

FEATURES

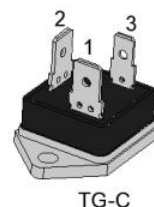
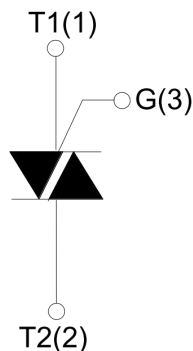
- Glass Passivated Junctions
- High voltage and surge capability
- Low Thermal Resistance and Durability
- Triggering in three quadrants

APPLICATIONS

- Static relays
- Heating regulation
- In-duction motor starting circuits
- Phase control operation in light dimmers
- Motor speed controllers

Parameters Summary

VD/VR:800/1200/1600V IT(RMS):40A IGT3:50mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40~150	°C
Operating junction temperature range	T _j	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	800/1200/1600	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	800/1200/1600	V
RMS on-state current	I _{T(RMS)}	40	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	400	A
I ² t value for fusing (tp=10ms)	I ² t	800	A ² S
Critical rate of rise of on-state current(I =2×I _{GT})	di/dt	50	A/μS
Peak gate current	I _{GM}	8	A
Peak gate power dissipation	P _{GM}	10	W
Average gate power dissipation	P _{G(AV)}	1	W

Thermal Resistances

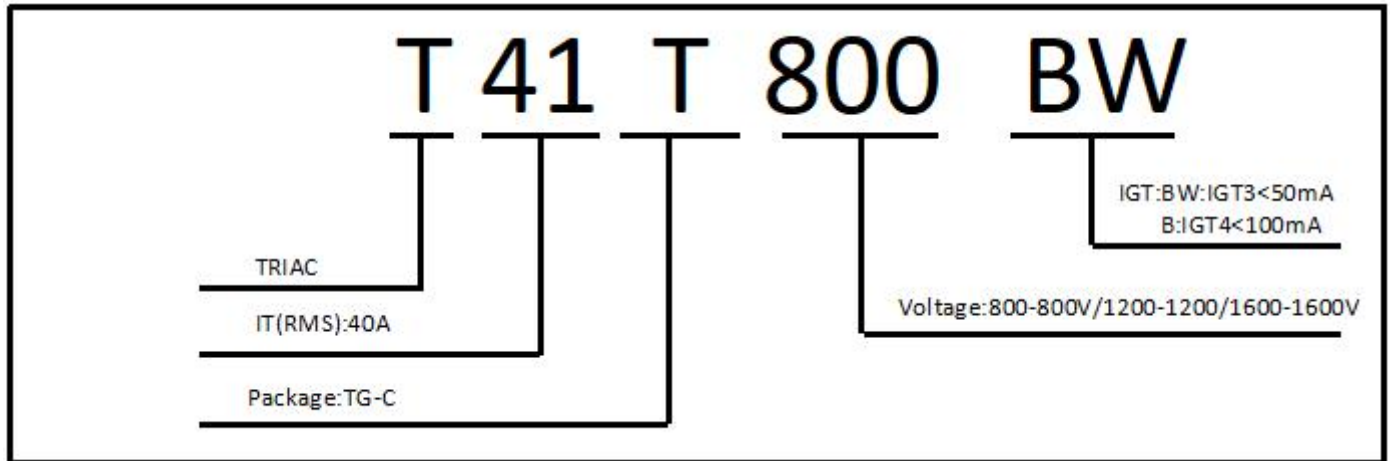
Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case	0.7	°C/W
R _{th(j-a)}	Junction to ambient	45	

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)					
3 Quadrants					
Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12V, R_L=33\Omega$	I II III	MAX.	50	mA
V_{GT}		I II III	MAX.	1.3	V
V_{GD}	$V_D=V_{DRM}, R_L=3.3K\Omega, T_j=125^\circ C$	I II III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I-III	MAX.	100	mA
		II		160	
I_H	$I_T=500mA$		MAX.	80	mA
dV/dt	$V_D=2/3V_{DRM}, \text{Gate Open } T_j=125^\circ C$		MIN.	1000	V/ μs

