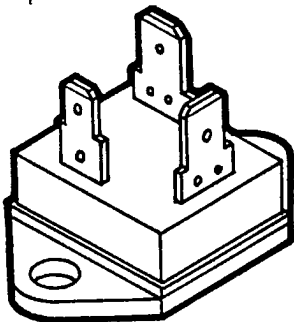


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**SanRex®****POWER SEMICONDUCTORS****NEW****ISOLATED TRIAC  
MOLD TYPE  
TG SERIES**

- TO-3 Isolated Mounting. 2.5kV RMS Isolation
- Voltage Range Up to 600V
- High Commutating dv/dt

**TG-F SERIES**

- Super High Surge Current Capability
- Economical Low On-State Voltage

**Parts Number Assignment****TG 25 F 40**

Type Code

|   |                                                           |
|---|-----------------------------------------------------------|
| C | Standard Type Gate Terminal Thickness 0.5mm (0.020in)     |
| E | Standard Type Gate Terminal Thickness 0.8mm (0.031in)     |
| F | High Quality Type Gate Terminal Thickness 0.8mm (0.031in) |

RMS ON-STATE CURRENT

TG Series

| Voltage Code | V <sub>DRM</sub> [V] |
|--------------|----------------------|
| 20           | 200                  |
| 30           | 300                  |
| 40           | 400                  |
| 50           | 500                  |
| 60           | 600                  |

**SANSHA ELECTRIC MFG. CO., LTD.**

OSAKA JAPAN

8002-5838

Editor *ml*

# SanRex. POWER SEMICONDUCTORS

T-25-17

## ■ MAXIMUM RATINGS

| Specifications                          | Unit                   | TG16C<br>TG16E               | TG25C<br>TG25E               |
|-----------------------------------------|------------------------|------------------------------|------------------------------|
| $V_{DRM}$ Repetitive Peak Voltage Range | V                      | 200~600                      | 200~600                      |
| $I_{T(RMS)}$ RMS On-State Current       | A                      | 16<br>$T_c=83^\circ\text{C}$ | 25<br>$T_c=74^\circ\text{C}$ |
| $I_{TSM}$ Surge On-State Current        | A                      | 140/160                      | 220/250                      |
| $I^2t$ $I^2t$ for Fusing                | $\text{A}^2\text{S}$   | 106                          | 260                          |
| $P_{GM}$ Peak Gate Power Dissipation    | W                      | 10                           | 10                           |
| $P_{G(AV)}$ Average Gate Dissipation    | W                      | 1                            | 1                            |
| $I_{GM}$ Peak Gate Current              | A                      | 3                            | 3                            |
| $V_{GM}$ Peak Gate Voltage              | V                      | 10                           | 10                           |
| $di/dt$ Critical Rate of Current Rise   | $\text{A}/\mu\text{S}$ | 50                           | 50                           |
| $T_j$ Operating Junction Temperature    | $^\circ\text{C}$       | $-40 +125$                   | $-40 +125$                   |
| $T_{stg}$ Storage Temperature           | $^\circ\text{C}$       | $-40 +125$                   | $-40 +125$                   |
| $V_{ISO}$ Isolation Voltage (RMS)       | V                      | 2,500                        | 2,500                        |
| $R_{ISO}$ Isolation Resistance          | $\text{M}\Omega$       | 1,000                        | 1,000                        |
| Mounting Torque                         | kgf·cm                 | 12                           | 12                           |
| Weight                                  | g                      | 27                           | 27                           |

## ■ ELECTRICAL CHARACTERISTICS

|                                            |                |                           |     |     |
|--------------------------------------------|----------------|---------------------------|-----|-----|
| $I_{DRM}$ Max. Leakage Current             |                | mA                        | 3   | 5   |
| $V_{TM}$ Max. On-State Voltage             |                | V                         | 1.5 | 1.4 |
| $I_{GT}$ Max. Required Gate Current        | 1: $I_{GT1}^+$ | mA                        | 50  | 50  |
|                                            | 2: $I_{GT1}^-$ | mA                        | 50  | 50  |
|                                            | 3: $I_{GT3}^+$ | mA                        | —   | —   |
|                                            | 4: $I_{GT3}^-$ | mA                        | 50  | 50  |
| $V_{GT}$ Max. Required Gate Voltage        | 1: $V_{GT1}^+$ | V                         | 3   | 3   |
|                                            | 2: $V_{GT1}^-$ | V                         | 3   | 3   |
|                                            | 3: $V_{GT3}^+$ | V                         | —   | —   |
|                                            | 4: $V_{GT3}^-$ | V                         | 3   | 3   |
| $V_{GD}$ Min. Non-Trigger Gate Voltage     |                | V                         | 0.2 | 0.2 |
| $t_{gt}$ Max. Turn On Time                 |                | $\mu\text{S}$             | 10  | 10  |
| $dv/dt$ Min. Critical Rate of Voltage Rise |                | $\text{V}/\mu\text{S}$    | 50  | 50  |
| $[dv/dt]_c$ Min. Commutating $dv/dt$       |                | $\text{V}/\mu\text{S}$    | 6   | 6   |
| $I_H$ Typ. Holding Current                 |                | mA                        | 30  | 30  |
| $R_{th}$ Max. Thermal Resistance           |                | $^\circ\text{C}/\text{W}$ | 2.0 | 1.6 |



