = 1.2\text{ I}_{GT}$	Q-II	80mA	100mA
$dv/dt\text{ MIN @ }V_D = 67\%V_{DRM}\text{ (gate open)}$ NOTE 2 $T_j = 125^\circ\text{C}$		$500\text{ V}/\mu\text{s}$	$1000\text{ V}/\mu\text{s}$
$(di/dt)_c\text{ MIN without Snubber}$ NOTE 2 $T_j = 125^\circ\text{C}$		13A/ms	22A/ms

STANDARD (4 Quadrants)

		B
$I_{GT}\text{ MAX @ }V_D = 12\text{ V}, R_L = 30\Omega$ NOTE 1	QI-II-III	50mA
$I_{GT}\text{ MAX @ }V_D = 12\text{ V}, R_L = 30\Omega$ NOTE 1	QIV	100mA
$V_{GT}\text{ MAX @ }V_D = 12\text{ V}, R_L = 30\Omega$	Q-All	1.3V
$V_{GD}\text{ MIN @ }V_D = V_{DRM}, R_L = 3.3k\Omega$ $T_j = 125^\circ\text{C}$	Q-All	0.2V
$I_H\text{ MAX @ }I_T = 500\text{ mA}$ NOTE 2		80mA
$I_L\text{ MAX @ }I_G = 1.2\text{ I}_{GT}$	QI-III-IV	70mA
$I_L\text{ MAX @ }I_G = 1.2\text{ I}_{GT}$	Q-II	160mA
$dv/dt\text{ MIN @ }V_D = 67\%V_{DRM}\text{ (gate open)}$ NOTE 2 $T_j = 125^\circ\text{C}$		$500\text{ V}/\mu\text{s}$
$(dv/dt)_c\text{ MIN @ } (di/dt)_c = 13.3\text{ A/ms}$ NOTE 2 $T_j = 125^\circ\text{C}$		$10\text{ V}/\mu\text{s}$



GENERAL NOTES

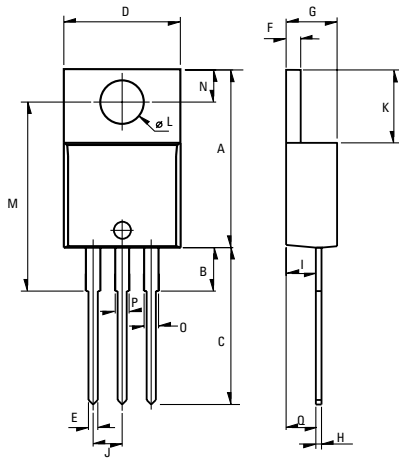
1. Minimum IGT is guaranteed at 5% of IGT max.
2. For both polarities of A2 referenced to A1
3. All parameters at 25 degrees C unless otherwise specified.

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 Ω
I_{ORM} MAX @ $V_{ORM} = V_{RRM}$	$T_j = 25^\circ C$	5 μA
I_{RRM} MAX @ $V_{ORM} = V_{RRM}$	$T_j = 125^\circ C$	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.	Min.	Typ.
A	15.24		0.6	
B		3.23		0.127
C	12.78		0.503	
D	9.96		0.392	
E	0.69		0.027	
F	1.22		0.048	
G	4.62		0.182	
H	0.46		0.018	
I	2.49		0.098	
J	2.39		0.094	
K	6.48		0.255	
L	3.78		0.149	
M	15.49	16	0.61	0.63
N	2.59		0.102	
O	0.99		0.039	
P	0.99		0.039	
Q		2.67		0.105

Part Number Selection

Part Number	Voltage [Vpk]	I_{GT} [mA]	Type	Package
CTA/CTB24-xxxB	400, 600, 800, 1200	50mA	Standard	TO-220AB
CTA/CTB24-xxxBW	400, 600, 800, 1200	50mA	Alternistor/No Snubber	TO-220AB
CTA/CTB24-xxxCW	400, 600, 800, 1200	35mA	Alternistor/No Snubber	TO-220AB

Part Number Designation

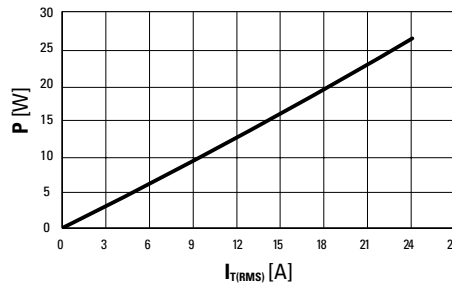
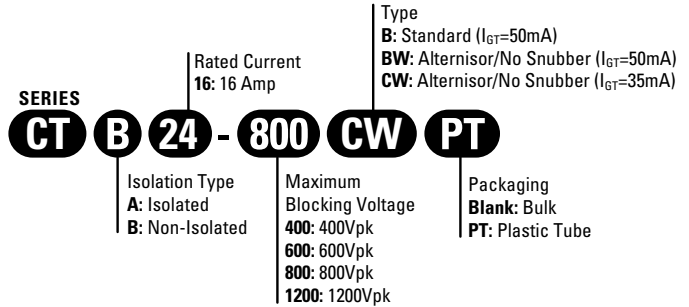


Fig. 1: Power dissipation versus RMS on-state current (full cycle).

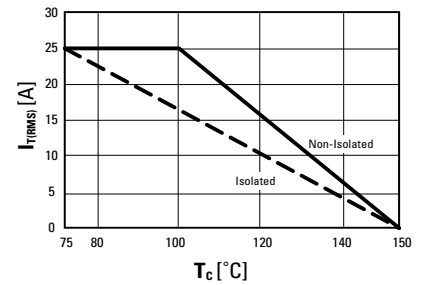


Fig. 2: RMS on-state current versus case temperature (full cycle)

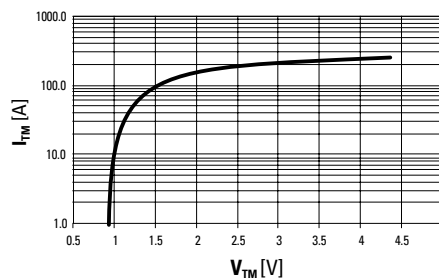


Fig. 3: On-state current versus on-state voltage (instantaneous values)

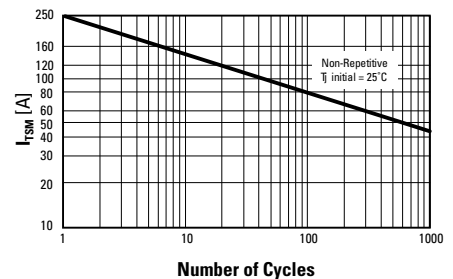


Fig. 4: Non-repetitive surge peak on-state current versus number of cycles.

ISO9001 Certified

Approvals

UL - Pending

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