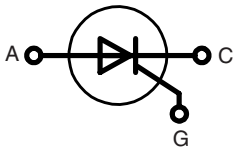
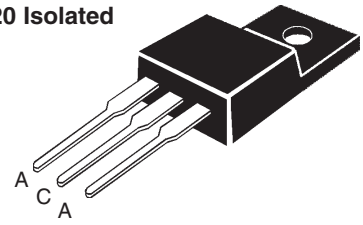
# Phase Control Thyristors
## Electrically Isolated Tab

$V_{RRM}$ = 800-1200 V
$I_{T(AV)M}$ = 16 A

| $V_{RSM}$ $V_{DSM}$ V | $V_{RRM}$ $V_{DRM}$ V | Type |
|---|---|---|
| 800 | 800 | CS 22-08io1M |
| 1200 | 1200 | CS 22-12io1M |




**TO-220 Isolated**




A = Anode, C = Cathode, G = Gate
Tab = Isolated

| Symbol | Conditions | | Maximum Ratings | |
|---|---|---|---|---|
| $I_{T(AV)M}$ | $T_C$ = 85°C 180° sine ① | | 16 | A |
| | $T_A$ = 25°C 180° sine ② | | 2.5 | A |
| $I_{TSM}$ | $T_{VJ}$ = 45°C | t = 10 ms (50 Hz), sine | 300 | A |
| | $V_R$ = 0 V | t = 8.3 ms (60 Hz), sine | 340 | A |
| | $T_{VJ}$ = $T_{VJM}$ | t = 10 ms (50 Hz), sine | 250 | A |
| | $V_R$ = 0 V | t = 8.3 ms (60 Hz), sine | 285 | A |
| $I^2t$ | $T_{VJ}$ = 45°C | t = 10 ms (50 Hz), sine | 450 | $A^2s$ |
| | $V_R$ = 0 V | t = 8.3 ms (60 Hz), sine | 480 | $A^2s$ |
| | $T_{VJ}$ = $T_{VJM}$ | t = 10 ms (50 Hz), sine | 300 | $A^2s$ |
| | $V_R$ = 0 V | t = 8.3 ms (60 Hz), sine | 337 | $A^2s$ |
| $(di/dt)_{cr}$ | $T_{VJ}$ = $T_{VJM}$ | repetitive, $I_T$ = 20 A | 150 | A/µs |
| | f = 50Hz, $t_P$ = 200µs | | | |
| | $V_D$ = $^2/_3$ $V_{DRM}$ | | | |
| | $I_G$ = 0.08 A | non repetitive, $I_T$ = $I_{T(AV)M}$ | 500 | A/µs |
| | $di_G/dt$ = 0.08 A/µs | | | |
| $(dv/dt)_{cr}$ | $T_{VJ}$ = $T_{VJM}$, $V_{DR}$ = $^2/_3$ $V_{DRM}$ | | 1000 | V/µs |
| | $R_{GK}$ = ∞, method 1 (linear voltage rise) | | | |
| $P_{GM}$ | $T_{VJ}$ = $T_{VJM}$ | $t_P$ = 30 µs | 10 | W |
| | $I_T$ = $I_{T(AV)M}$ | $t_P$ = 300 µs | 5 | W |
| $P_{GAV}$ | | | 0.5 | W |
| $V_{RGM}$ | | | 10 | V |
| $T_{VJ}$ | | | -40...+150 | °C |
| $T_{VJM}$ | | | 150 | °C |
| $T_{stg}$ | | | -40...+125 | °C |
| $M_d$ | Mounting torque | M 3 or UNC 4-40 | 0.5-0.8 | Nm |
| **Weight** | | | 3 | g |

