

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM} V_{RRM}$	600 / 800	V
V_{TM}	1.55	V

Feature

With high ability to withstand the shock loading of large current, With high commutation performances, 4 quadrants products especially recommended for use on inductive load.

Application

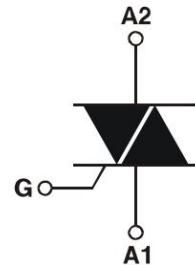
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

Package

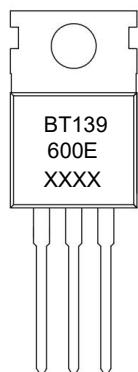


TO-220C

Circuit diagram



Marking



BT139 Series

16A 4Quadrants TRIACs

Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value		Unit
Repetitive peak off-state voltage	V _{DRM}	600 / 800		V
Repetitive peak reverse voltage	V _{RRM}	600 / 800		V
RMS on-state current	I _{T(RMS)}	16		A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	140		A
I ² t value for fusing (tp=10ms)	I ² t	98		A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT})	dI _T /dt	I - II - III IV	50 10	A/μs
Peak gate current	I _{GM}	2		A
Average gate power dissipation	P _{G(AV)}	0.5		W
Junction Temperature	T _J	-40 ~ +125		°C
Storage Temperature	T _{STG}	-40 ~ +150		°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition		Value		Unit
Gate trigger current	I _{GT}	V _D =12V I _T = 0.1A T _j =25°C	I - II - III	MAX.	10	mA
Gate trigger voltage	V _{GT}		IV		25	
Gate non-trigger voltage	V _{GD}	V _D =V _{DRM} T _j =125°C		MIN.	0.2	V
latching current	I _L	V _D =12V I _{GT} = 0.1A T _j =25°C	I - III - IV	MAX.	30	mA
			II		40	
			I - II - III - IV	MAX.	25	
Critical-rate of rise of commutation voltage	dV _D /dt	V _D =2/3V _{DRM} Gate Open T _j =125°C		MIN.	20	V/μs
STATIC CHARACTERISTICS						
Forward "on" voltage	V _{TM}	I _{TM} =20A tp=380μs		MAX.	1.55	V
Repetitive Peak Off-State Current	I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	T _j =25°C	MAX.	5	μA
Repetitive Peak Reverse Current	I _{RRM}		T _j =125°C	MAX.	1	mA
THERMAL RESISTANCES						
Thermal resistance	Rth(j-c)	Junction to case(AC)		TYP.	1.2	°C/W
	Rth(j-a)	Junction to ambient		TYP.	60	°C/W

Typical Characteristics

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

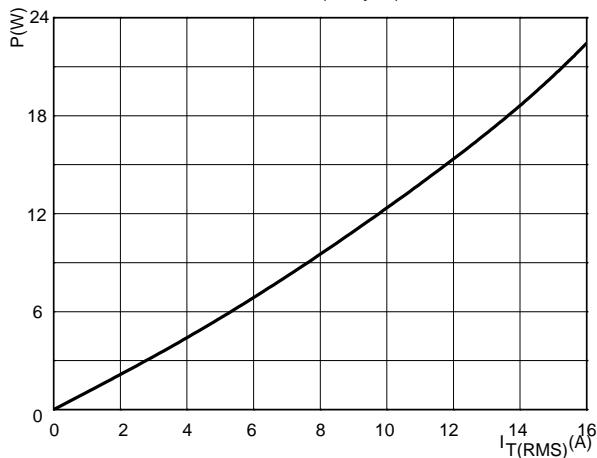


FIG.2: RMS on-state current versus case temperature (full cycle)

