JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

TO-220BK Plastic-Encapsulate Thyristors

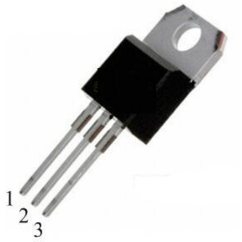
CT416B 4Q TRIACs

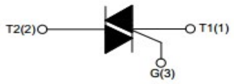
MAIN CHARACTERISTICS

$I_{T(RMS)}$		**16A**
V_{DRM}/V_{RRM}	**CT416B-600S/C/B**	**600V**
	CT416B-800S/C/B	**800V**
V_{TM}		**1.55V**

TO-220BK

1.MAIN TERMINAL
2.MAIN TERMINAL
3.GATE





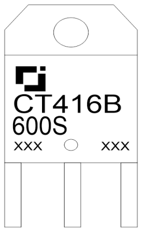
FEATURES

- 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



CT416B:Series Code
600S:Depends on VDRM
and IGT
XXX:Internal Code

ABSOLUTE RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Test condition		Value		Unit
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	T_j=25℃	CT416B-600S/C/B	600		V
			CT416B-800S/C/B	800		V
$I_{T(RMS)}$	RMS on-state current	TO-220BK(T_C≤110℃)，Fig. 1,2		16		A
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave， T_j(init)=25℃, tp=20ms; Fig. 3,5		160		A
I^2t	I^2t value	tp=10ms		140		A^2s
dI_T/dt	Critical rate of rise of on-state current	I_G=2*I_{GT}, tr≤10ns, F=120Hz, T_j=125℃		Ⅰ-Ⅱ-Ⅲ	50	A/μs
				Ⅳ	10	
I_{GM}	Peak gate current	tp=20μs, T_j=125℃		4		A
$P_{G(AV)}$	Average gate power	T_j=125℃		1		W
T_{STG}	Storage temperature			-40~+150		℃
T_j	Operating junction temperature			-40~+125		

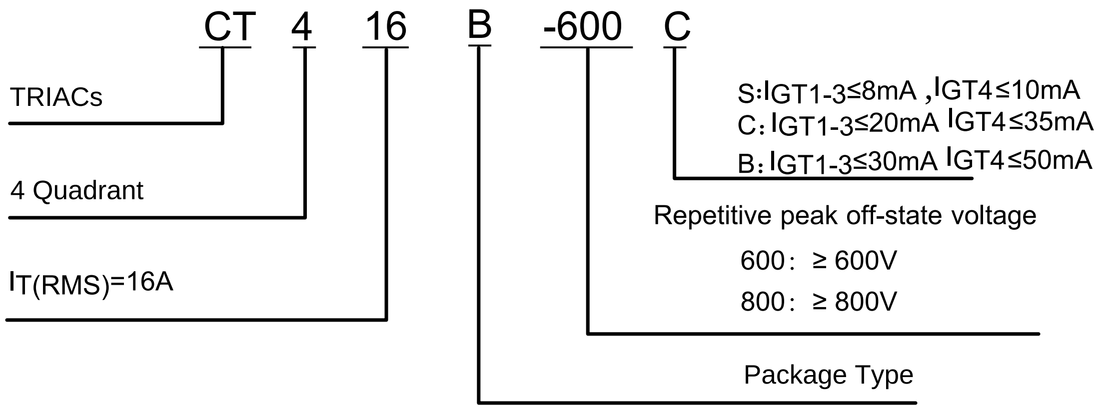
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Symbol	Parameter	Test condition		Value			Unit
				S	C	B	
I_{GT}	Gate trigger current	V_D=12V, R_L =33Ω, T_j=25℃, Fig. 6	Ⅰ-Ⅱ-Ⅲ	≤8	≤20	≤30	mA
			Ⅳ	≤10	≤35	≤50	
V_{GT}	Gate trigger voltage		Ⅰ-Ⅱ-Ⅲ	≤1.3			V
V_{GD}	Non-triggering gate voltage	V_D=V_{DRM}, T_j=125℃		≥0.2			V
I_H	Holding current	V_D=12V, I_{GT}=0.1A, T_j=25℃, Fig. 6	Ⅰ-Ⅱ-Ⅲ-Ⅳ	≤10	≤25	≤30	mA
I_L	Latching current		Ⅰ-Ⅲ-Ⅳ	≤15	≤30	≤40	mA
			Ⅱ	≤20	≤40	≤70	mA
dV_D/dt	Critical rate of rise of off-state	V_D=67%V_{DRM}, Gate Open T_j=125℃		≥10	≥20	≥50	V/μs
V_{TM}	On-state Voltage	I_{TM}=20A tp=380μs , Fig. 4		≤1.55			V
I_{DRM} / I_{RRM}	Repetitive peak off-state current	V_D=V_{DRM}/V_{RRM}, T_j=25℃		≤5	≤5	≤5	μA
		V_D=V_{DRM}/V_{RRM},T_j=125℃		≤1	≤1	≤1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case (AC)	TO-220BK	1.2	℃/W
Rth (j-a)	Junction to ambient	TO-220BK	60	℃/W

