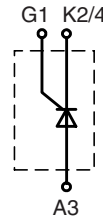# Single Thyristor Module
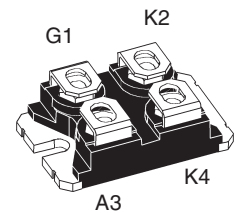
$I_{TRMS}$ = 49 A
$V_{RRM}$ = 1200-1600 V
$I_{TAV}$ = 31 A

Preliminary data

| $V_{RSM}$ $V_{DSM}$ | $V_{RRM}$ $V_{DRM}$ | Type |
|---|---|---|
| V | V | |
| 1200 | 1200 | MCO 25-12io1 |
| 1600 | 1600 | MCO 25-16io1 |

G1  K2/4

A3

**miniBLOC, SOT-227 B**



G1  K2
K4
A3

| Symbol | Conditions | | Maximum Ratings | |
|---|---|---|---|---|
| $I_{TRMS}$ | $T_{VJ} = T_{VJM}$ | | 49 | A |
| $I_{TAV}$ | $T_C = 80°C$; (180° sine) | | 31 | A |
| $I_{TSM}$ | $T_{VJ} = 45°C$; | t = 10 ms (50 Hz), sine | 370 | A |
| | $V_R = 0$ | t = 8.3 ms (60 Hz), sine | 400 | A |
| | $T_{VJ} = T_{VJM}$ | t = 10 ms (50 Hz), sine | 320 | A |
| | $V_R = 0$ | t = 8.3 ms (60 Hz), sine | 340 | A |
| $I^2t$ | $T_{VJ} = 45°C$ | t = 10 ms (50 Hz), sine | 680 | $A^2s$ |
| | $V_R = 0$ | t = 8.3 ms (60 Hz), sine | 670 | $A^2s$ |
| | $T_{VJ} = T_{VJM}$ | t = 10 ms (50 Hz), sine | 510 | $A^2s$ |
| | $V_R = 0$ | t = 8.3 ms (60 Hz), sine | 490 | $A^2s$ |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ f = 50 Hz, $t_P = 200 \mu s$ | repetitive, $I_T = 40$ A | 150 | A/μs |
| | $V_D = {}^2/_3\ V_{DRM}$ $I_G = 0.2$ A $di_G/dt = 0.2$ A/μs | non repetitive, $I_T = I_{TAVM}$ | 500 | A/μs |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$; $R_{GK} = \infty$; method 1 (linear voltage rise) | $V_{DR} = {}^2/_3\ V_{DRM}$ | 1000 | V/μs |
| $P_{GM}$ | $T_{VJ} = T_{VJM}$ | $t_p = 30 \mu s$ | 10 | W |
| | $I_T = I_{TAVM}$ | $t_p = 300 \mu s$ | 5 | W |
| $P_{GAVM}$ | | | 0.5 | W |
| $V_{RGM}$ | | | 10 | V |
| $T_{VJ}$ | | | -40...+150 | °C |
| $T_{VJM}$ | | | 150 | °C |
| $T_{stg}$ | | | -40...+150 | °C |
| $V_{ISOL}$ | 50/60 Hz, RMS; | $I_{ISOL} \leq 1$ mA | 2500 | V~ |
| $M_d$ | Mounting torque (M4) | | 1.1 - 1.5 / 9 - 13 | Nm/lb.in. |
| | Terminal connection torque (M4) | | 1.1 - 1.5 / 9 - 13 | Nm/lb.in. |
| Weight | typ. | | 30 | g |

Data according to IEC 60747 and to a single thyristor/diode unless otherwise stated.

**Features**

- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- Planar passivated chips

**Applications**

- Solid state switches
- motor control
- soft starter
- light and temperature control

**Advantages**

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling
- High power density

## IXYS

| Symbol | Conditions | | Characteristic Values | | |
|---|---|---|---|---|---|
| $I_{RRM/DRM}$ | $T_{VJ}$ = 125°C; $V_R$ = $V_{RRM}$; $V_D$ = $V_{DRM}$ | | $\leq$ | 2 | mA |
| $V_T$ | $I_T$ = 25; $T_{VJ}$ = 25°C | | $\leq$ | 1.25 | V |
| $V_{T0}$ | For power-loss calculations only | | | 0.85 | V |
| $r_T$ | | | | 14 | m$\Omega$ |
| $V_{GT}$ | $V_D$ = 6 V; | $T_{VJ}$ = 25°C | $\leq$ | 1.5 | V |
| | | $T_{VJ}$ = -40°C | $\leq$ | 1.2 | V |
| $I_{GT}$ | $V_D$ = 6 V; | $T_{VJ}$ = 25°C | $\leq$ | 55 | mA |
| | | $T_{VJ}$ = -40°C | $\leq$ | 80 | mA |
| $V_{GD}$ | $T_{VJ}$ = $T_{VJM}$; | $V_D$ = $^2/_3$ $V_{DRM}$ | $\leq$ | 0.2 | V |
| $I_{GD}$ | | | $\leq$ | 5 | mA |
| $I_L$ | $T_{VJ}$ = 25°C; $t_P$ = 10 µs | | $\leq$ | 450 | mA |
| | $I_G$ = 0.2 A; di$_G$/dt = 0.2 A/µs | | | | |
| $I_H$ | $T_{VJ}$ = 25°C; $V_D$ = 6 V; $R_{GK}$ = $\infty$ | | $\leq$ | 100 | mA |
| $t_{gd}$ | $T_{VJ}$ = 25°C; $V_D$ = ½ $V_{DRM}$ | | $\leq$ | 2 | µs |
| | $I_G$ = 0.2 A; di$_G$/dt = 0.2 A/µs | | | | |
| $t_q$ | $T_{VJ}$ = $T_{VJM}$; $I_T$ = 11 A, $t_P$ = 200 µs; di/dt = -10 A/µs | | typ. | 150 | µs |
| | $V_R$ = 100 V; dv/dt = 15 V/µs; $V_D$ = $^2/_3$ $V_{DRM}$ | | | | |
| $R_{thJC}$ | DC current | | | 1.1 | K/W |
| $R_{thCH}$ | DC current | | typ. | 0.5 | K/W |
| $d_S$ | Creeping distance on surface | | | 8 | mm |
| $d_A$ | Creepage distance in air | | | 4 | mm |
| a | Max. allowable acceleration | | | 50 | m/s$^2$ |

