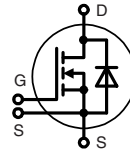


CoolMOS™ 1) Power MOSFET

N-Channel Enhancement Mode
Low $R_{DS(on)}$, High V_{DSS} MOSFET

Preliminary data

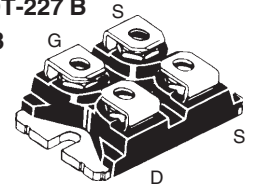


| | | |
|--------------|-------------|--------------|
| V_{DSS} | I_{D25} | $R_{DS(on)}$ |
| 600 V | 40 A | 70 mΩ |

miniBLOC, SOT-227 B



E72873



G = Gate D = Drain S = Source

Either source terminal at miniBLOC can be used as main or kelvin source

| MOSFET | | | |
|-----------|---|-----------------|------|
| Symbol | Conditions | Maximum Ratings | |
| V_{DSS} | $T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$ | 600 | V |
| V_{GS} | | ±20 | V |
| I_{D25} | $T_C = 25^{\circ}\text{C}$ | 40 | A |
| I_{D90} | $T_C = 90^{\circ}\text{C}$ | 27 | A |
| dv/dt | $V_{DS} < V_{DSS}; I_F \leq 47 \text{ A}; di_F/dt \leq 100 \text{ A}/\mu\text{s}$ $T_{VJ} = 150^{\circ}\text{C}$ | 6 | V/ns |
| E_{AS} | $I_D = 10 \text{ A}; L = 36 \text{ mH}; T_C = 25^{\circ}\text{C}$ | 1.8 | J |
| E_{AR} | $I_D = 20 \text{ A}; L = 5 \mu\text{H}; T_C = 25^{\circ}\text{C}$ | 1 | mJ |

Features

- miniBLOC package
 - Electrically isolated copper base
 - Low coupling capacitance to the heatsink for reduced EMI
 - International standard package SOT-227
 - Easy screw assembly
- fast CoolMOS™ 1) power MOSFET 3rd generation
 - High blocking capability
 - Low on resistance
 - Avalanche rated for unclamped inductive switching (UIS)
 - Low thermal resistance due to reduced chip thickness
- Enhanced total power density

Applications

- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating

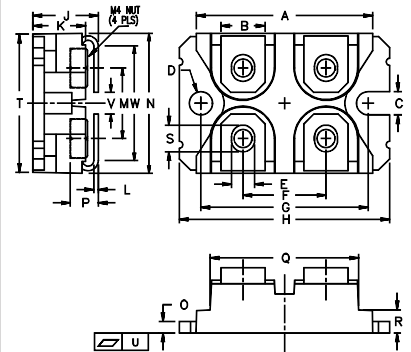
¹⁾ CoolMOS™ is a trademark of Infineon Technologies AG.

| Symbol | Conditions | Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified) | | |
|---|---|--|------|-------------|
| | | min. | typ. | max. |
| $R_{DS(on)}$ | $V_{GS} = 10 \text{ V}; I_D = 0.5 \cdot I_{D25}$ | | 60 | 70 mΩ |
| $V_{GS(th)}$ | $V_{DS} = 20 \text{ V}; I_D = 2.5 \text{ mA};$ | 2.1 | | 3.9 V |
| I_{DSS} | $V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | | 50 | 25 μA μA |
| I_{GSS} | $V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$ | | | 100 nA |
| Q_g Q_{gs} Q_{gd} | } $V_{GS} = 10 \text{ V}; V_{DS} = 350 \text{ V}; I_D = 50 \text{ A}$ | | 250 | nC |
| | | | 25 | nC |
| | | | 120 | nC |
| $t_{d(on)}$ t_r $t_{d(off)}$ t_f | } $V_{GS} = 10 \text{ V}; V_{DS} = 380 \text{ V};$ $I_D = 50 \text{ A}; R_G = 1.8 \Omega$ | | 20 | ns |
| | | | 30 | ns |
| | | | 110 | ns |
| | | | 10 | ns |
| V_F | (reverse conduction) $I_F = 20 \text{ A}; V_{GS} = 0 \text{ V}$ | | 0.9 | 1.1 V |
| R_{thJC} | | | | 0.43 K/W |

Component

| Symbol | Conditions | Maximum Ratings | |
|------------|--|-----------------|----|
| V_{ISOL} | $I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$ | 2500 | V~ |
| T_{VJ} | | -40...+150 | °C |
| T_{stg} | | -40...+150 | °C |
| M_d | mounting torque | 1.5 | Nm |
| | terminal connection torque (M4) | 1.5 | Nm |

| Symbol | Conditions | Characteristic Values | | |
|---------------|------------------------|-----------------------|------|------|
| | | min. | typ. | max. |
| R_{thCH} | with heatsink compound | | 0.05 | K/W |
| Weight | | | 30 | g |

miniBLOC, SOT-227 B


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 | 38.20 | 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 | 0.031 | 0.033 |



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.