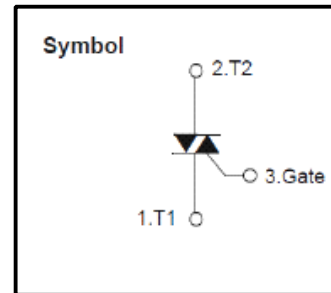


Bi-Directional Triode Thyristor

Features

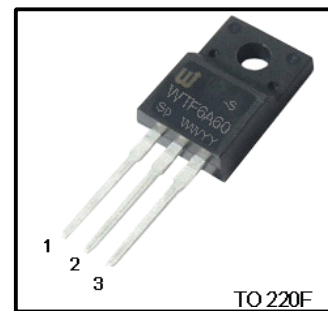
- Repetitive Peak off -State Voltage:600V
- R.M.S On-State Current(IT(RMS))=5A
- High Commutation dv/dt
- Isolation Voltage(V_{ISO}=1500V AC)



General Description

This device is fully isolated package suitable for AC switching application , phase control application such as fan speed and temperature modulation control, lighting control and static switching relay.This device is approved to comply with applicable requirements by underwriters laboratories Inc.

By using an internal ceramic pad , the TO220F series provides voltage insulated tab (rated at 2500V RMS) complying with UL standards (file ref.:E347423)



Absolute Maximum Ratings (T_J=25°C unless otherwise specified)

symbol	Parameter	condition	Ratings	Units
V _{DRM}	Repetitive Peak Off-State Voltage		600	V
I _{T(RMS)}	R.M.S On-State Current	Tc=89°C	5	A
I _{TSM}	Surge On-State Current	One Cycle, 50Hz/60Hz, Peak,Non-Repetitive	50/55	A
I ² t	I ² t		12.6	A ² s
P _{GM}	Peak Gate Power Dissipation		3	W
P _{G(AV)}	Average Gate Power dissipation		0.3	W
I _{GM}	Peak Gate Current		2	A
V _{GM}	Peak Gate Voltage		10	V
V _{ISO}	Isolation Breakdown Voltage(R.M.S.)	A.C.1minute	1500	V
T _J	Operating Junction Temperature		-40~125	°C
T _{STG}	Storage Temperature		-40~150	°C

Thermal Characteristics

Symbol	Parameter	Value	Units
R _{θJC}	Thermal Resistance Junction to case	3.8	°C/W
R _{θJA}	Thermal resistance Junction to Ambient	60	°C/W

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Items		conditions	Ratings			Unit
				Min	Typ	Max	
I_{DRM}	Repetitive Peak Off-State Current		$V_D=V_{\text{DRM}}$, Single Phase, Half Wave $T_J=125^\circ\text{C}$	-	-	1.0	mA
V_{TM}	Peak On-State Voltage		$I_T=7\text{A}$, Inst. Measurement	-	-	1.4	V
I_{GT1}^+	I	Gate Trigger Current	$V_D=6\text{V}, R_L=10\Omega$	-	-	20	mA
I_{GT1}	II			-	-	20	
I_{GT3}	III			-	-	20	
V_{GT1}^+	I	Gate Trigger Voltage	$V_D=6\text{V}, R_L=10\Omega$	-	-	1.5	V
V_{GT1}	II			-	-	1.5	
V_{GT3}	III			-	-	1.5	
V_{GD}	Non-Trigger Gate Voltage		$T_J=125^\circ\text{C}, V_D=1/2V_{\text{DRM}}$	0.2	-	-	V
(dv/dt) _c	Critical Rate of Rise Off-State Voltage at Commutation		$T_J=125^\circ\text{C}, [di/dt]_C=-3.0\text{A/ms}, V_D=2/3V_{\text{DRM}}$	5.0	-	-	V/ μs
I_{H}	Holding Current			-	10	-	mA