PART NUMBER



CHARACTERISTICS CURVES

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

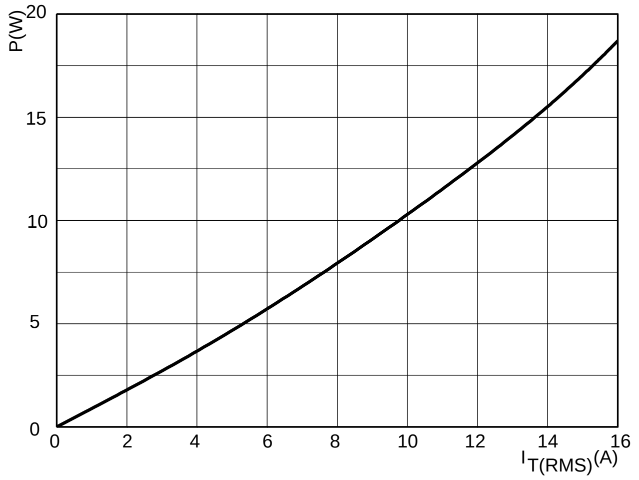


FIG.2: RMS on-state current versus case temperature (full cycle)

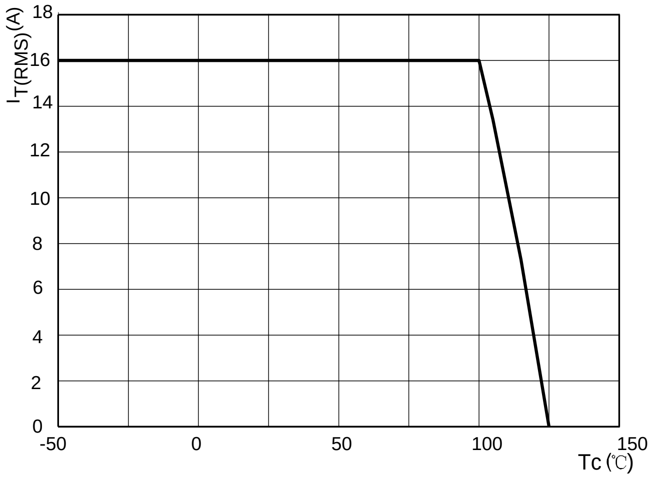


FIG.3: Surge peak on-state current versus number of cycles

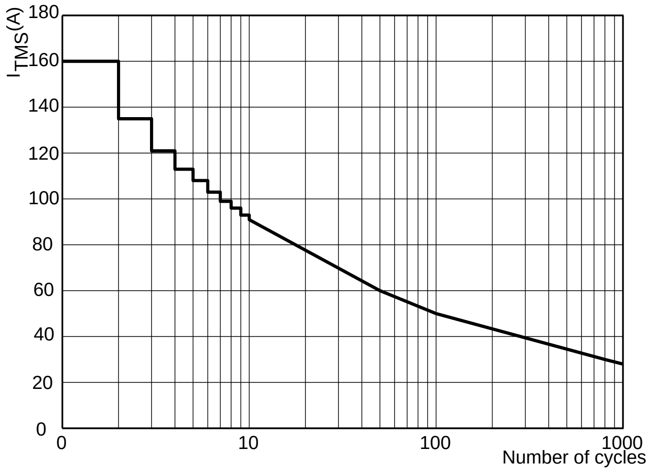


FIG.4: On-state characteristics (maximum values)

