

# KD20SF60S

TRIACs

600V, 20A

## Feature

- Full molded
- High voltage
- $T_j=150^{\circ}\text{C}$
- Stable surge-on current capability
- Pb free terminal
- RoHS:Yes

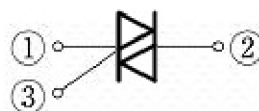
## OUTLINE

**Package (House Name):** FTO-220AG

**Package (JEITA Code):** SC-91



## Equivalent circuit



**Absolute Maximum Ratings** (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	T <sub>stg</sub>		-55 to 150	°C
Junction temperature	T <sub>j</sub>		-40 to 150	°C
Repetitive peak off-state voltage	V <sub>DRM</sub>		600	V
Non-repetitive peak off-state voltage	V <sub>DSM</sub>		720	V
R.M.S. on-state current	I <sub>T(RMS)</sub>	Tc=113°C, commercial frequency, sine wave, $\theta=360^\circ\text{C}$	20	A
Surge on-state current	I <sub>TSM</sub>	Tj=25°C, 60Hz sine wave, Non-repetive 1 cycle peak	160	A
Current squared time	I <sup>2</sup> t	Tj=25°C, t=8.33ms, Non-repetitive	106.5	A <sup>2</sup> S
Critical rate of rise of on-state current	di/dt		50	A/μs
Peak gate dissipation	P <sub>GM</sub>	f=60Hz, Duty≤10%	5	W
Average gate dissipation	P <sub>G(AV)</sub>		0.5	W
Peak gate current	I <sub>GM</sub>	f=60Hz, Duty≤10%	2	A
Peak gate voltage	V <sub>GM</sub>	f=60Hz, Duty≤10%	10	V
Dielectric strength	V <sub>dis</sub>	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque:0.3N·m)	0.5	N·m

※ :See the original Specifications

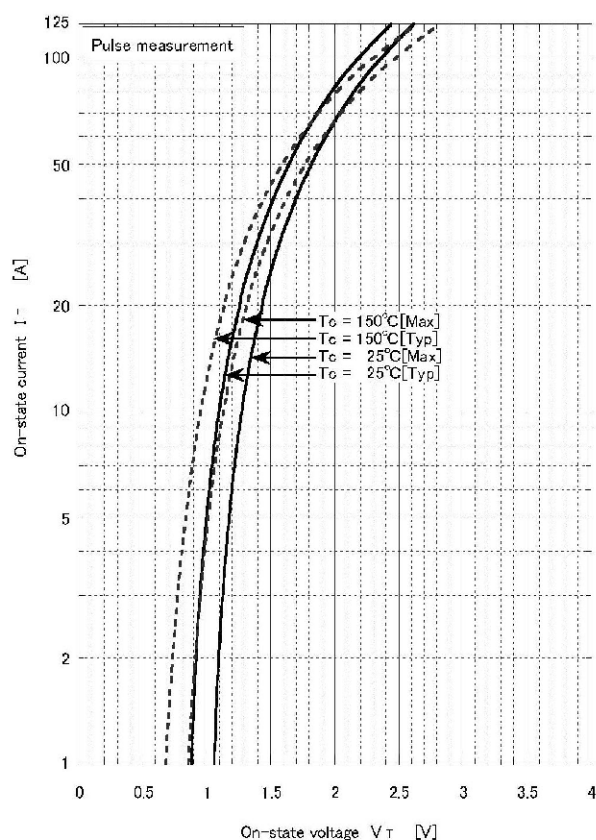
**Electrical Characteristics** (unless otherwise specified : T<sub>c</sub>=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Off-state current	I <sub>DRM</sub>	VD=600V, Pulse measurement			10	μA
On-state voltage	V <sub>TM</sub>	ITM=25A, Pulse measurement			1.5	V
Gate trigger voltage	V <sub>GTI</sub>	VD=6V, RL=10Ω, T1-, T2+, G+			1.5	V
Gate trigger voltage	V <sub>GTH</sub>	VD=6V, RL=10Ω, T1-, T2+, G-			1.5	V
Gate trigger voltage	V <sub>GTH</sub>	VD=6V, RL=10Ω, T1+, T2-, G-			1.5	V
Gate trigger voltage	V <sub>GTV</sub>	VD=6V, RL=10Ω, T1+, T2-, G+			- ※	V
Gate non-trigger voltage	V <sub>GD</sub>	T <sub>j</sub> =150°C, VD=1/2VDRM	0.1			V
Gate trigger current	I <sub>GTI</sub>	VD=6V, RL=10Ω, T1-, T2+, G+			30	mA
Gate trigger current	I <sub>GTH</sub>	VD=6V, RL=10Ω, T1-, T2+, G-			30	mA
Gate trigger current	I <sub>GTH</sub>	VD=6V, RL=10Ω, T1+, T2-, G-			30	mA
Gate trigger current	I <sub>GTV</sub>	VD=6V, RL=10Ω, T1+, T2-, G+			- ※	mA
Latching current	I <sub>LI</sub>	IG=0.1A, T1-, T2+, G+			100	mA
Latching current	I <sub>LH</sub>	IG=0.1A, T1-, T2+, G-			100	mA
Latching current	I <sub>LH</sub>	IG=0.1A, T1+, T2-, G-			100	mA
Latching current	I <sub>LH</sub>	IG=0.1A, T1+, T2-, G+			- ※	mA
Holding current	I <sub>H</sub>	IT=1A			100	mA
Critical rate of rise of off-state voltage	dv/dt	T <sub>j</sub> =150°C, VD=2/3VDRM	100			V/μs
Critical rate of rise of commutating voltage	(dv/dt) <sub>c</sub>	T <sub>j</sub> =150°C, VD=2/3VDRM, (di/dt) <sub>c</sub> =-8A/ms	1			V/μs
Thermal resistance	R <sub>th(j-c)</sub>	Junction to case with heatsink			1.51	°C/W