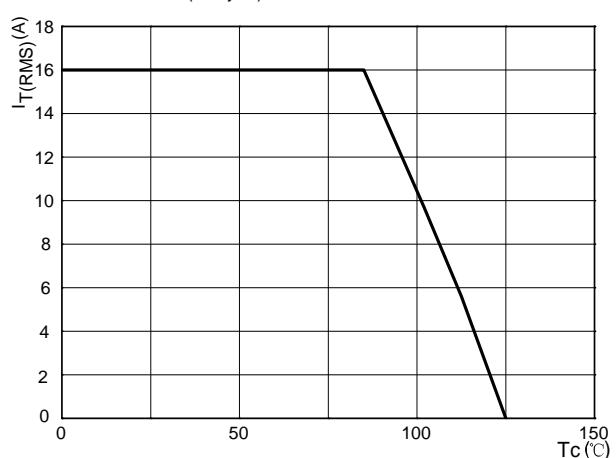


FIG.3: Surge peak on-state current versus number of cycles

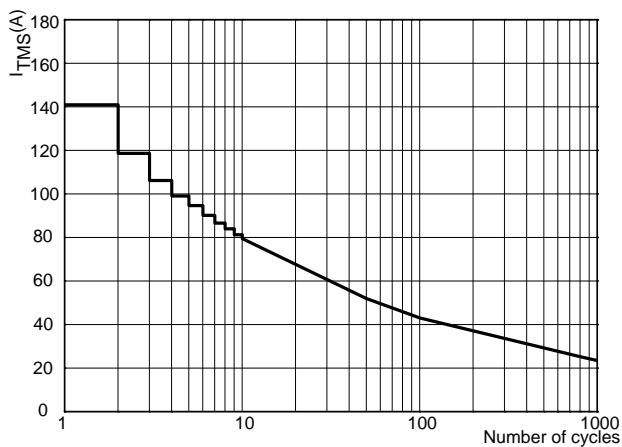


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

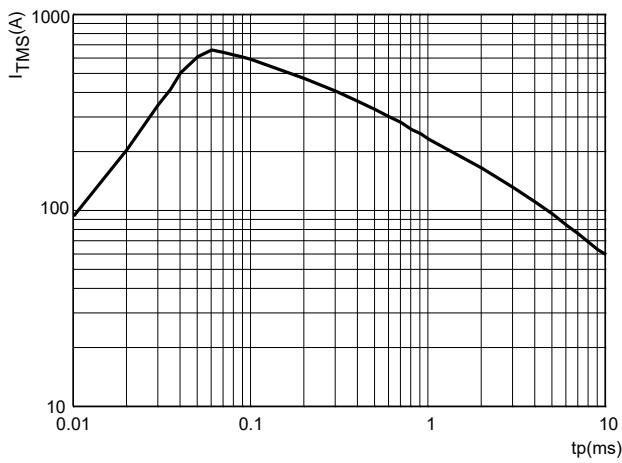


FIG.4: On-state characteristics (maximum values)

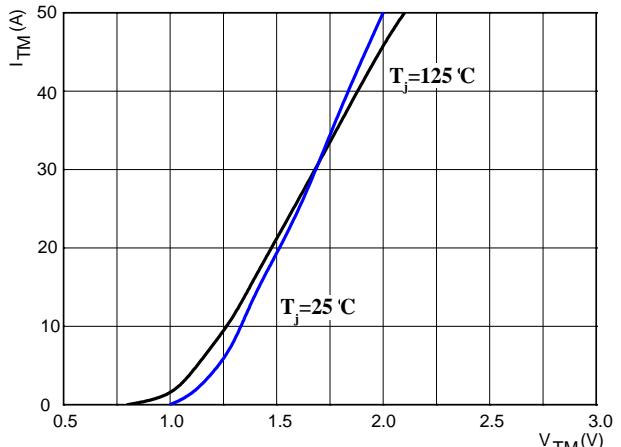
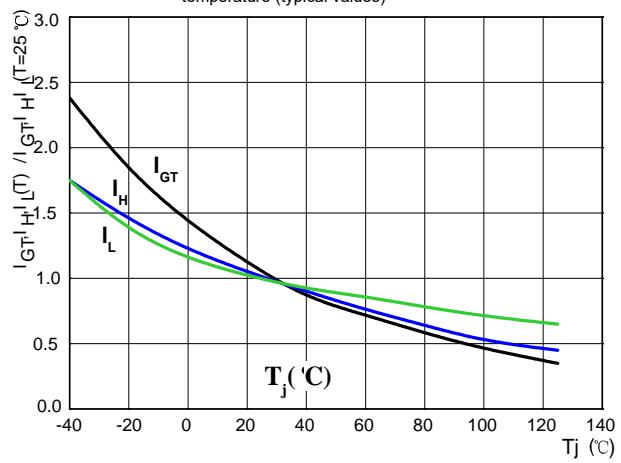


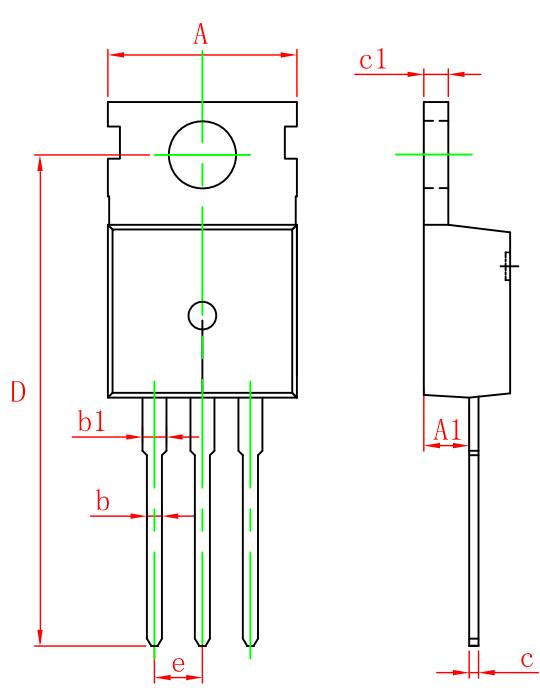
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Ordering Information

BT	139	-	600	E
Triacs	I _{T(RMS)} : 16A			
		E:I _{GT1-3} ≤10mA I _{GT4} ≤25mA		
		600:V _{DRM} /V _{RRM} ≥600V 800:V _{DRM} /V _{RRM} ≥800V		

TO-220C Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	9.700	10.300
A1	2.150	2.550
b	0.710	0.910
b1	1.170	1.370
c	0.350	0.650
c1	1.200	1.400
D	25.100	27.100
e	2.540 TYP.	