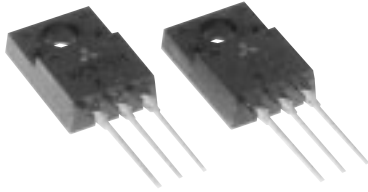


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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

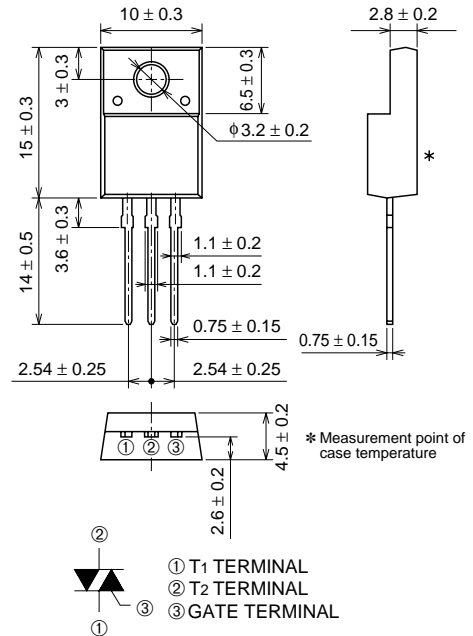
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- I_T (RMS) 12A
- V_{DRM} 700V
- I_{FGT} I , I_{RGT} I , I_{RGT} III 30mA
- V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

Switching mode power supply, light dimmer, electric flasher unit, hair driver, control of household equipment such as TV sets • stereo • refrigerator • washing machine • infrared kotatsu • carpet, solenoid drivers, small motor control, copying machine, electric tool

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		14	
V_{DRM}	Repetitive peak off-state voltage*1	700	V
V_{DSM}	Non-repetitive peak off-state voltage*1	840	V

Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=81^\circ\text{C}$	12	A
I_{TSM}	Surge on-state current	60Hz sine wave 1 full cycle, peak value, non-repetitive	120	A
I_t^2	I_t^2 for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	A ² s
P_{GM}	Peak gate power dissipation		5	W
P_G (AV)	Average gate power dissipation		0.5	W
V_{GM}	Peak gate voltage		10	V
I_{GM}	Peak gate current		2	A
T_j	Junction temperature		-40 ~ +125	°C
T_{stg}	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	2.0	g
V_{iso}	Isolation voltage	$T_a=25^\circ\text{C}$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ terminal to case	2000	V

*1. Gate open.

Feb.1999

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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

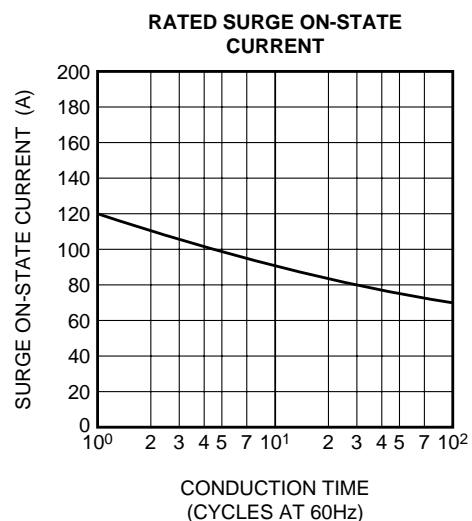
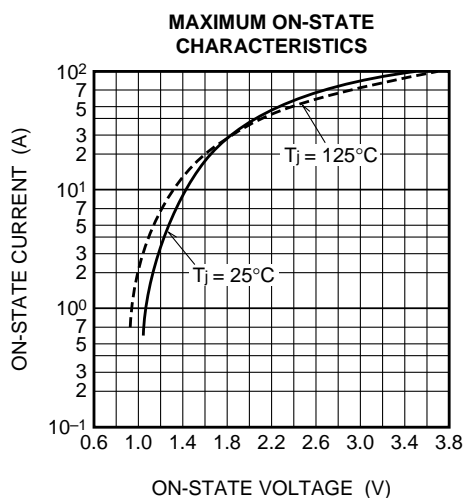
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDRM	Repetitive peak off-state current	T _j =125°C, V _{DRM} applied	—	—	2.0	mA
V _{TM}	On-state voltage	T _c =25°C, I _{TM} =20A, Instantaneous measurement	—	—	1.6	V
V _{FGT I}	Gate trigger voltage	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	1.5	V
V _{RGT I}			—	—	1.5	V
V _{RGT III}			—	—	1.5	V
I _{FGT I}	Gate trigger current	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	30	mA
I _{RGT I}			—	—	30	mA
I _{RGT III}			—	—	30	mA
V _{GD}	Gate non-trigger voltage	T _j =125°C, V _D =1/2V _{DRM}	0.2	—	—	V
R _{th (j-c)}	Thermal resistance	Junction to case *3	—	—	3.0	°C/W
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage		*2	—	—	V/μs

*2. The critical-rate of rise of the off-state commutating voltage is shown in the table below.

*3. The contact thermal resistance R_{th (c-f)} in case of greasing is 0.5°C/W.

Voltage class	V _{DRM} (V)	(dv/dt) _c			Test conditions	Commutating voltage and current waveforms (inductive load)
		Symbol	Min.	Unit		
14	700	R	—	V/μs	1. Junction temperature T _j =125°C 2. Rate of decay of on-state commutating current (di/dt) _c =-6.0A/ms 3. Peak off-state voltage V _D =400V	
		L	10			

PERFORMANCE CURVES



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Datasheets for electronics components.