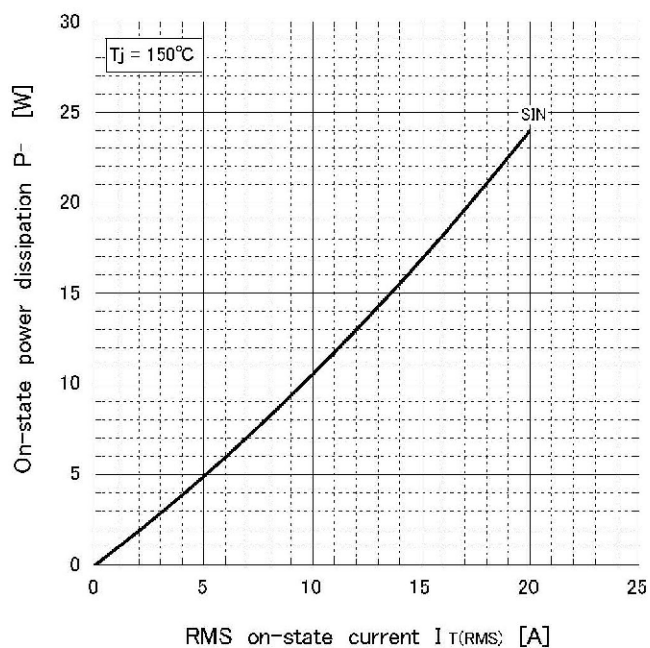
※ :See the original Specifications

## CHARACTERISTIC DIAGRAMS

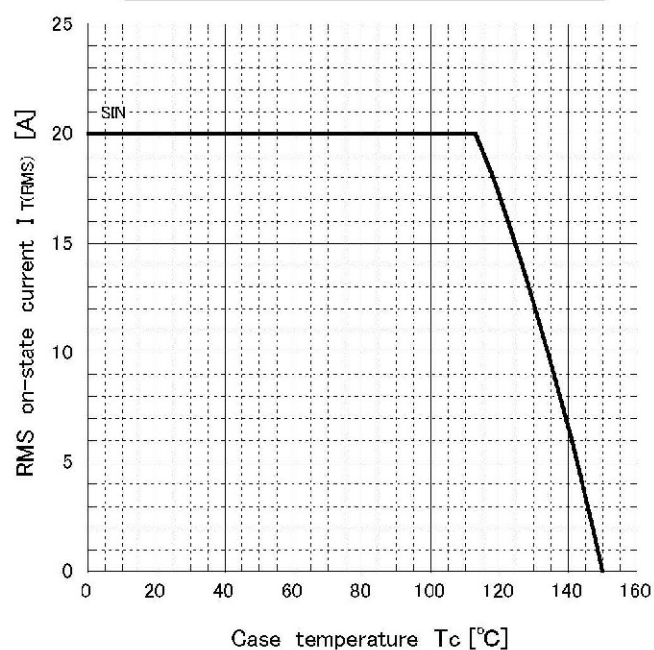
On-state voltage vs On-state current



On-state power dissipation

