# TRIAC ISOLATED MOLD TYPE

# TG25C

**SanRex** Triac **TG25C** is isolated mold TRIAC suitable for wide range of applications like Copier Machines, Micro Wave Ovens, Solid State Switches, Motor Controls, Light Controls and Heater Controls.
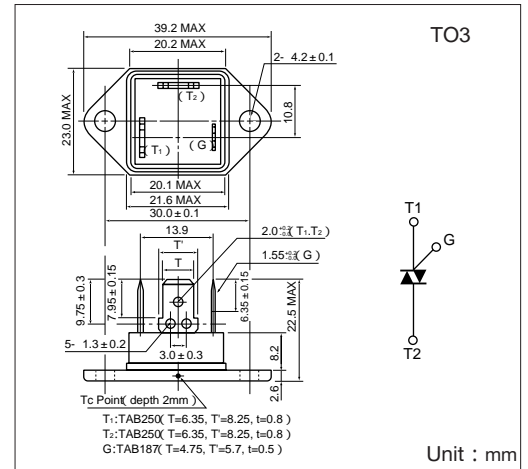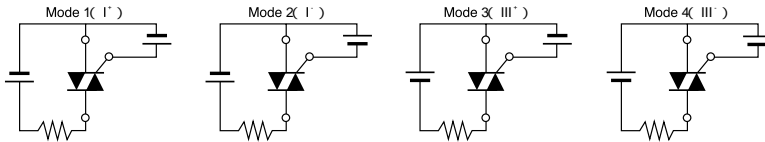
$I_{T\,AV}$　25A
High surge capability　250A
Isolated Mounting　AC2500V
Tab Terminals

Trigger mode of the triac



Mode 1　I　　Mode 2　I　　Mode 3　III　　Mode 4　III



TO3

T₁ TAB250　T=6.35, T'=8.25, t=0.8
T₂ TAB250　T=6.35, T'=8.25, t=0.8
G TAB187　T=4.75, T'=5.7, t=0.5

Unit　mm

## Maximum Ratings

Tj=25　unless otherwise specified

| Symbol | Item | Ratings | | Unit |
|---|---|---|---|---|
| | | TG25C40 | TG25C60 | |
| $V_{DRM}$ | Repetitive Peak Off-State Voltage | 400 | 600 | V |

| Symbol | Item | Conditions | Ratings | Unit |
|---|---|---|---|---|
| $I_{T\,RMS}$ | R.M.S. On-State Current | Tc　74 | 25 | A |
| $I_{TSM}$ | Surge On-State Current | One cycle, 50Hz/60Hz, peak, non-repetitive | 220/250 | A |
| $I^2t$ | $I^2t$ | Value for one cycle of surge current | 260 | $A^2S$ |
| $P_{GM}$ | Peak Gate Power Dissipation | | 10 | W |
| $P_{G\,AV}$ | Average Gate Power Dissipation | | 1 | W |
| $I_{GM}$ | Peak Gate Current | | 3 | A |
| $V_{GM}$ | Peak Gate Voltage | | 10 | V |
| di/dt | Critical Rate of Rise of On-State Current | $I_G$　100mA Tj　25　$V_D$　1⁄2$V_{DRM}$ d$I_G$/dt　1A/μs | 50 | A/μs |
| Tj | Operating Junction Temperature | | 25 to　125 | |
| Tstg | Storage Temperature | | 40 to　125 | |
| $V_{ISO}$ | Isolation Breakdown Voltage　R.M.S. | A.C.1 minute | 2500 | V |
| | Mounting Torque　M4 | Recommended Value 1.0　1.4 10　14 | 1.5　15 | N m kgf cm |
| | Mass | Typical value　Excluding bolt, nut and wrapping material | 27 | g |

## Electrical Characteristics

| Symbol | | Item | Conditions | Ratings | Unit |
|---|---|---|---|---|---|
| $I_{DRM}$ | | Reptitive Peak Off-State Current, max | $V_D$=$V_{DRM}$, Single phase, half wave, Tj　125 | 5 | mA |
| $V_{TM}$ | | Peak On-State Voltage, max | On-State Current　2× $I_{T\,RMS}$　Inst. measurement | 1.4 | V |
| $I_{GT1}$ | 1 | | Tj　25　$I_T$　1A $V_D$　6V | 50 | |
| $I_{GT1}$ | 2 | Gate Trigger Current, max | Tj　25　$I_T$　1A $V_D$　6V | 50 | mA |
| $I_{GT3}$ | 3 | | | | |
| $I_{GT3}$ | 4 | | Tj　25　$I_T$　1A $V_D$　6V | 50 | |
| $V_{GT1}$ | 1 | | Tj　25　$I_T$　1A $V_D$　6V | 3 | |
| $V_{GT1}$ | 2 | Gate Trigger Voltage, max | Tj　25　$I_T$　1A $V_D$　6V | 3 | V |
| $V_{GT3}$ | 3 | | | | |
| $V_{GT3}$ | 4 | | Tj　25　$I_T$　1A $V_D$　6V | 3 | |
| $V_{GD}$ | | Non-Trigger Gate Voltage, min | Tj　125　$V_D$　1⁄2$V_{DRM}$ | 0.2 | V |
| tgt | | Turn On Time, max. | $I_{T\,RMS}$　$I_G$　100mA $V_D$　1⁄2$V_{DRM}$ Tj　25　d$I_G$/dt　1A/μs | 10 | V |
| dv/dt | | Critical Rate of Rise on-State Voltage,min. | Tj　125　$V_D$　2⁄3$V_{DRM}$　Exoponential wave. | 50 | V/μs |
| dv/dt c | | Critical Rate of Rise off-State Voltage at commutation, min | Tj　125　$V_D$　2⁄3$V_{DRM}$　di/dt　c　15A/ms | 6 | V/μs |
| $I_H$ | | Holding Current, typ. | Tj　25 | 30 | mA |
| Rth j-c | | Thermal Impedance, max | Junction to case | 1.6 | /W |

# SanRex

## Gate Characteristics

Peak Gate Voltage 10V

Gate Voltage V

Peak Gate Power 10W

Gate Distribution

Average Gate Power 1W

Peak Gate Current 3A

25

125

Maximum Gate Voltage that will not trigger any unit

Gate Current mA

## On-State Voltage MAX

On-State Current A

On-State Voltage V

## On State Current vs. Maximum Power Dissipation

Power Dissipation W

180
150
120
90
60
30

Conduction Angle

RMS On-State Current A

## On State Current vs. Allowable Case Temperature

Allowable Case Temperature

30
60
90
120
150
180

Conduction Angle

RMS On-State Current A

## Ambient temp. vs. RMS On-State Current

RMS On-State Current A

Conduction Angle 180
Apply following figures for different conduction angles

150 1.05
120 1.16
90 1.27
60 1.44
30 1.75

F-40 Rth 2 95 Self convection

F-60 Rth 1 53 Self convection

F-40 3m/s Rth 1 28

F-60 3m/s Rth 0 65

(Rth heat Sink Thermal Impedance)

Maximum Allowable Ambient Temperature

## Surge On-State Current Rating Non-Repetitive

Surge On-State Current A

Tj 25 start

60Hz
50Hz

Time cycles

## Transient Thermal Impedance

Transient Thermal Impedance j-c  /W

F-40 Self convection
F-60 Self convection
F-40 3m/s
F-60 3m/s
Junction to case

Time t sec

**SANSHA ELECTRIC**