① mounted on heatsink
② without heatsink

Data according to IEC 60747

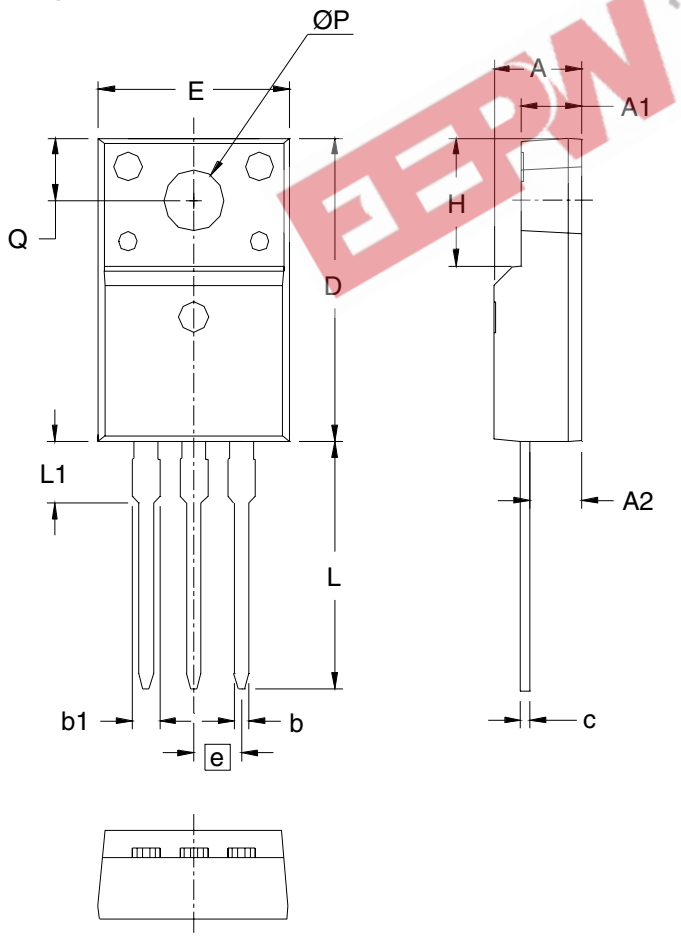
### Features
- Thyristor for frequencies up to 400Hz
- International standard package
- Epoxy meets UL 94V-0
- High performance glass passivated chip
- Long-term stability of leakage current and blocking voltage
- Plasitc overmolded tab for electrical isolation

### Applications
- Motor control
- Power converter
- AC power controller
- Light and temperature control
- SCR for inrush current limiting in power supplies or AC drive

### Advantages
- Space and weight savings
- Simple mounting

| Symbol | Conditions | | Characteristic Values | | |
|---|---|---|---|---|---|
| $I_R$, $I_D$ | $T_{VJ} = T_{VJM}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$ | | ≤ | 5 | mA |
| $V_T$ | $I_T$ = 30 A, $T_{VJ}$ = 25°C | | ≤ | 1.5 | V |
| $V_{T0}$ | For power-loss calculations only ($T_{VJ}$ = 150°C) | | | 0.9 | V |
| $r_T$ | | | | 18 | mΩ |
| $V_{GT}$ | $V_D$ = 6 V | $T_{VJ}$ = 25°C | ≤ | 1.5 | V |
| | | $T_{VJ}$ = -40°C | ≤ | 2.5 | V |
| $I_{GT}$ | $V_D$ = 6 V | $T_{VJ}$ = 25°C | ≤ | 30 | mA |
| | | $T_{VJ}$ = -40°C | ≤ | 50 | mA |
| $V_{GD}$ | $T_{VJ} = T_{VJM}$, $V_D = {}^2/_3 V_{DRM}$ | | ≤ | 0.2 | V |
| $I_{GD}$ | | | ≤ | 3 | mA |
| $I_L$ | $T_{VJ}$ = 25°C, $t_P$ = 10 µs<br>$I_G$ = 0.08 A, $di_G/dt$ = 0.08 A/µs | | ≤ | 100 | mA |
| $I_H$ | $T_{VJ}$ = 25°C, $V_D$ = 6 V, $R_{GK}$ = ∞ | | ≤ | 80 | mA |
| $t_{gd}$ | $T_{VJ}$ = 25°C, $V_D$ = ½ $V_{DRM}$<br>$I_G$ = 0.08 A, $di_G/dt$ = 0.08 A/µs | | ≤ | 2 | µs |
| $R_{thJC}$ | DC current | | | 2.5 | K/W |
| $R_{thCH}$ | DC current | | | 0.5 | K/W |
| $R_{thJA}$ | DC current | | | 50 | K/W |
| a | Max. acceleration, 50 Hz | | | 50 | $m/s^2$ |

**Package Outline**




| SYM | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | .177 | .193 | 4.50 | 4.90 |
| A1 | .092 | .108 | 2.34 | 2.74 |
| A2 | .101 | .117 | 2.56 | 2.96 |
| b | .028 | .035 | 0.70 | 0.90 |
| b1 | .050 | .058 | 1.27 | 1.47 |
| c | .018 | .024 | 0.45 | 0.60 |
| D | .617 | .633 | 15.67 | 16.07 |
| E | .392 | .408 | 9.96 | 10.36 |
| e | .100 BSC | | 2.54 BSC | |
| H | .255 | .271 | 6.48 | 6.88 |
| L | .499 | .523 | 12.68 | 13.28 |
| L1 | .119 | .135 | 3.03 | 3.43 |
| ØP | .121 | .129 | 3.08 | 3.28 |
| Q | .126 | .134 | 3.20 | 3.40 |

IXYS reserves the right to change limits, test conditions and dimensions

432