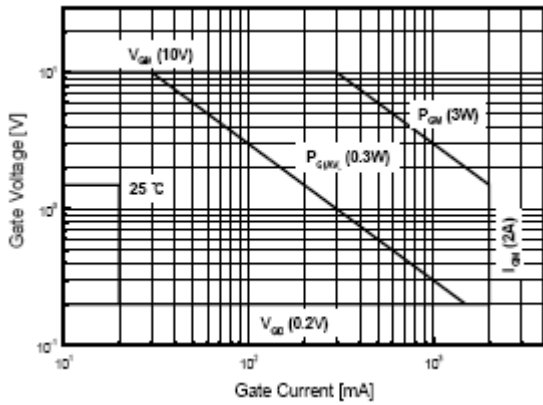


Fig.1. Gate Characteristics

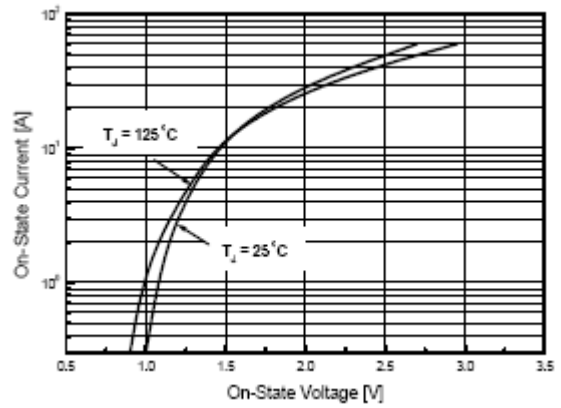


Fig.2 On-State Voltage

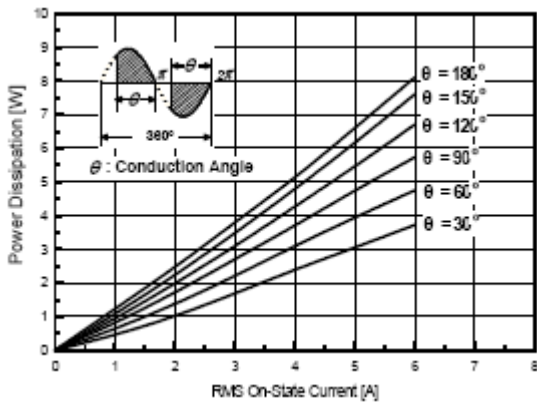


Fig.3 On State Current vs. Maximum Power Dissipation

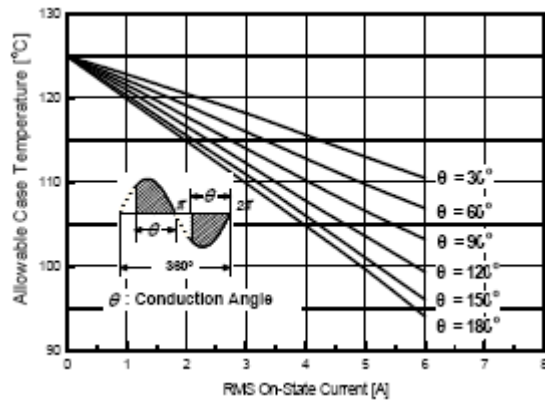


Fig.4 On State Current vs. Allowable Case Temperature

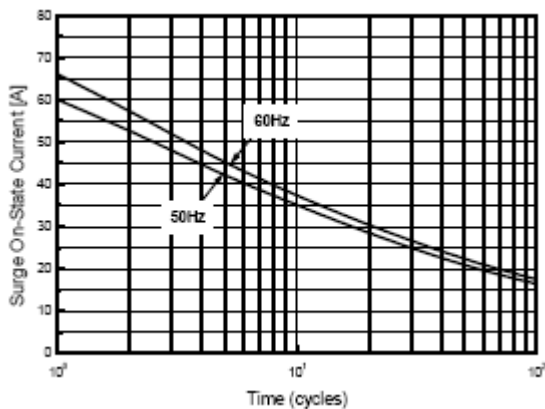


Fig.5 surge On-State Current Rating (Non-Repetitive)

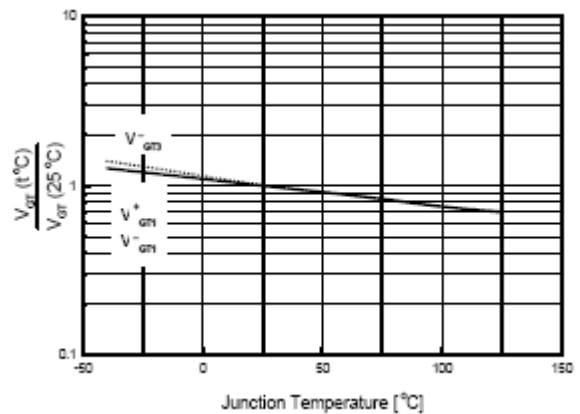


Fig.6 Gate Trigger Voltage vs. Junction Temperature

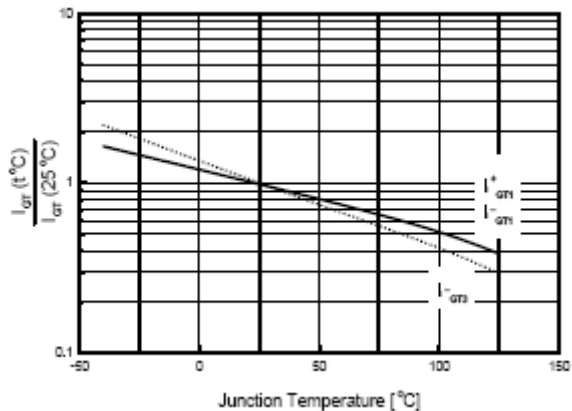


Fig.7 Gate Trigger Current vs. Junction Temperature

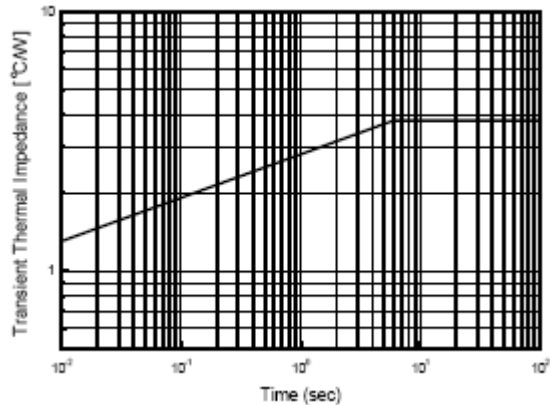


Fig.8 Transient Thermal Impedance

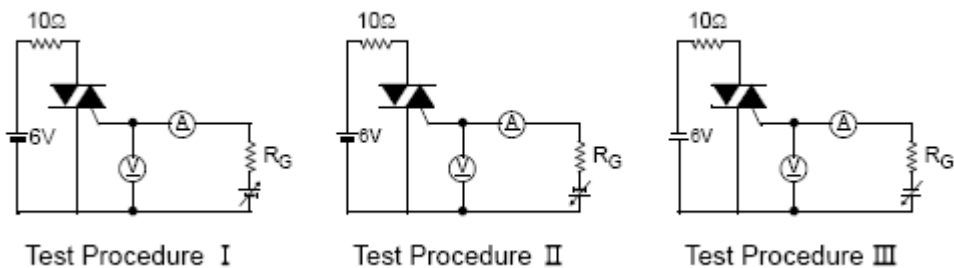


Fig.9 Gate Trigger Characteristics Test Circuit

TO-220F Package Dimension