**SanRex. POWER SEMICONDUCTORS**

T-25-17

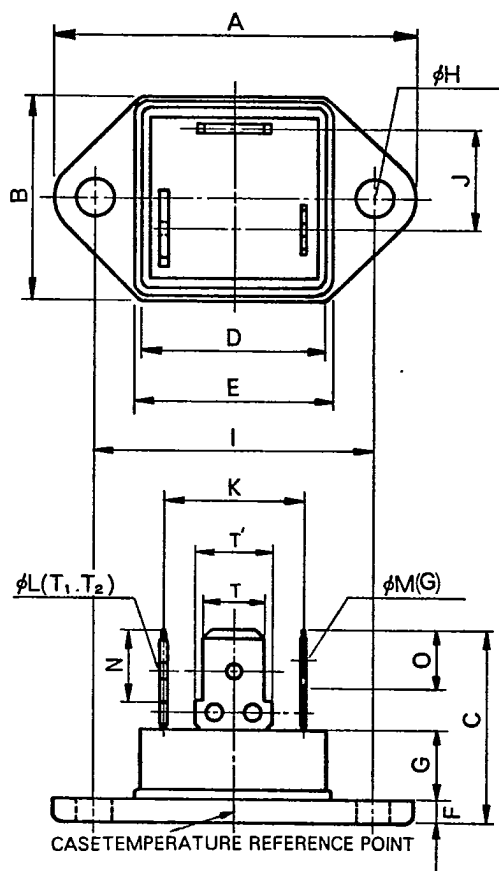
| TG25F                      | TG35C<br>TG35E             | TG35F                      | Conditions                                                                                                   |
|----------------------------|----------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------|
| 400~600                    | 200~600                    | 400~600                    |                                                                                                              |
| 25<br>T <sub>c</sub> =80°C | 35<br>T <sub>c</sub> =58°C | 35<br>T <sub>c</sub> =67°C | Full cycle current                                                                                           |
| 270/300                    | 300/330                    | 310/340                    | Non-repetitive, One cycle 50/60Hz                                                                            |
| 360                        | 450                        | 485                        | t=2 to 10 msec.                                                                                              |
| 10                         | 10                         | 10                         |                                                                                                              |
| 1                          | 1                          | 1                          |                                                                                                              |
| 3                          | 3                          | 3                          |                                                                                                              |
| 10                         | 10                         | 10                         |                                                                                                              |
| 50                         | 50                         | 50                         | T <sub>j</sub> =25°C, I <sub>G</sub> =100mA, V <sub>D</sub> =1/2V <sub>DRM</sub> , di <sub>G</sub> /dt=1A/μS |
| -40 +125                   | -40 +125                   | -40 +125                   |                                                                                                              |
| -40 +125                   | -40 +125                   | -40 +125                   |                                                                                                              |
| 2,500                      | 2,500                      | 2,500                      | AC, 1 minute                                                                                                 |
| 1,000                      | 1,000                      | 1,000                      | DC 1,000 V, 5 sec.                                                                                           |
| 12                         | 12                         | 12                         | Recommended 10 kgf·cm (9 1b·in)                                                                              |
| 27                         | 27                         | 27                         |                                                                                                              |