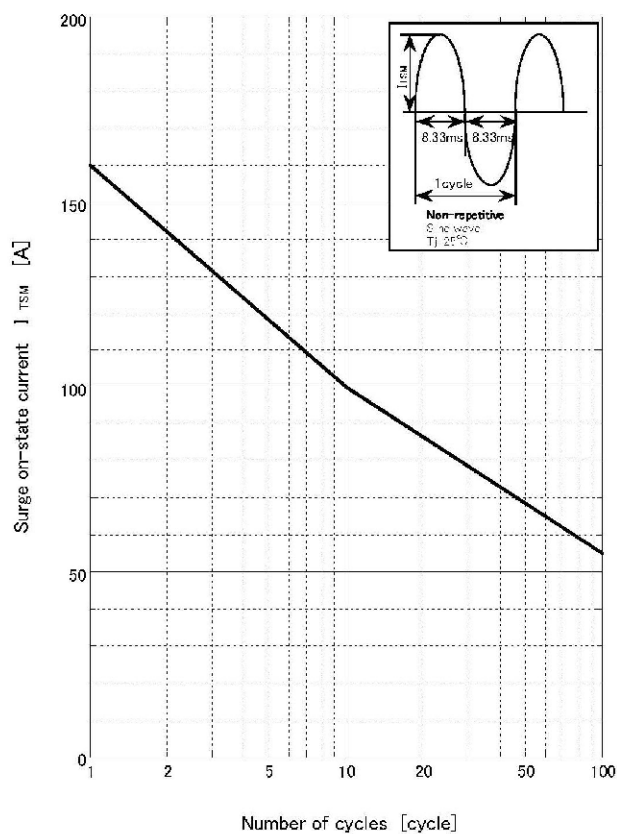


Derating curve  $T_c$ - $I_T(\text{RMS})$

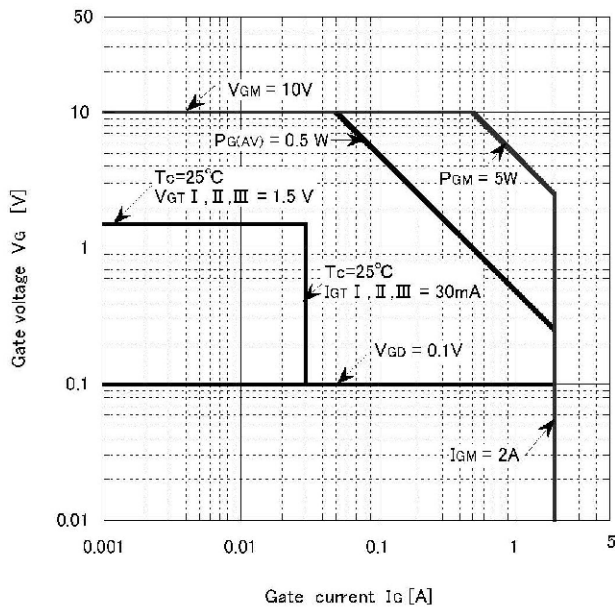


● With heatsink  
Conduction angle  $\theta = 360^\circ$

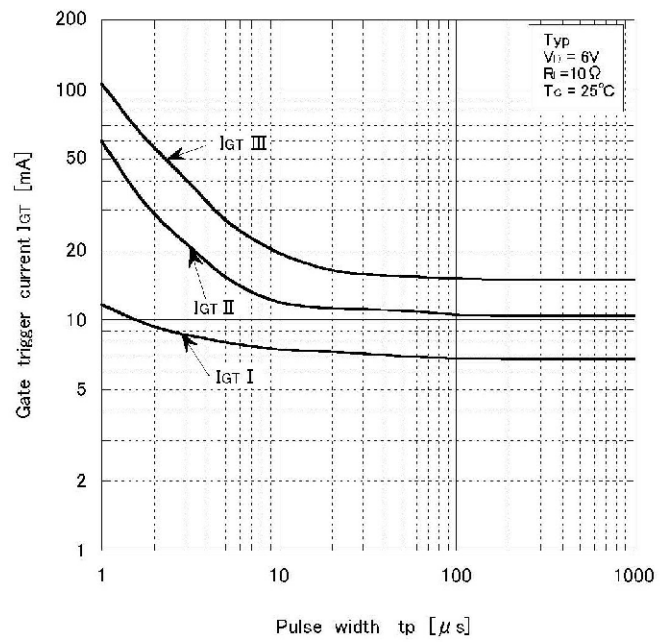
