

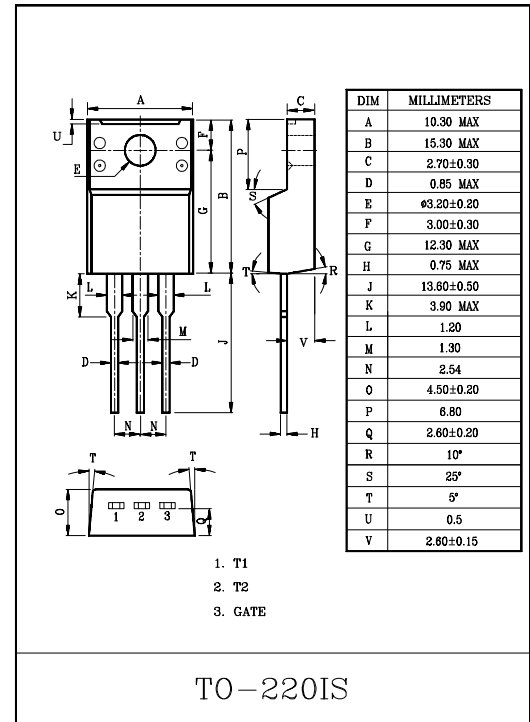
### AC POWER CONTROL APPLICATION.

#### FEATURES

- Repetitive Peak Off-state Voltage :  $V_{DRM}=600V$ .
- R.M.S On-State Current :  $I_{T(RMS)}=12A$ .
- High Commutation (dv/dt)
- Isolation Voltage :  $V_{ISOL}=1500V$  AC  
(UL Recognized : E166398)

#### APPLICATIONS

- Switching Mode Power Supply
- Speed Control of Small Motors
- Solid State Relay
- Light Dimmer
- Washing Machine
- Temperature Control of Heater



#### MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Non-Repetitive Peak Off-state Voltage	$V_{DSM}$	700	V
Repetitive Peak Off-state Voltage	$V_{DRM}$	600	V
R.M.S On-state Current (Full Sine Waveform $T_c=77^\circ C$ )	$I_{T(RMS)}$	12	A
Peak One Cycle Surge on-state Current (Non-Repetitive)	$I_{TSM}$	120 (50Hz 1 Cycle) 132 (60Hz 1 Cycle)	A
$I^2t$ Limit Value ( $1mS \leq t \leq 10mS$ )	$I^2t$	72	A <sup>2</sup> S
Peak Gate Power Dissipation	$P_{GM}$	5	W
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	W
Peak Gate Voltage	$V_{GM}$	10	V
Peak Gate Current	$I_{GM}$	2	A
Junction Temperature	$T_j$	-40~125	°C
Storage Temperature Range	$T_{stg}$	-40~125	°C
Isolation Voltage (Ac, t=1min.)	$V_{ISOL}$	1500	V

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## ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-state Current		$I_{DRM}$	$V_{DRM}=\text{Rated}$	-	-	20	$\mu\text{A}$	
Gate Trigger Voltage	I	$V_{GT}$	$V_D=12\text{V},$ $R_L=20\Omega$	$T_2(+), \text{Gate}(+)$	-	-	1.5	V
	II			$T_2(+), \text{Gate}(-)$	-	-	1.5	
	III			$T_2(-), \text{Gate}(-)$	-	-	1.5	
	IV			$T_2(-), \text{Gate}(+)$	-	-	-	
Gate Trigger Current	I	$I_{GT}$		$T_2(+), \text{Gate}(+)$	-	-	30	mA
	II			$T_2(+), \text{Gate}(-)$	-	-	30	
	III			$T_2(-), \text{Gate}(-)$	-	-	30	
	IV			$T_2(-), \text{Gate}(+)$	-	-	-	
Peak On-State Voltage		$V_{TM}$	$I_{TM}=17\text{A}$	-	-	1.5	V	
Gate Non-Trigger Voltage		$V_{GD}$	$V_D=\text{Rated}, T_c=125^\circ\text{C}$	0.2	-	-	V	
Holding Current		$I_H$	$V_D=12\text{V}, I_{TM}=1\text{A}$	-	-	50	mA	
Critical Rate of Rise of Off-state Voltage		$d_v/d_t$	$T_j=125^\circ\text{C}, V_{DRM}=\text{Rated}$ Exponential Rise		300	-	$\text{V}/\mu\text{S}$	
Critical Rate of Rise of Off-state Voltage at Commutation		$(d_v/d_t)C$	$T_j=125^\circ\text{C},$ $(di/dt)C=-6.5\text{A}/\text{mS}$ $V_D=2/3V_{DRM}$	10	-	-	$\text{V}/\mu\text{S}$	
Thermal Resistance		$R_{th(j-c)}$	Junction to Case, AC	-	-	3.0	$^\circ\text{C}/\text{W}$	

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