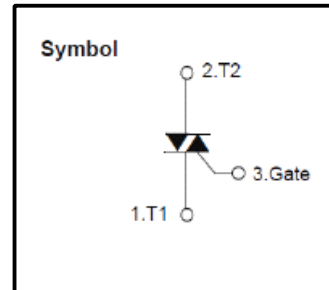


***Bi-Directional Triode Thyristor***

**Features**

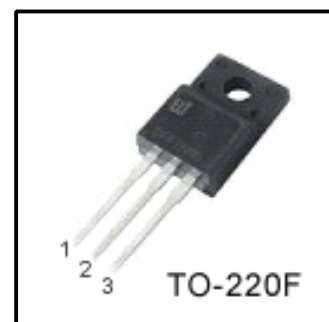
- Repetitive Peak Off -State Voltage:600V
- R.M.S On-State Current( $I_{T(RMS)}$ )=25A)
- High Commutation dv/dt
- Isolation Voltage ( $V_{ISO}$ )=1500V AC)



**General Description**

This device is suitable for AC switching application, phase control application such as fan speed and temperature modulation control, lighting control and static switching relay.

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** ( $T_J=25^{\circ}C$  unless otherwise specified)

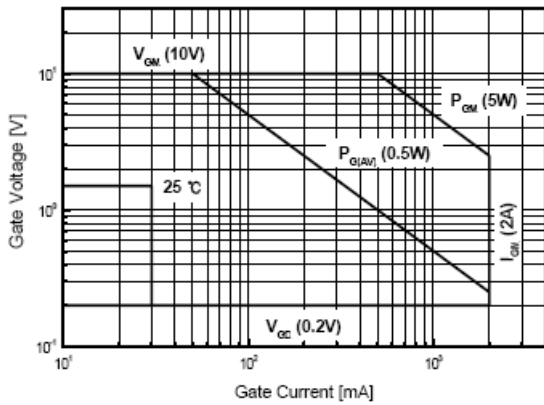
symbol	Parameter	condition	Ratings	Units
$V_{DRM}$	Repetitive Peak Off-State Voltage		600	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_c=86^{\circ}C$	25	A
$I_{TSM}$	Surge On-State Current	One Cycle, 50Hz/60Hz, Peak, Non-Repetitive	225/250	A
$I^2t$	$I^2t$		260	$A^2s$
$P_{GM}$	Peak Gate Power Dissipation		5.0	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.5	W
$I_{GM}$	Peak Gate Current		2.0	A
$V_{GM}$	Peak Gate Voltage		10	V
$V_{ISO}$	Isolation Breakdown voltage(R.M.S.)	A.C 1 minute	1500	V
$T_J$	Operating Junction Temperature		-40~125	$^{\circ}C$
$T_{STG}$	Storage Temperature		-40~150	$^{\circ}C$
	Mass		6.2	g

**Thermal Characteristics**

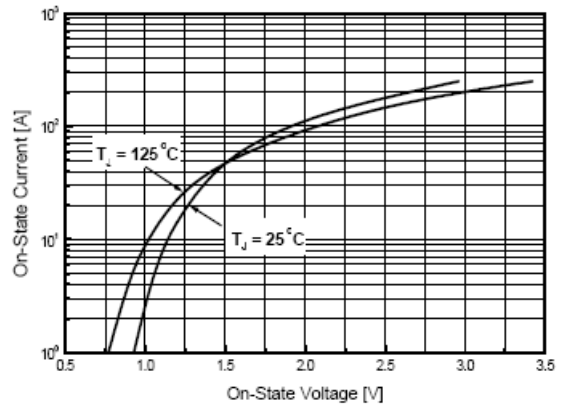
Symbol	Parameter	Value	Units
$R_{\theta Jc}$	Thermal Resistance Junction to Case	1.3	$^{\circ}C/W$

