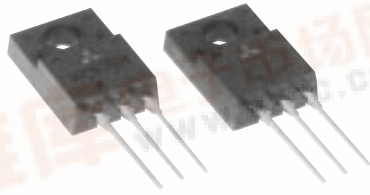


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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

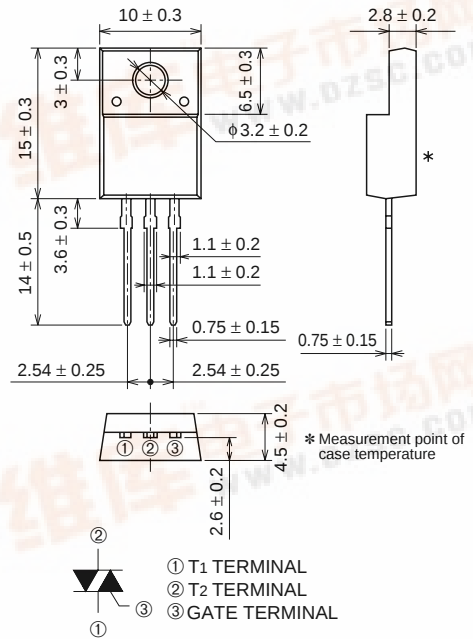
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- IT (RMS) 12A
- VDRM 700V
- IFGT I , IRGT I , IRGT III 30mA
- Viso 2000V

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	
VDRM	Repetitive peak off-state voltage*1	700	V
VDSM	Non-repetitive peak off-state voltage*1	840	V

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, Tc=81°C	12	A
ITSM	Surge on-state current	60Hz sine wave 1 full cycle, peak value, non-repetitive	120	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	A ² s
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VGM	Peak gate voltage		10	V
IGM	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
Viso	Isolation voltage	Ta=25°C, AC 1 minute, T1 · T2 · G terminal to case	2000	V

*1. Gate open.

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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=125^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}$, $I_{TM}=20\text{A}$, Instantaneous measurement	—	—	1.6	V
$V_{FGT\text{ I}}$	Gate trigger voltage	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	1.5	V
$V_{RGT\text{ I}}$			—	—	1.5	V
$V_{RGT\text{ III}}$			—	—	1.5	V
$I_{FGT\text{ I}}$	Gate trigger current	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	30	mA
$I_{RGT\text{ I}}$			—	—	30	mA
$I_{RGT\text{ III}}$			—	—	30	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^{\circ}\text{C}$, $V_D=1/2V_{DRM}$	0.2	—	—	V
$R_{th(j-c)}$	Thermal resistance	Junction to case *3	—	—	3.0	$^{\circ}\text{C/W}$
$(dv/dt)_c$	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 $T_J=125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=-6.0\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	
		L	10			

PERFORMANCE CURVES