Surge on-state current capability



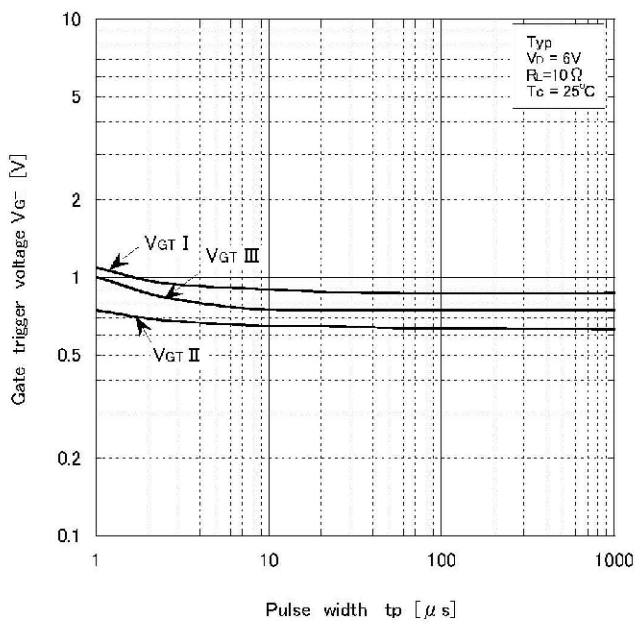
Gate characteristic



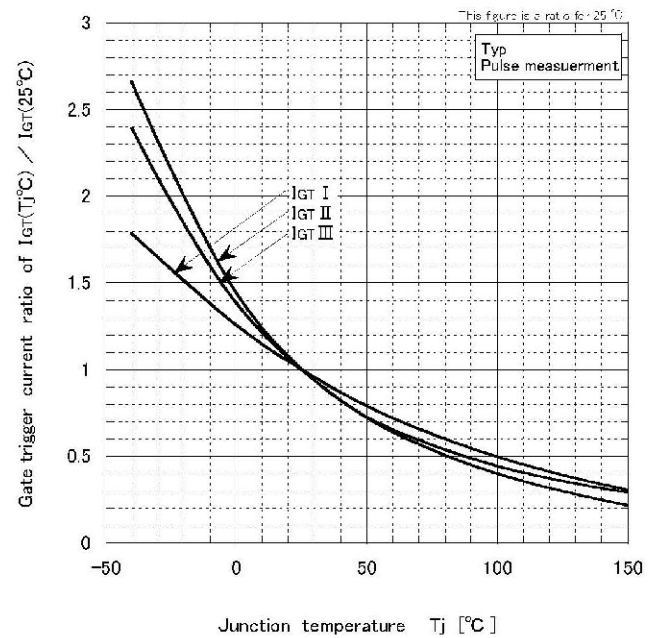
Gate trigger current - Pulse width



Gate trigger voltage - Pulse width