|      |     |      |                                                                                                        |
|------|-----|------|--------------------------------------------------------------------------------------------------------|
| 3    | 5   | 3    | T <sub>j</sub> =125°C, at V <sub>DRM</sub>                                                             |
| 1.35 | 1.4 | 1.38 | T <sub>j</sub> =25°C, I <sub>T</sub> =1.4 I <sub>T(RMS)</sub>                                          |
| 50   | 50  | 50   | T <sub>j</sub> =25°C, I <sub>T</sub> =1A, V <sub>D</sub> =6V                                           |
| 50   | 50  | 50   |                                                                                                        |
| —    | —   | —    |                                                                                                        |
| 50   | 50  | 50   |                                                                                                        |
| 2.5  | 3   | 2.5  | T <sub>j</sub> =25°C, I <sub>T</sub> =1A, V <sub>D</sub> =6V                                           |
| 2.5  | 3   | 2.5  |                                                                                                        |
| —    | —   | —    |                                                                                                        |
| 2.5  | 3   | 2.5  |                                                                                                        |
| 0.2  | 0.2 | 0.2  | T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>                                             |
| 10   | 10  | 10   | T <sub>j</sub> =25°C, I <sub>T</sub> Rated, I <sub>G</sub> =100mA, V <sub>D</sub> =1/2V <sub>DRM</sub> |
| 100  | 20  | 100  | T <sub>j</sub> =125°C, V <sub>D</sub> =2/3V <sub>DRM</sub> , Exponential wave                          |
| 10   | 3   | 10   | [di/dt] <sub>C</sub> = $\frac{8(TG16)}{15(TG25,35)}$ A/mS, V <sub>D</sub> =2/3V <sub>DRM</sub>         |
| 30   | 30  | 30   | T <sub>j</sub> =25°C                                                                                   |
| 1.5  | 1.5 | 1.5  | Junction to case                                                                                       |



## TG SERIES

T-25-17



$T_1$  : TAB250( $T=6.35$  (0.250),  $T'=8.25$  (0.325),  $t=0.8$  (0.031))  
 $T_2$  : TAB250( $T=6.35$  (0.250),  $T'=8.25$  (0.325),  $t=0.8$  (0.031))  
 $G$ (Ctype) : TAB187( $T=4.75$  (0.187),  $T'=5.7$  (0.224),  $t=0.5$  (0.020))  
 $G$ (E,Ftype) : TAB187( $T=4.75$  (0.187),  $T'=5.7$  (0.224),  $t=0.8$  (0.031))  
 mm (inch)

| SYMBOL   | INCHES |       | MILLIMETERS |       |
|----------|--------|-------|-------------|-------|
|          | MIN.   | MAX.  | MIN.        | MAX.  |
| A        | —      | 1.543 | —           | 39.20 |
| B        | —      | 0.906 | —           | 23.00 |
| C        | —      | 0.886 | —           | 22.50 |
| D        | —      | 0.791 | —           | 20.10 |
| E        | —      | 0.850 | —           | 21.60 |
| F        | 0.091  | 0.114 | 2.30        | 2.90  |
| G        | —      | 0.323 | —           | 8.20  |
| $\phi H$ | 0.161  | 0.169 | 4.10        | 4.30  |

| SYMBOL   | INCHES |       | MILLIMETERS |       |
|----------|--------|-------|-------------|-------|
|          | MIN.   | MAX.  | MIN.        | MAX.  |
| I        | 1.177  | 1.185 | 29.90       | 30.10 |
| J        | 0.415  | 0.427 | 10.55       | 10.85 |
| K        | 0.545  | 0.557 | 13.85       | 14.15 |
| $\phi L$ | 0.065  | 0.087 | 1.65        | 2.20  |
| $\phi M$ | 0.051  | 0.062 | 1.30        | 1.57  |
| N        | 0.307  | 0.319 | 7.80        | 8.10  |
| O        | 0.244  | 0.256 | 6.20        | 6.50  |



SANSHA ELECTRIC MFG. CO., LTD.

SANREX CORPORATION

1615 Northern Boulevard, Manhasset, NY 11030,

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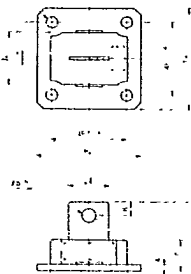
IT IS FOR YOUR REFERENCE.  
PLEASE SEE INDIVIDUAL CATALOG OR SPECIFICATIONS FOR FURTHER DETAILS.



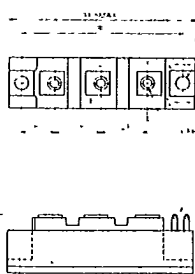
**SanRex®****DIMENSIONS****DIMENSIONS**

(m/m)