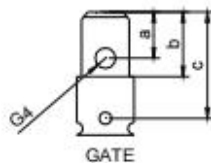
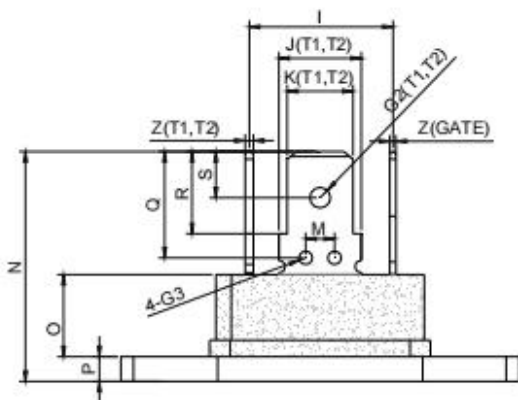
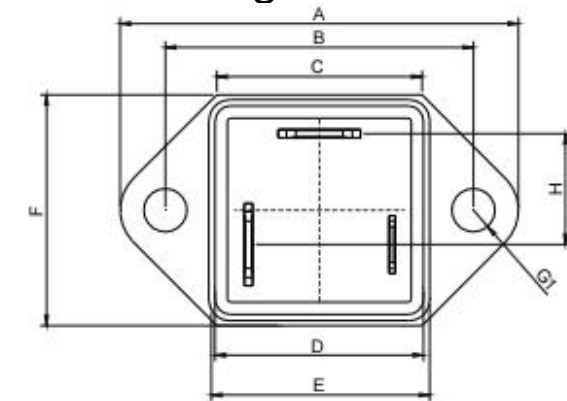
4 Quadrants					
Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12V, R_L=33\Omega$	I II III IV	MAX.	50 100	mA
V_{GT}		I II III IV	MAX.	1.5	V
V_{GD}	$V_D=V_{DRM}, R_L=3.3K\Omega, T_j=125^\circ C$	I II III IV	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I--III-IV	MAX.	100	mA
		II		160	
I_H	$I_T=500mA$		MAX.	80	mA
dV/dt	$V_D=2/3V_{DRM}, \text{Gate Open } T_j=125^\circ C$		MIN.	500	V/ μs

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=60A$ tp=380 μs	$T_j=25^\circ C$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.85	V
R_D	Dynamic resistance	$T_j=125^\circ C$	15	m Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=125^\circ C$	5	mA

Ordering Information Scheme

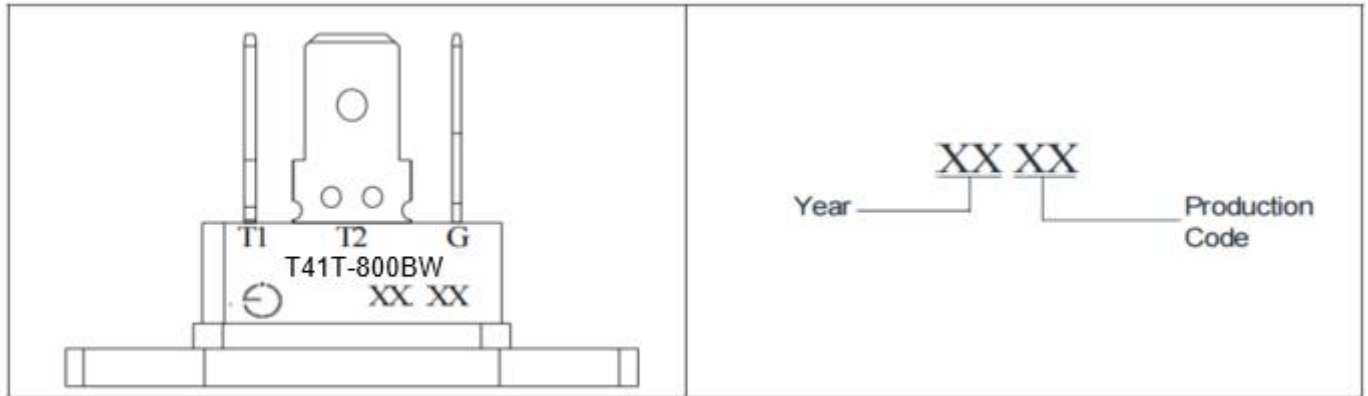


TG-C Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			39.2			1.543
B	29.8	30.0	30.2	1.173	1.181	1.189
C			20.2			0.795
D			20.5			0.807
E			21.6			0.850
F			23.0			0.905
G1	Φ4.0	Φ4.15	Φ4.3	Φ0.157	Φ0.163	Φ0.169
H		10.3			0.460	
I		13.9			0.547	
J(T1,T2)		8.0			0.315	
K(T1,T2)		6.4			0.252	
M	2.7	3.0	3.3	0.106	0.118	0.130
N			22.8			0.898
O		8.2			0.323	
P		2.5			0.098	
Q	9.45	9.75	10.1	0.374	0.383	0.398
R	7.80	7.95	8.10	0.307	0.313	0.319
S	4.30	4.50	4.70	0.169	0.177	0.185
Z(T1,T2)	0.70	0.80	0.85	0.031	0.032	0.034
G2(T1,T2)		Φ2.0	Φ2.2		Φ0.079	Φ0.087
G3	Φ1.1	Φ1.2	Φ1.3	Φ0.043	Φ0.051	Φ0.059
G4		Φ1.55	Φ1.75		Φ0.061	Φ0.069
a	2.95	3.15	3.35	0.116	0.124	0.132
b	6.20	6.35	6.50	0.244	0.250	0.256
c	9.35	9.75	10.0	0.368	0.384	0.393
Z(GATE)	0.58	0.60	0.65	0.023	0.024	0.026

