



TO-220BK Plastic-Encapsulate Thyristors

CT304B 3Q TRIACs

MAIN CHARACTERISTICS

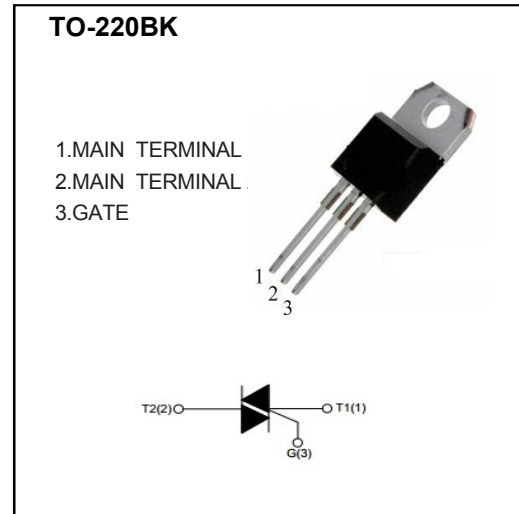
$I_{T(RMS)}$		4A
V_{DRM}/V_{RRM}	CT304B-600T/S	600V
	CT304B-800T/S	800V
V_{TM}		1.55V

FEATURES

- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance
- High dV/dt and dI/dt

APPLICATIONS

- Heater Control
- Motor Speed Controller
- Mixer



MARKING



CT304B:Series Code
 600S:Depends on V_{DRM}
 and I_{GT}
 XXX:Internal Code

ABSOLUTE RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit	
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^{\circ}C$	CT304B-600T/S	600	V
			CT304B-800T/S	800	V
$I_{T(RMS)}$	RMS on-state current	TO-220BK($T_c \leq 110^{\circ}C$), Fig. 1,2	4	A	
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave , $T_j(\text{init})=25^{\circ}C$, $t_p=20\text{ms}$; Fig. 3,5	40	A	
I^2t	I^2t value	$t_p=10\text{ms}$	8	A^2s	
dI_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^{\circ}C$	I - II -III	50	$A/\mu s$
			IV	n/a	
I_{GM}	Peak gate current	$t_p=20\mu s$, $T_j=125^{\circ}C$	4	A	
$P_{G(AV)}$	Average gate power	$T_j=125^{\circ}C$	1	W	
T_{STG}	Storage temperature		-40~+150	$^{\circ}C$	
T_j	Operating junction temperature		-40~+125		

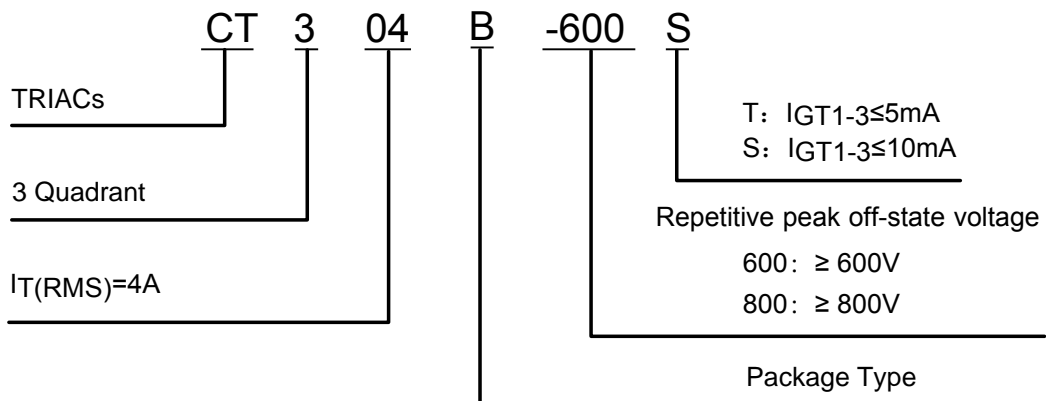
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Symbol	Parameter	Test condition	Value		Unit	
			T	S		
I _{GT}	Gate trigger current	V _D =12V, R _L =30 Ω	I - II - III	≤5	≤10	mA
			IV	n/a	n/a	
V _{GT}	Gate trigger voltage	T _j =25°C, Fig. 6	I - II - III	≤1.3		V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , T _j =125°C	≥0.2		V	
I _H	Holding current	I _T =100mA, Fig. 6	≤10	≤15	mA	
I _L	Latching current	I _G =1.2I _{GT} Fig. 6	I - III	≤10	≤25	mA
			II	≤15	≤30	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , Gate Open T _j =125°C	≥20	≥40	V/μs	
V _{TM}	On-state Voltage	I _{TM} =8.5A, t _p =380μs, Fig. 4	≤1.55		V	
I _{DRM} / I _{RPM}	Repetitive peak off-state current	V _D =V _{DRM} /V _{RPM} , T _j =25°C	≤5	≤5	μA	
		V _D =V _{DRM} /V _{RPM} , T _j =125°C	≤1	≤1	mA	