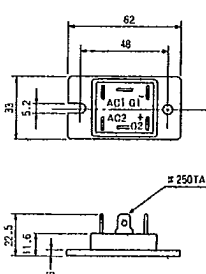
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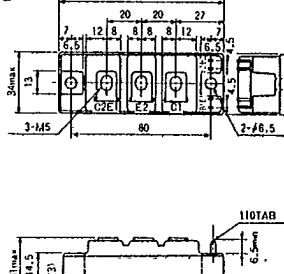
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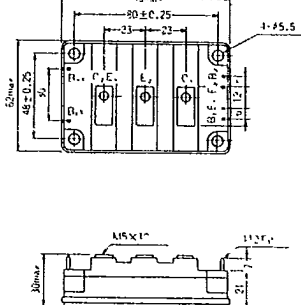
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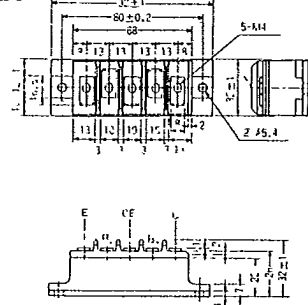
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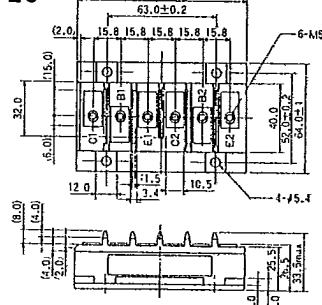
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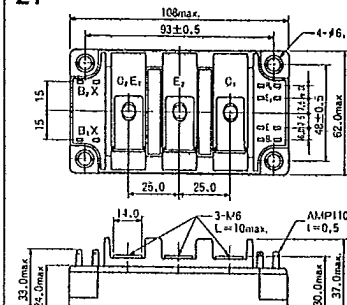
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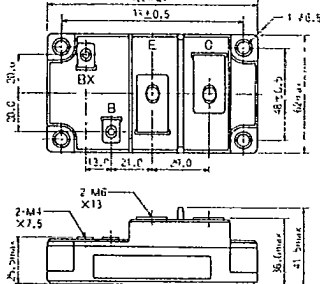
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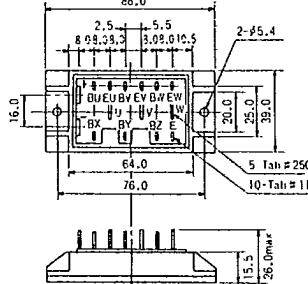
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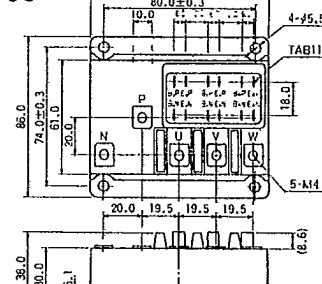
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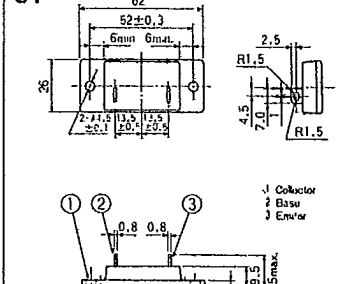
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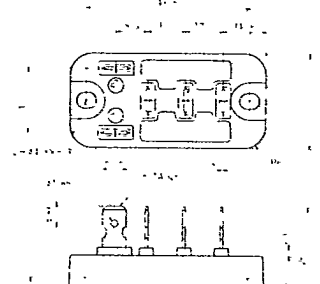
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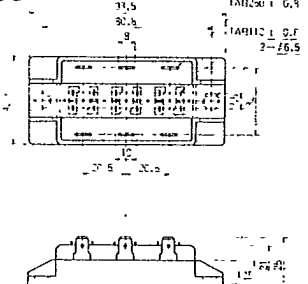
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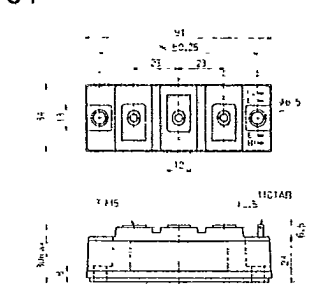
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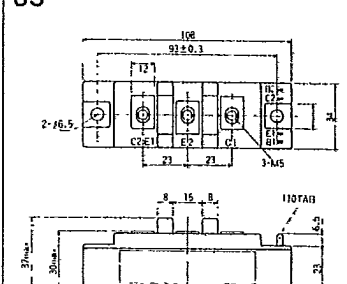
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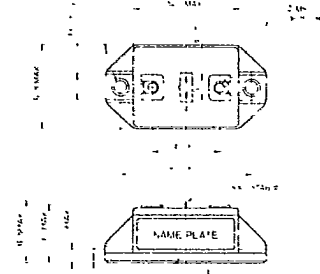
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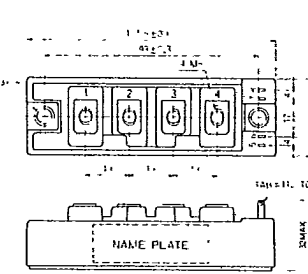
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