**miniBLOC, SOT-227 B**



Mutter M4 DIN934
Linsenschraube M4x8
DIN 7985
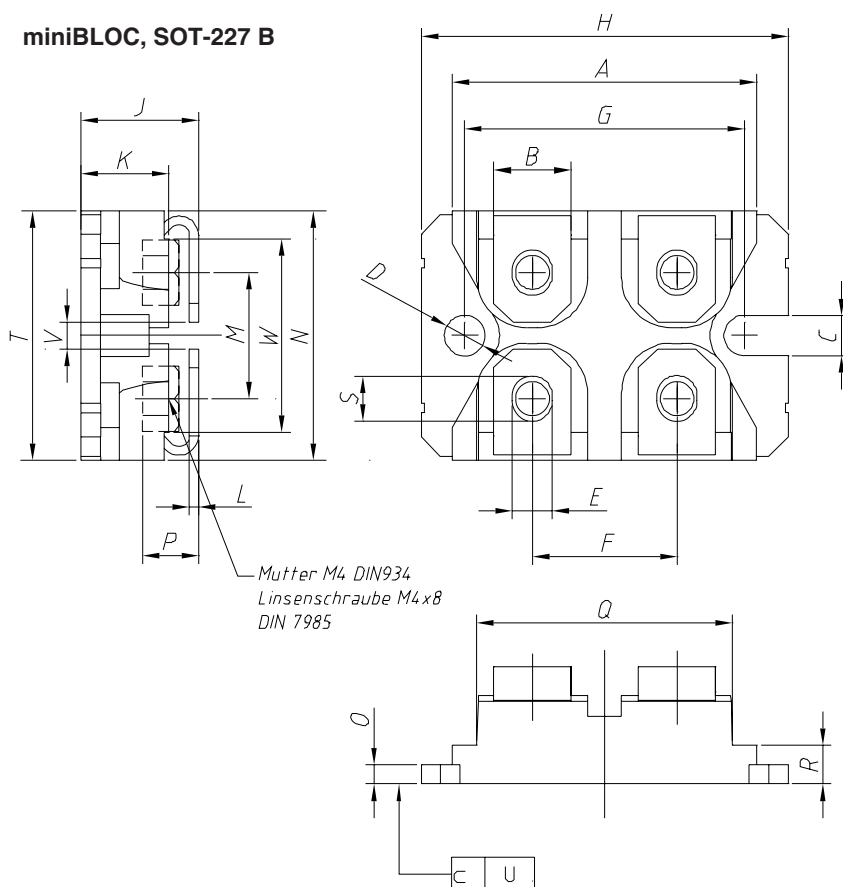
M4 screws (4x) supplied

| Dim. | Millimeter | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 31.50 | 31.88 | 1.240 | 1.255 |
| B | 7.80 | 8.20 | 0.307 | 0.323 |
| C | 4.09 | 4.29 | 0.161 | 0.169 |
| D | 4.09 | 4.29 | 0.161 | 0.169 |
| E | 4.09 | 4.29 | 0.161 | 0.169 |
| F | 14.91 | 15.11 | 0.587 | 0.595 |
| G | 30.12 | 30.30 | 1.186 | 1.193 |
| H | 37.80 | 38.23 | 1.489 | 1.505 |
| J | 11.68 | 12.22 | 0.460 | 0.481 |
| K | 8.92 | 9.60 | 0.351 | 0.378 |
| L | 0.76 | 0.84 | 0.030 | 0.033 |
| M | 12.60 | 12.85 | 0.496 | 0.506 |
| N | 25.15 | 25.42 | 0.990 | 1.001 |
| O | 1.98 | 2.13 | 0.078 | 0.084 |
| P | 4.95 | 5.97 | 0.195 | 0.235 |
| Q | 26.54 | 26.90 | 1.045 | 1.059 |
| R | 3.94 | 4.42 | 0.155 | 0.174 |
| S | 4.72 | 4.85 | 0.186 | 0.191 |
| T | 24.59 | 25.07 | 0.968 | 0.987 |
| U | -0.05 | 0.1 | -0.002 | 0.004 |
| V | 3.30 | 4.57 | 0.130 | 0.180 |
| W | 0.780 | 0.830 | 19.81 | 21.08 |

IXYS reserves the right to change limits, Conditions and dimensions.

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