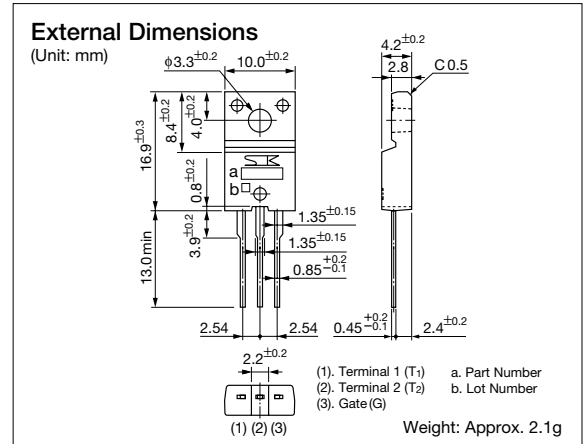


# TO-220F 5A Triac

## TM541S-L, TM561S-L

### ■ Features

- Repetitive peak off-state voltage:  $V_{DRM}=400, 600V$
- RMS on-state current:  $I_{T(RMS)}=5A$
- Gate trigger current:  $I_{GT}=20mA$  max (MODE I, II, III)
- Isolation voltage:  $V_{ISO}=1500V$  (50Hz Sine wave, RMS)
- UL approved type available



### ■ Absolute Maximum Ratings

Parameter	Symbol	Ratings		Unit	Conditions
		TM541S-L	TM561S-L		
Repetitive peak off-state voltage	$V_{DRM}$	400	600	V	
RMS on-state current	$I_{T(RMS)}$	5.0		A	Conduction angle 360°, $T_c=104^\circ C$
Surge on-state current	$I_{TSM}$	50		A	50Hz full-cycle sinewave, Peak value, Non-repetitive, $T_j=125^\circ C$
Peak gate voltage	$V_{GM}$	10		V	
Peak gate current	$I_{GM}$	2		A	
Peak gate power loss	$P_{GM}$	5		W	
Average gate power loss	$P_{G(AV)}$	0.5		W	
Junction temperature	$T_j$	-40 to +125		$^\circ C$	
Storage temperature	$T_{stg}$	-40 to +125		$^\circ C$	
Isolation voltage	$V_{ISO}$	1500		Vrms	50Hz Sine wave, RMS, Terminal to Case, 1 min.

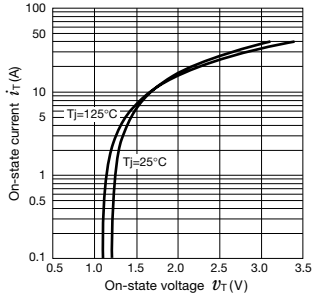
### ■ Electrical Characteristics

( $T_j=25^\circ C$ , unless otherwise specified)

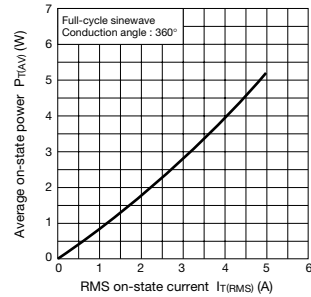
Parameter	Symbol	Ratings			Unit	Conditions	
		min	typ	max			
Off-state current	$I_{DRM}$		0.3	2.0	mA	$V_D=V_{DRM}, R_{GK}=\infty, T_j=125^\circ C$	
				0.1		$V_D=V_{DRM}, R_{GK}=\infty, T_j=25^\circ C$	
On-state voltage	$V_{TM}$			1.6	V	Pulse test, $I_{TM}=7A$	
Gate trigger voltage	$V_{GT}$	I	0.7	2.0	V	$V_D=6V, R_L=10\Omega, T_c=25^\circ C$	$T_2^+, G^+$
		II	0.7	2.0			$T_2^+, G^-$
		III	0.8	2.0			$T_2^-, G^-$
		IV	0.8				$T_2^-, G^+$
Gate trigger current	$I_{GT}$	I	7	20	mA	$V_D=6V, R_L=10\Omega, T_c=25^\circ C$	$T_2^+, G^+$
		II	8	20			$T_2^+, G^-$
		III	10	20			$T_2^-, G^-$
		IV	15				$T_2^-, G^+$
Gate non-trigger voltage	$V_{GD}$	0.2			V	$V_D=1/2 \times V_{DRM}, T_j=125^\circ C$	
Holding current	$I_H$		5		mA	$V_D=6V$	
Thermal resistance	$R_{th}$			4.0	$^\circ C/W$	Junction to case	

# TM541S-L, TM561S-L

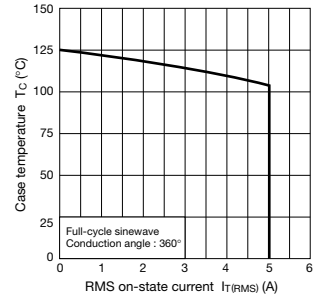
$V_T - I_T$  Characteristics (max)



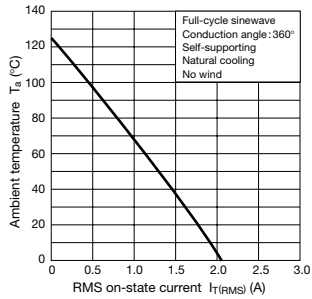
$I_T(\text{RMS}) - P_{T(\text{AV})}$  Characteristics



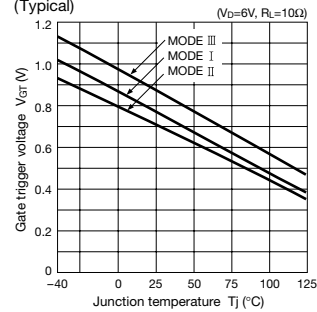
$I_T(\text{RMS}) - T_c$  Ratings



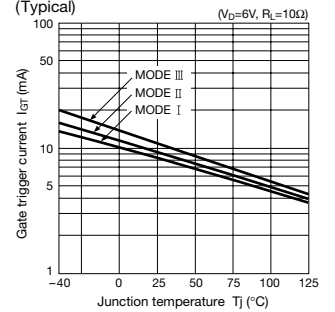
$I_T(\text{RMS}) - T_a$  Ratings



$V_{GT}$  temperature characteristics (Typical)



$I_{GT}$  temperature characteristics (Typical)



Transient thermal resistance Characteristics