## Electrical Characteristics (T<sub>c</sub>=25°C unless otherwise noted)

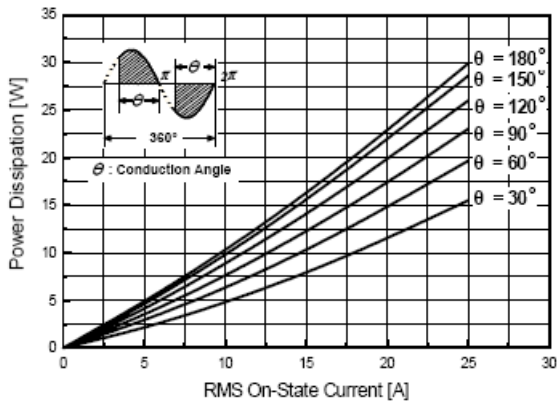
Symbol	Items		conditions	Ratin			Unit
				Min	Typ	Max	
I <sub>DRM</sub>	Repetitive Peak Off-State Current		V <sub>D</sub> =V <sub>DRM</sub> , Single Phase, Half Wave T <sub>J</sub> =125°C	-	-	5.0	mA
V <sub>TM</sub>	Peak On-State Voltage		I <sub>T</sub> =35A, Inst. Measurement	-	-	1.4	V
I <sup>+</sup> <sub>GT1</sub>	I	Gate Trigger Current	V <sub>D</sub> =6V, R <sub>L</sub> =10Ω	-	-	30	mA
I <sup>-</sup> <sub>GT1</sub>	II			-	-	30	
I <sup>-</sup> <sub>GT3</sub>	III			-	-	30	
V <sup>+</sup> <sub>GT1</sub>	I	Gate Trigger Voltage	V <sub>D</sub> =6V, R <sub>L</sub> =10Ω	-	-	1.5	V
V <sup>-</sup> <sub>GT1</sub>	II			-	-	1.5	
V <sup>-</sup> <sub>GT3</sub>	III			-	-	1.5	
V <sub>GD</sub>	Non-Trigger Gate Voltage		T <sub>J</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>	0.2	-	-	V
(dv/dt) <sub>c</sub>	Critical Rate of Rise Off-State Voltage at Commutation		T <sub>J</sub> =125°C, [di/dt] <sub>c</sub> =-12.5A/ms, V <sub>D</sub> =2/3V <sub>DRM</sub>	6	-	-	V/μs
I <sub>H</sub>	Holding Current			-	35	-	mA



