

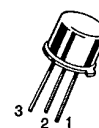
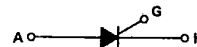
## Silicon Controlled Rectifiers Reverse Blocking Triode Thyristor

... all diffused PNP devices designed for operation in mA/ $\mu$ A signal or detection circuits.

- Low-Level Gate Characteristics —  $I_{GT} = 100 \mu\text{A}$  Max @  $25^\circ\text{C}$
- Low Holding Current —  $I_{HX} = 3 \text{ mA}$  Max @  $25^\circ\text{C}$
- Anode Common To Case
- Glass-to-Metal Bond for Maximum Hermetic Seal

**2N4213  
thru  
2N4219**

**SCRs  
1.6 AMPERES RMS  
50 thru 400 VOLTS**



**CASE 79-04  
(TO-205AD)  
STYLE 3**

**\*MAXIMUM RATINGS** ( $T_J = 125^\circ\text{C}$  unless otherwise noted.)

| Characteristic                                                                                       | Symbol                       | Rating                  | Unit             |
|------------------------------------------------------------------------------------------------------|------------------------------|-------------------------|------------------|
| Peak Repetitive Forward and Reverse Blocking Voltage, Note 1<br>2N4213<br>2N4214<br>2N4216<br>2N4219 | $V_{DRM}$<br>or<br>$V_{RRM}$ | 50<br>100<br>200<br>400 | Volts            |
| Forward Current RMS<br>(All Conduction Angles)                                                       | $I_T(\text{RMS})$            | 1.6                     | Amps             |
| Peak Surge Current<br>(One Cycle, 60 Hz)<br>No Repetition until Thermal Equilibrium is Restored      | $I_{TSM}$                    | 15                      | Amps             |
| Peak Gate Power — Forward                                                                            | $P_{GFM}$                    | 0.1                     | Watt             |
| Average Gate Power — Forward                                                                         | $P_{GF(AV)}$                 | 0.01                    | Watt             |
| Peak Gate Current — Forward                                                                          | $I_{GFM}$                    | 0.1                     | Amp              |
| Peak Gate Voltage — Forward<br>Reverse                                                               | $V_{GFM}$<br>$V_{GRM}$       | 6<br>6                  | Volts            |
| Operating Junction Temperature Range                                                                 | $T_J$                        | -65 to +125             | $^\circ\text{C}$ |
| Storage Temperature Range                                                                            | $T_{stg}$                    | -65 to +150             | $^\circ\text{C}$ |
| Lead Solder Temperature<br>( $>1/16"$ from case, 10 s max)                                           | —                            | +230                    | $^\circ\text{C}$ |

\*Indicates JEDEC Registered Values.

Note 1.  $V_{DRM}$  and  $V_{RRM}$  can be applied for all types on a continuous dc basis without incurring damage.

## 2N4213 thru 2N4219

ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$  unless otherwise noted,  $R_{GK} = 1000\text{ ohms.}$ ), Note 1

| Characteristic                                                                                                                                                                                                                                                                                   | Symbol             | Min                                        | Max           | Unit                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------|---------------|--------------------------------|
| *Peak Forward or Reverse Blocking Current<br>(Rated $V_{DRM}$ or $V_{RRM}$ , gate open)<br>$T_J = 25^\circ\text{C}$<br>$T_J = 125^\circ\text{C}$                                                                                                                                                 | $I_{DRM}, I_{RRM}$ | —<br>—                                     | 10<br>200     | $\mu\text{A}$<br>$\mu\text{A}$ |
| *Forward "On" Voltage<br>( $I_{TM} = 1\text{ A dc peak}$ )                                                                                                                                                                                                                                       | $V_{TM}$           | —                                          | 1.5           | Volts                          |
| Gate Trigger Current (Continuous dc), Note 2<br>( $V_D = 7\text{ V}$ , $R_L = 100\text{ ohms}$ )<br>( $T_C = 25^\circ\text{C}$ )<br>( $T_C = -65^\circ\text{C}$ )                                                                                                                                | $I_{GT}$           | —<br>—                                     | 100<br>300    | $\mu\text{A dc}$               |
| Gate Trigger Voltage (Continuous dc)<br>( $V_D = 7\text{ V}$ , $R_L = 100\text{ ohms}$ , $T_C = 25^\circ\text{C}$ )<br>*( $V_D = 7\text{ V}$ , $R_L = 100\text{ ohms}$ , $T_C = -65^\circ\text{C}$ )<br>*( $V_D = \text{Rated } V_{DRM}$ , $R_L = 100\text{ ohms}$ , $T_J = 125^\circ\text{C}$ ) | $V_{GT}$           | —<br>—<br>0.1                              | 0.8<br>1<br>— | Volt                           |
| Holding Current ( $V_D = 7\text{ V}$ )<br>$T_C = 25^\circ\text{C}$<br>* $T_C = -65^\circ\text{C}$                                                                                                                                                                                                | $I_{HX}$           |                                            | 3<br>7        | mA                             |
| Turn-On Time                                                                                                                                                                                                                                                                                     | $t_{on}$           | Circuit dependent,<br>consult manufacturer |               |                                |
| Turn-Off Time                                                                                                                                                                                                                                                                                    | $t_{off}$          |                                            |               |                                |

\*Indicates JEDEC Registered Values.

Notes: 1. Thyristor devices shall not be tested with a constant current source for forward or reverse blocking capability such that the voltage applied exceeds the rated blocking voltage.

Thyristor devices shall not have a positive bias applied to the gate concurrently with a negative potential applied to the anode.

2.  $R_{GK}$  current is not included in measurement.

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FIGURE 1 — CASE TEMPERATURE vs CURRENT

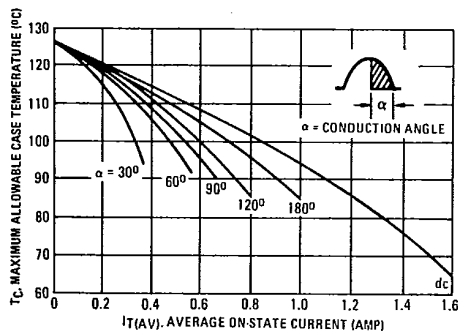


FIGURE 2 — AMBIENT TEMPERATURE vs CURRENT