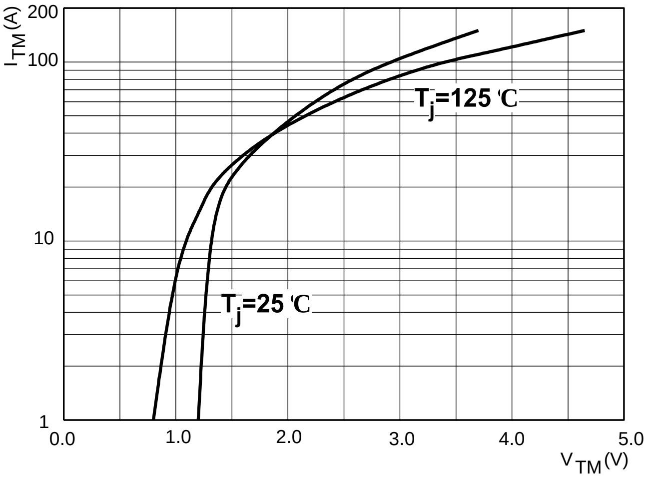


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

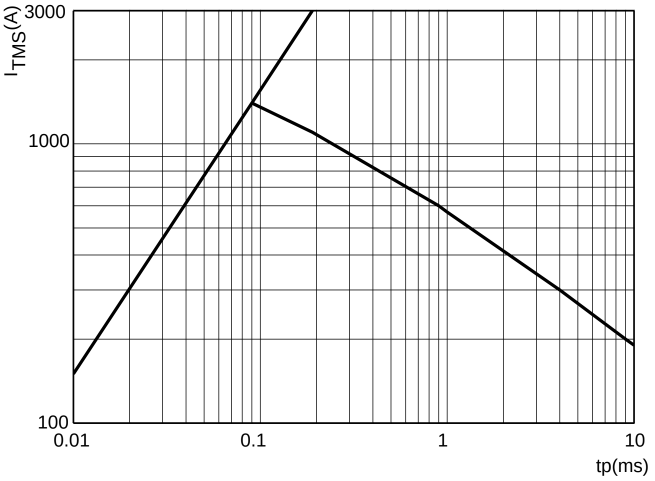
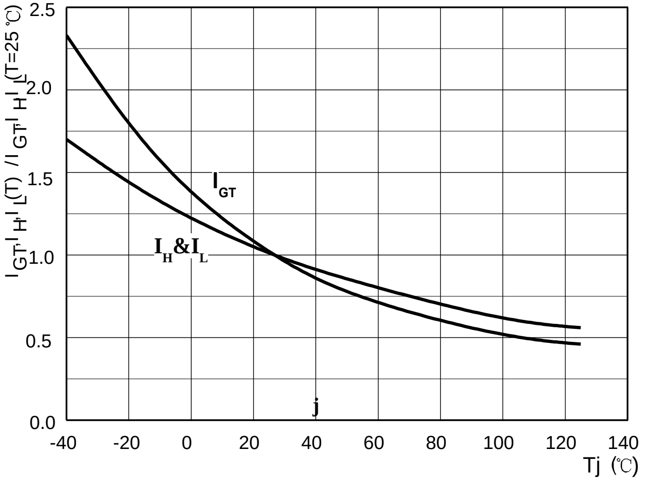
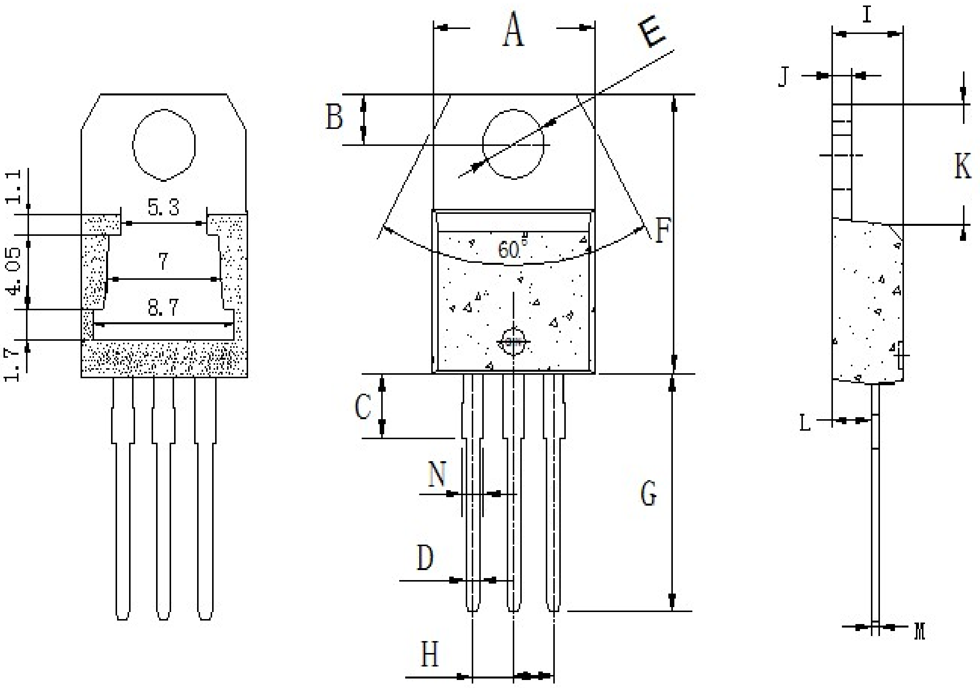


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



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