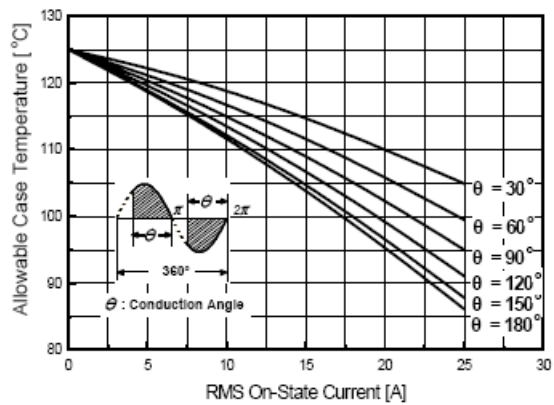
**Fig1. Gate Characteristics**



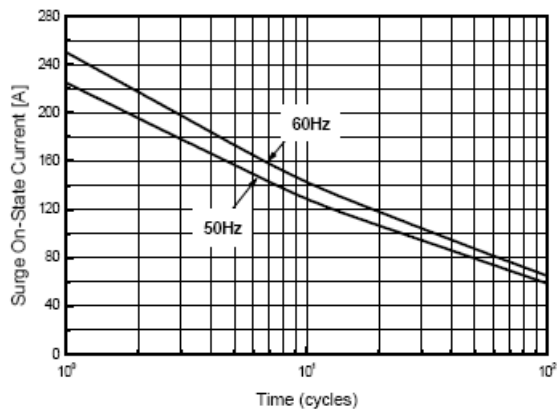
**Fig.2 On-State Voltage**



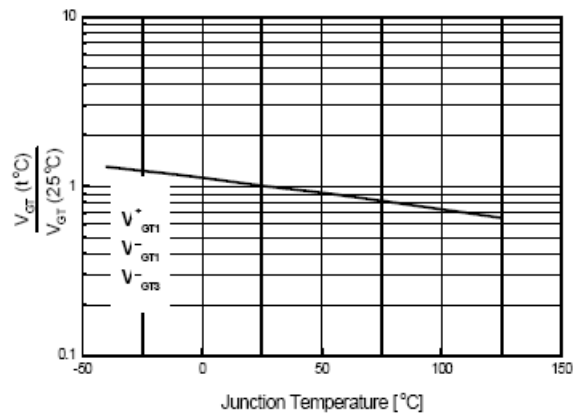
**Fig.3 On State Current vs. Maximum Power Dissipation**



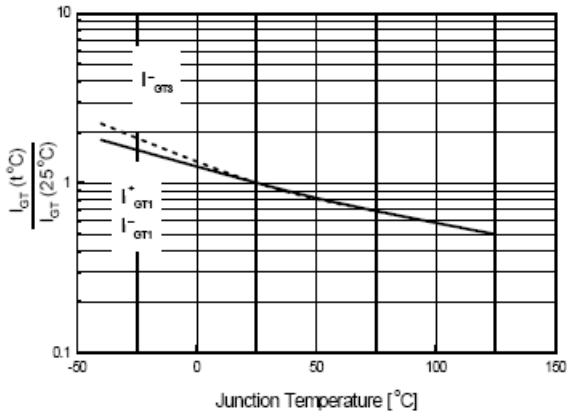
**Fig.4 On State Current vs. Allowable Case Temperature**



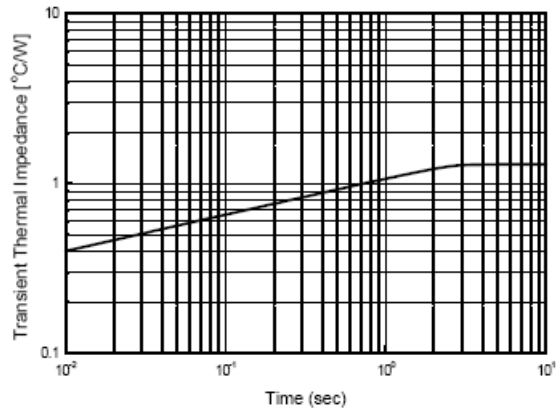
**Fig.5 Surge On-State Current Rating (Non-Repetitive)**



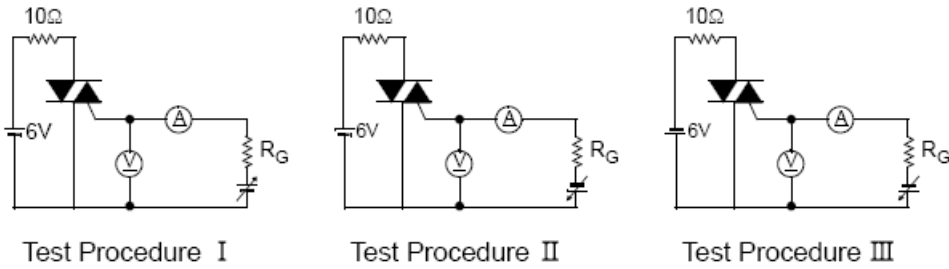
**Fig.6 Gate Trigger Voltage vs. Junction Temperature**



**Fig.7 Gate Trigger Current vs. Junction Temperature**



**Fig.8 Transient Thermal Impedance**



**Fig.9 Gate Trigger Characteristics Test Circuit**