Marking



PACKAGE INFORMATION-TG-C

OUTLINE	UNIT WEIGHT (g/PCS) typ.	TUBE (PCS)	INNER BOX (PCS)	PER CARTON (PCS)	PER CARTON WEIGHT (Kg)	PER CARTON SIZE(cm)
BOX	22	10	100	500	15	46x26.5x18

FIG.1 Maximum power dissipation versus on-state current

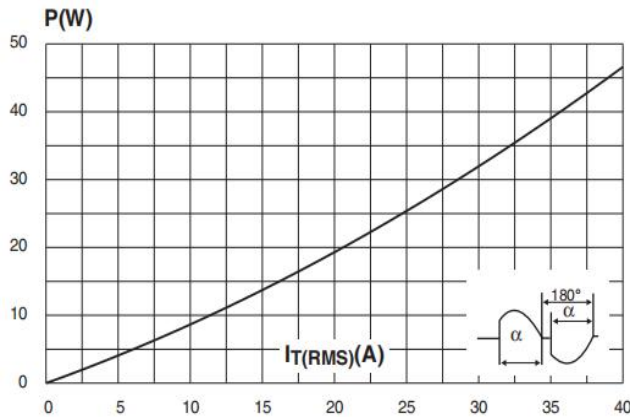


FIG.2: on-state current versus case temperature

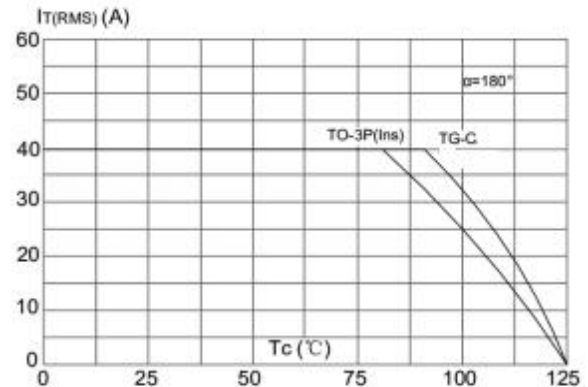


FIG.3: Surge peak on-state current versus number of cycles

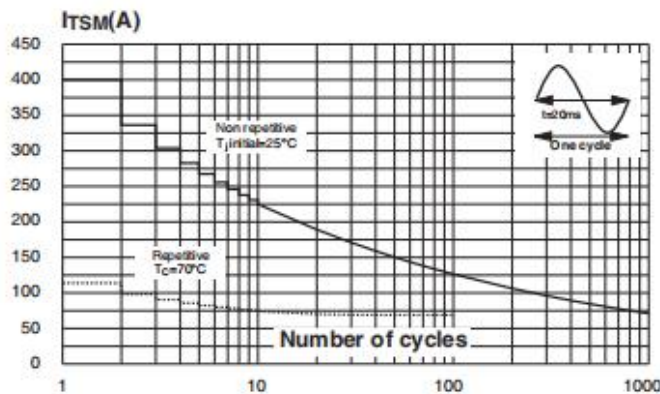


FIG.4: On-state characteristics (maximum values)

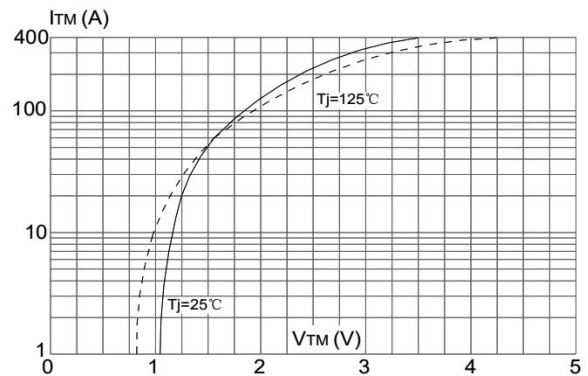


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I^2 t$

FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