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case (AC)	TO-220BK	2.6 °C/W
R _{th} (j-a)	Junction to ambient	TO-220BK	60 °C/W

PART NUMBER



CHARACTERISTICS CURVES

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

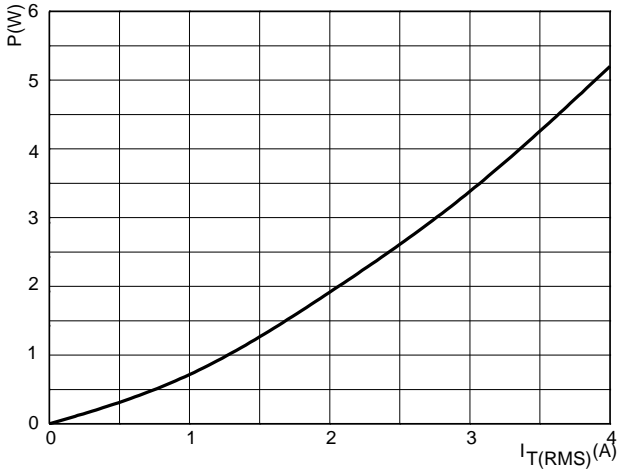


FIG.2: RMS on-state current versus case temperature (full cycle)

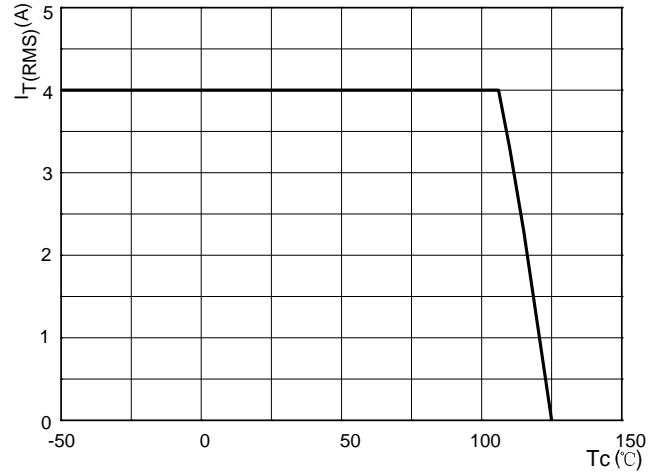


FIG.3: Surge peak on-state current versus number of cycles

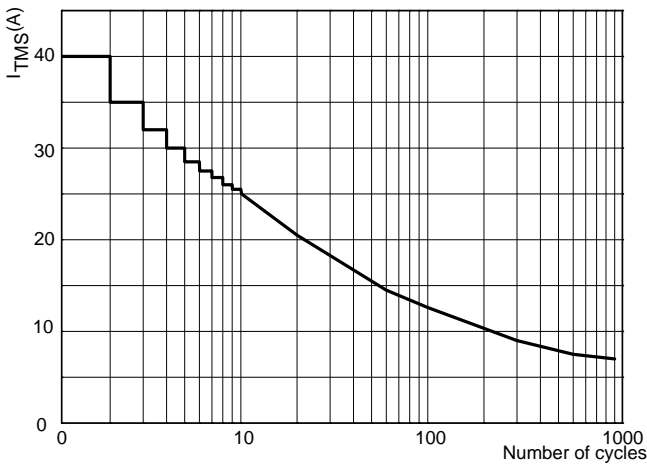


FIG.4: On-state characteristics (maximum values)

