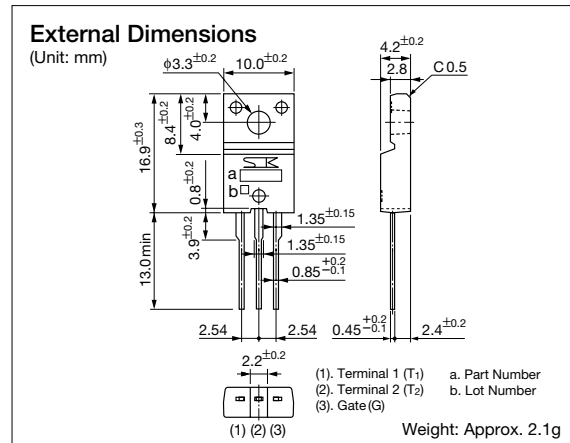


# TO-220F 16A Triac

## TM1641S-L, TM1661S-L

### ■ Features

- Repetitive peak off-state voltage:  $V_{DRM}=400, 600V$
- RMS on-state current:  $I_{T(RMS)}=16A$
- Gate trigger current:  $I_{GT}=30mA$  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  |
|-----------------------------------|--------------|-------------|-----------|------------|---|
|                                   |              | TM1641S-L   | TM1661S-L |            |   |
| Repetitive peak off-state voltage | $V_{DRM}$    | 400         | 600       | V          |   |
| RMS on-state current              | $I_{T(RMS)}$ | 16          |           | A          | Conduction angle 360°, $T_c=74^\circ C$                                 |
| Surge on-state current            | $I_{TSM}$    | 150         |           | 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.                           |

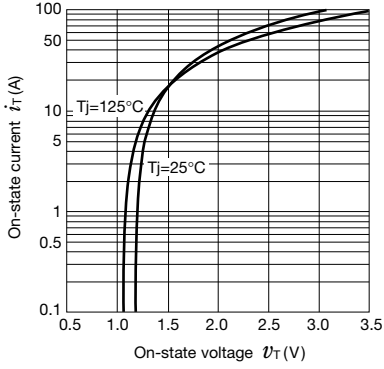
### ■ Electrical Characteristics

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

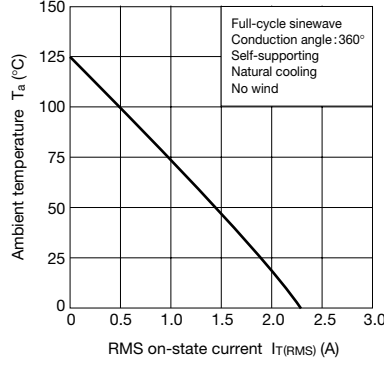
| Parameter                | Symbol    | Ratings |     |     | Unit         | Conditions                                    |              |
|--------------------------|-----------|---------|-----|-----|--------------|---|--------------|
|                          |           | min     | typ | max |              |   |              |
| 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, $I_{TM}=20A$                      |              |
| Gate trigger voltage     | $V_{GT}$  | I       | 0.8 | 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      | 1.0 |     |              |   | $T_2^-, G^+$ |
| Gate trigger current     | $I_{GT}$  | I       | 12  | 30  | mA           | $V_D=6V, R_L=10\Omega, T_c=25^\circ C$        | $T_2^+, G^+$ |
|                          |           | II      | 16  | 30  |              |   | $T_2^+, G^-$ |
|                          |           | III     | 25  | 30  |              |   | $T_2^-, G^-$ |
|                          |           | IV      | 70  |     |              |   | $T_2^-, G^+$ |
| Gate non-trigger voltage | $V_{GD}$  | 0.2     |     |     | V            | $V_D=1/2 \times V_{DRM}, T_j=125^\circ C$     |              |
| Holding current          | $I_H$     |         | 25  |     | mA           | $V_D=6V$                                      |              |
| Thermal resistance       | $R_{th}$  |         |     | 3.0 | $^\circ C/W$ | Junction to case                              |              |

# TM1641S-L, TM1661S-L

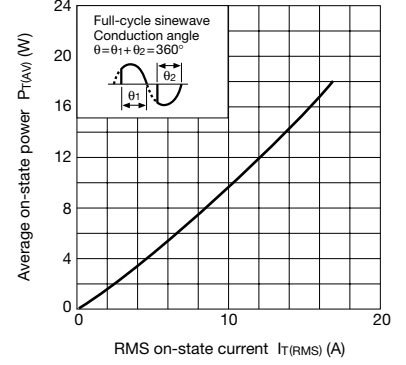
$v_T - i_T$  Characteristics (max)



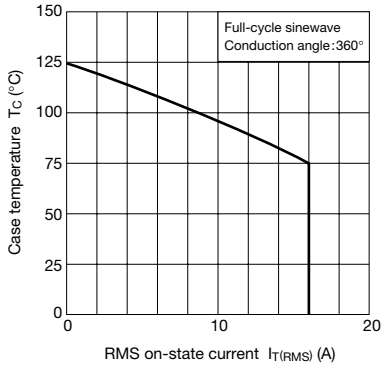
$I_T(\text{RMS}) - T_a$  Ratings



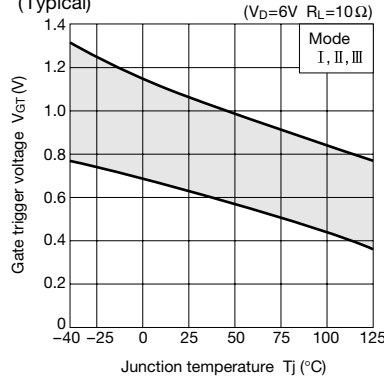
$I_T(\text{RMS}) - P_{T(\text{AV})}$  Characteristics



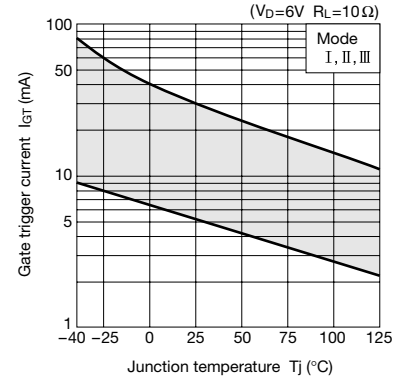
$I_T(\text{RMS}) - T_c$  Ratings



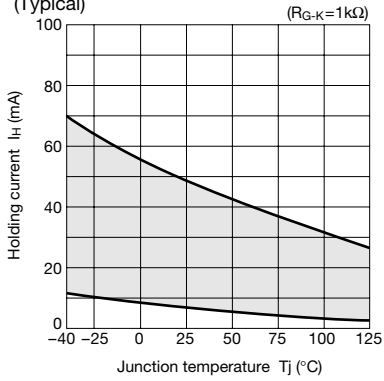
$V_{GT}$  temperature characteristics (Typical)



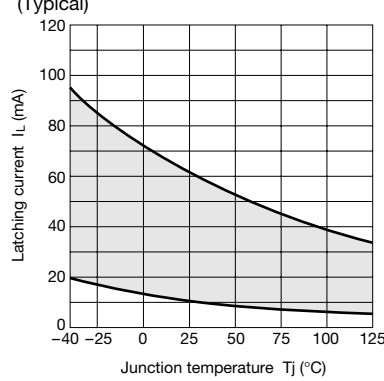
$I_{GT}$  temperature characteristics



$I_H$  temperature Characteristics (Typical)



$I_L$  temperature Characteristics (Typical)



Transient thermal resistance Characteristics