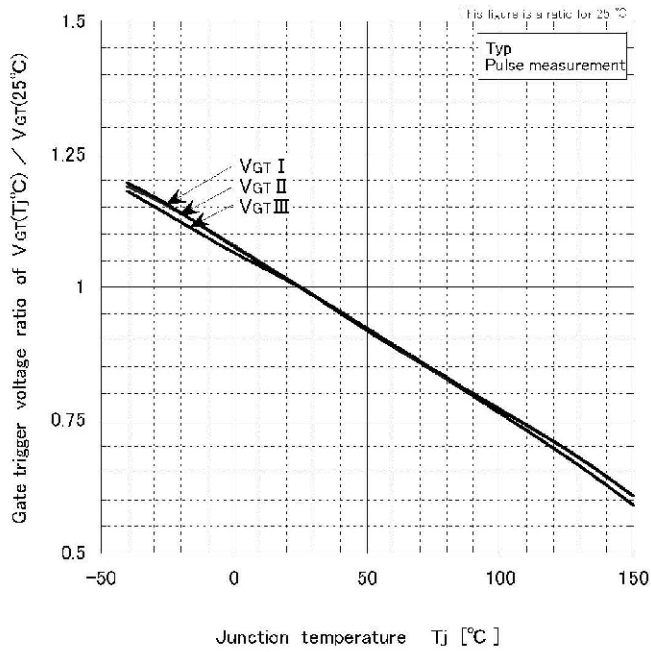


Gate trigger current - Junction temperature

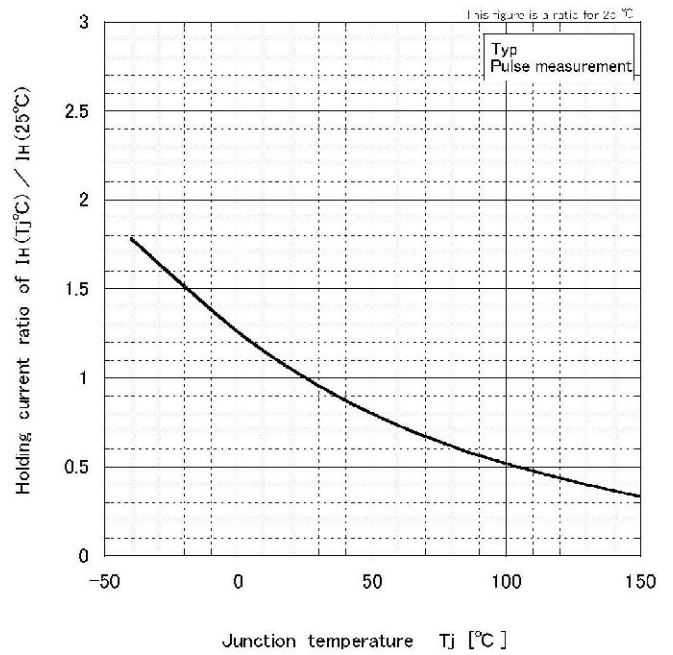




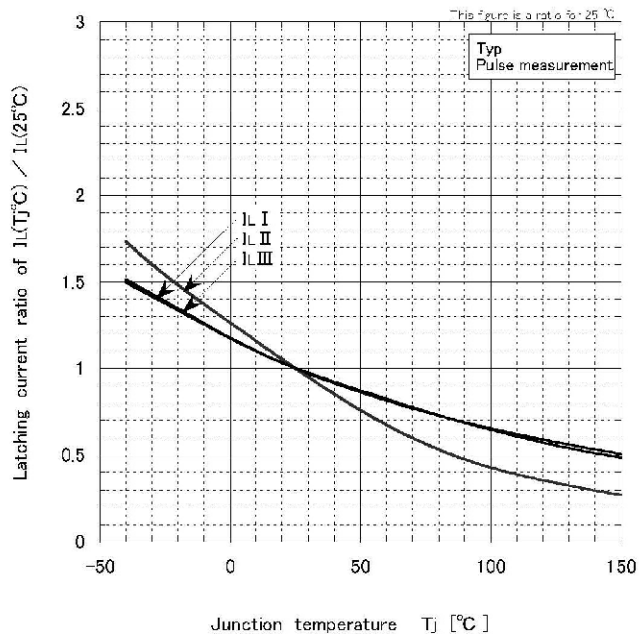
Gate trigger voltage - Junction temperature



