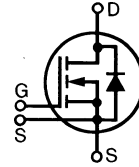


CoolMOS Power MOSFET

IXKN 40N60C

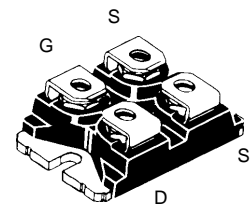
| | | |
|--------------|-------------|--------------|
| V_{DSS} | I_{D25} | $R_{DS(on)}$ |
| 600 V | 40 A | 70 mΩ |

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



COOLMOS
Power Semiconductors

| Symbol | Conditions | Maximum Ratings | |
|------------|---|-----------------|------------------|
| V_{DSS} | $T_J = 25^\circ\text{C}$ to 150°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 |
| E_{AR} | $I_D = 20\text{ A}$, $L = 5\ \mu\text{H}$, $T_{VJ} = 25^\circ\text{C}$, repetitive | 1 | mJ |
| E_{AS} | $I_D = 10\text{ A}$, $L = 36\text{ mH}$, $T_{VJ} = 25^\circ\text{C}$, non repetitive | 1.8 | J |
| dv/dt | $V_{DS} \leq V_{DSS}$, $I_S = 47\text{ A}$, $di_S/dt = 100\text{ A}/\mu\text{s}$, $T_J = T_{JM}$ | 6 | V/ns |
| P_D | $T_C = 25^\circ\text{C}$ | 290 | W |
| T_J | | -40 ... +150 | $^\circ\text{C}$ |
| T_{JM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -40 ... +150 | $^\circ\text{C}$ |
| V_{ISOL} | 50/60 Hz, RMS $I_{ISOL} \leq 1\text{ mA}$ | 2500 | V~ |
| M_d | Mounting torque | 1.5/13 | Nm/lb.in. |
| | Terminal connection torque (M4) | 1.5/13 | Nm/lb.in. |

miniBLOC, SOT-227 B
E72873


G = Gate
S = Source
D = Drain

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

Features

- miniBLOC package
 - Electrically isolated copper base
 - Low coupling capacitance to the heatsink for reduced EMI
 - High power dissipation due to AlN ceramic substrate
 - International standard package SOT-227
 - Easy screw assembly
- Fast CoolMOS power MOSFET
 - 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

MOSFET

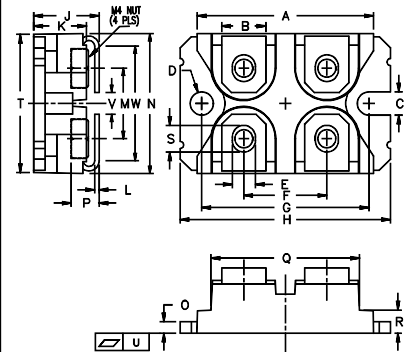
| Symbol | Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|---|---|---|---|
| | | min. | typ. | max. |
| V_{DSS} | $V_{GS} = 0\text{ V}$, $I_D = 1\text{ mA}$ | 600 | | V |
| I_{DSS} | $V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0\text{ V}$ | | $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ | 0.5 25 50 μA μA |
| $R_{DS(on)}$ | $V_{GS} = 10\text{ V}$, $I_D = 0.5 \cdot I_{D25}$ | | | 70 mΩ |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = 2.5\text{ mA}$ | 3.5 | | 5.5 V |
| I_{GSS} | $V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$ | | | ± 100 nA |

CoolMOS is a trademark of
Infineon Technologies AG.

| Symbol | Conditions | Characteristic Values | | |
|---------------------------|---|---|------|------|
| | | (T _J = 25°C, unless otherwise specified) | | |
| | | min. | typ. | max. |
| g_{fs} | V _{DS} = 10 V; I _D = 0.5 • I _{D25} | | 30 | S |
| C_{iss} | V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz | | 8.8 | nF |
| C_{oss} | | | 3.15 | nF |
| C_{rss} | | | 36 | pF |
| Q_{g(on)} | V _{GS} = 10 V, V _{DS} = 350 V, I _D = I _{D25} | | 220 | nC |
| Q_{gs} | | | 56 | nC |
| Q_{gd} | | | 123 | nC |
| t_{d(on)} | V _{GS} = 10 V, V _{DS} = 350 V, I _D = 0.5 • I _{D25} R _G = 1.8 Ω (External) | | 28 | ns |
| t_r | | | 95 | ns |
| t_{d(off)} | | | 100 | ns |
| t_f | | | 10 | ns |
| R_{thJC} | | | 0.43 | K/W |
| R_{thCK} | | 0.05 | | K/W |

| Symbol | Conditions | Characteristic Values | | |
|-----------------------|--|---|------|-------|
| | | (T _J = 25°C, unless otherwise specified) | | |
| | | min. | typ. | max. |
| V_{SD} | I _F = 0.5 • I _{D25} , V _{GS} = 0 V | | 0.9 | 1.1 V |
| t_{rr} | I _F = 47 A, -di/dt = 100 A/μs, V _R = 350 V, T _J = 25°C | | 650 | ns |
| I_{RM} | | | 110 | A |

| Symbol | Conditions | Characteristic Values | | |
|---------------|------------|-----------------------|------|------|
| | | min. | typ. | max. |
| 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 | 0.030 | 0.032 |