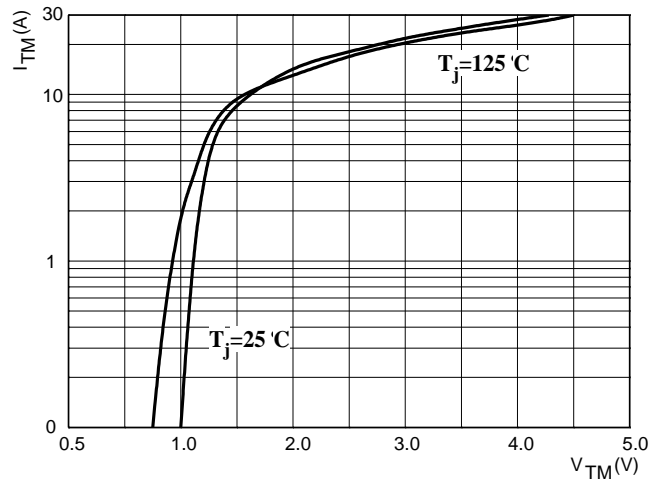


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

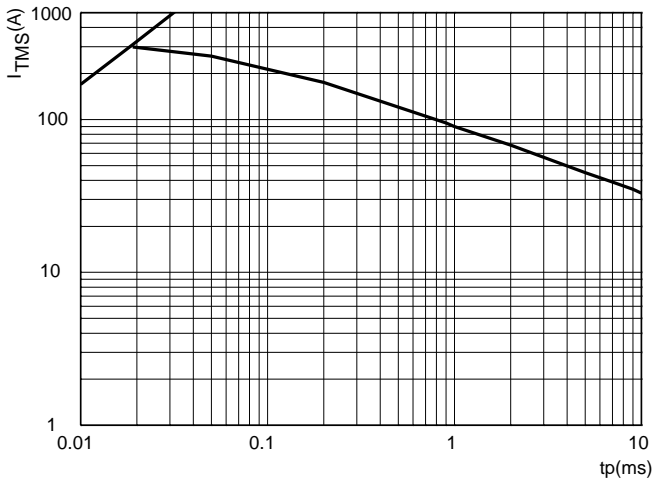
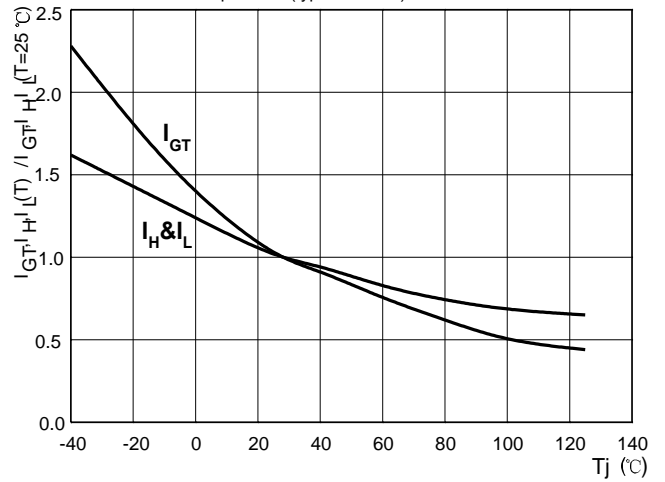
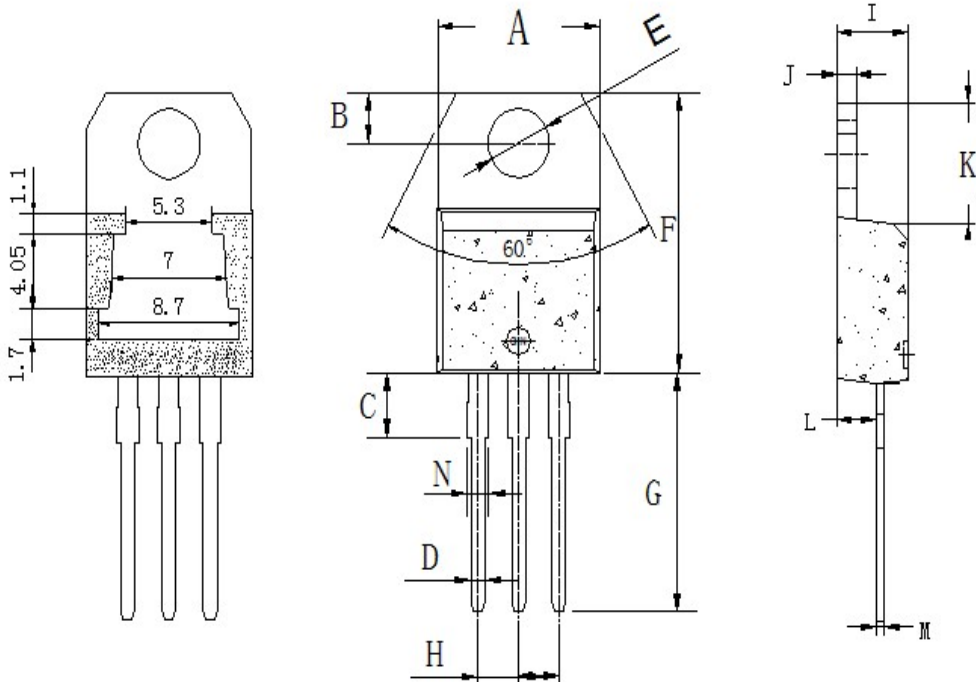


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-220BK PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	9.8	10.4	0.385	0.409
B	2.65	3.1	0.104	0.122
C	2.8	4.2	0.110	0.165
D	0.7	0.92	0.027	0.036
E	3.75	3.95	0.147	0.155
F	14.8	16.1	0.582	0.633
G	13.05	13.6	0.513	0.535
H	2.4	2.7	0.094	0.106
I	4.38	4.61	0.172	0.181
J	1.15	1.36	0.045	0.053
K	5.85	6.82	0.230	0.268
L	2.35	2.75	0.092	0.108
M	0.35	0.65	0.013	0.025
N	1.18	1.42	0.046	0.055

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