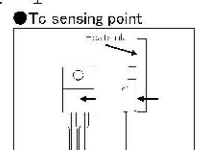
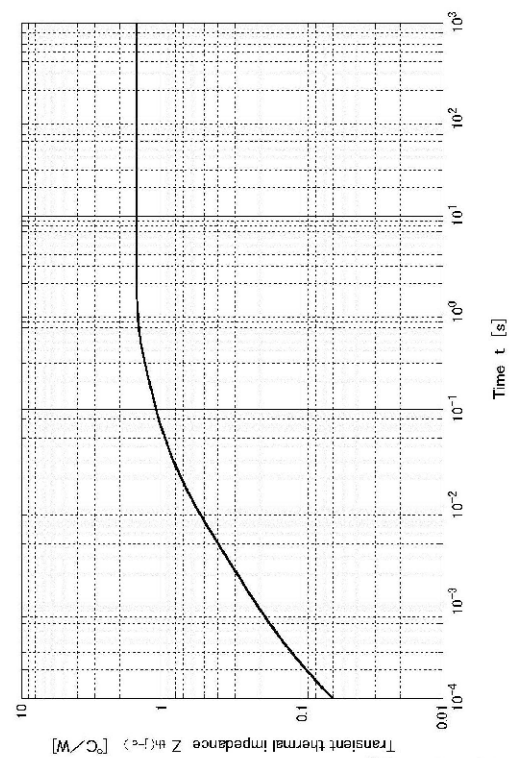
Holding current - Junction temperature



Latching current - Junction temperature

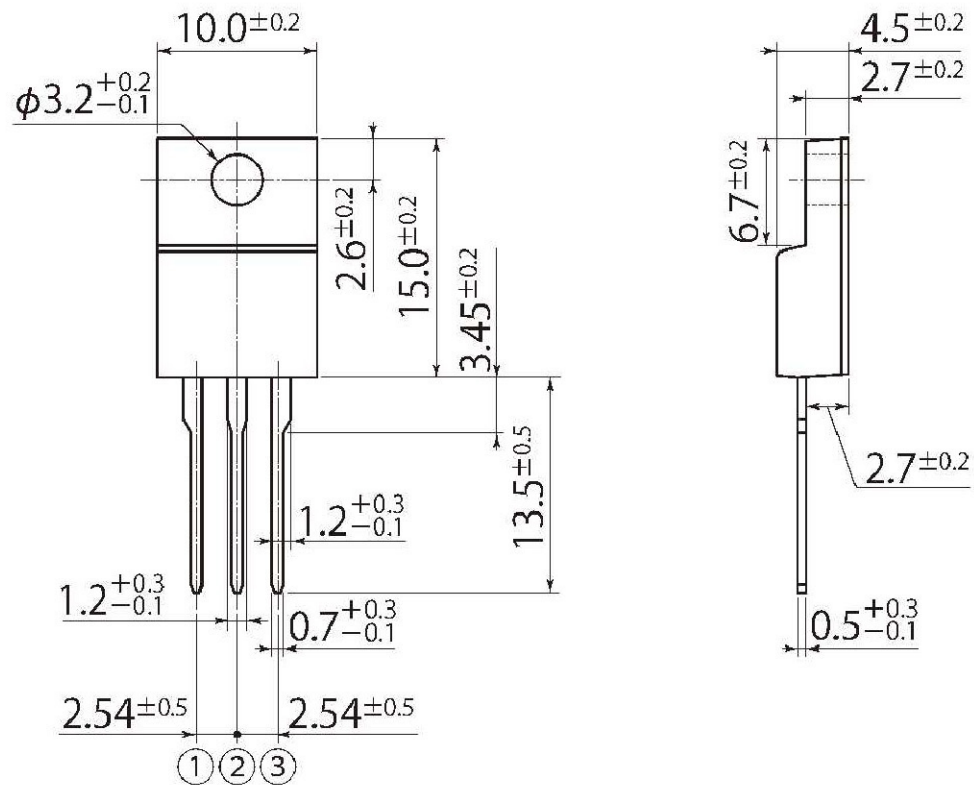


Transient thermal impedance



J8

JEDEC Code	—
JEITA Code	SC-91
House Name	FTO-220AG(3pin)



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