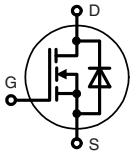
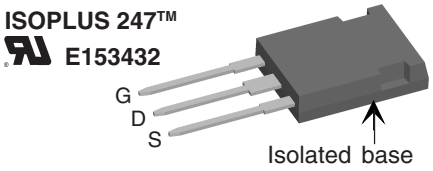
# CoolMOS™ [1] Power MOSFET in ISOPLUS247™ Package

| $V_{DSS}$ | $I_{D25}$ | $R_{DS(on)}$ |
|---|---|---|
| 600 V | 38 A | 70 mΩ |

N-Channel Enhancement Mode
Low $R_{DSon}$, High $V_{DSS}$ MOSFET
Package with Electrically Isolated Base

Preliminary data




G = Gate D = Drain S = Source

**MOSFET**

| Symbol | Conditions | Maximum Ratings | |
|---|---|---|---|
| $V_{DSS}$ | $T_{VJ}$ = 25°C to 150°C | 600 | V |
| $V_{GS}$ | | ±20 | V |
| $I_{D25}$ | $T_C$ = 25°C | 38 | A |
| $I_{D90}$ | $T_C$ = 90°C | 25 | A |
| dv/dt | $V_{DS} < V_{DSS}$; $I_F \le 50A$; $\lvert di_F/dt \rvert \le 100A/\mu s$; $T_{VJ}$ = 150°C | 6 | V/ns |
| $E_{AS}$ | $I_D$ = 10 A; L = 36 mH; $T_C$ = 25°C | 1.8 | J |
| $E_{AR}$ | $I_D$ = 20 A; L = 5 µH; $T_C$ = 25°C | 1 | mJ |

| Symbol | Conditions | Characteristic Values ($T_{VJ}$ = 25°C, unless otherwise specified) min. | typ. | max. | |
|---|---|---|---|---|---|
| $R_{DSon}$ | $V_{GS}$ = 10 V; $I_D = I_{D90}$ | | | 70 | mΩ |
| $V_{GSth}$ | $V_{DS}$ = 20 V; $I_D$ = 3 mA; | 2.1 | | 3.9 | V |
| $I_{DSS}$ | $V_{DS} = V_{DSS}$; $V_{GS}$ = 0 V; $T_{VJ}$ = 25°C | | | 25 | µA |
| | $T_{VJ}$ = 125°C | | 60 | | µA |
| $I_{GSS}$ | $V_{GS}$ = ±20 V; $V_{DS}$ = 0 V | | | 100 | nA |
| $Q_g$ | $V_{GS}$= 10 V; $V_{DS}$ = 350 V; $I_D$ = 50 A | | 250 | | nC |
| $Q_{gs}$ | | | 25 | | nC |
| $Q_{gd}$ | | | 120 | | nC |
| $t_{d(on)}$ | $V_{GS}$= 10 V; $V_{DS}$ = 380 V; $I_D$ = 50 A; $R_G$ = 1.8 Ω | | 20 | | ns |
| $t_r$ | | | 30 | | ns |
| $t_{d(off)}$ | | | 110 | | ns |
| $t_f$ | | | 10 | | ns |
| $V_F$ | (reverse conduction) $I_F$ = 20 A; $V_{GS}$ = 0 V | | 0.9 | 1.1 | V |
| $R_{thJC}$ | | | | 0.45 | K/W |

### Features

- ISOPLUS247™ package with DCB Base
  - Electrical isolation towards the heatsink
  - Low coupling capacitance to the heatsink for reduced EMI
  - High power dissipation
  - High temperature cycling capability of chip on DCB
  - JEDEC TO-247AD compatible
  - Easy clip 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.



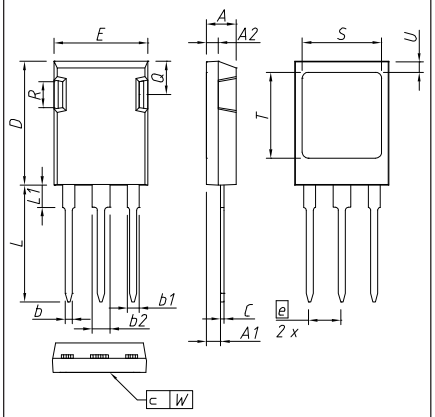
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## Component

| Symbol | Conditions | Maximum Ratings | |
|---|---|---|---|
| $V_{ISOL}$ | $I_{ISOL} \leq 1$ mA; 50/60 Hz | 2500 | V~ |
| $T_{VJ}$ | | -40...+150 | °C |
| $T_{stg}$ | | -40...+125 | °C |
| $T_L$ | 1.6 mm from case for 10 s | 300 | °C |
| $F_C$ | mounting force with clip | 20 ... 120 | N |

| Symbol | Conditions | Characteristic Values min. | typ. | max. |
|---|---|---|---|---|
| $C_p$ | coupling capacity between shorted pins and mounting tab in the case | | 30 | pF |
| $R_{thCH}$ | with heatsink compound | | 0.25 | K/W |
| **Weight** | | | 6 | g |

**ISOPLUS247™ OUTLINE**




| DIM. | MILLIMETER | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | 4,83 | 5,21 | 0,190 | 0,205 |
| A1 | 2,29 | 2,54 | 0,090 | 0,100 |
| A2 | 1,91 | 2,16 | 0,075 | 0,085 |
| b | 1,14 | 1,40 | 0,045 | 0,055 |
| b1 | 1,91 | 2,15 | 0,075 | 0,085 |
| b2 | 2,92 | 3,20 | 0,115 | 0,126 |
| C | 0,61 | 0,83 | 0,024 | 0,033 |
| D | 20,80 | 21,34 | 0,819 | 0,840 |
| E | 15,75 | 16,13 | 0,620 | 0,635 |
| e | 5,45 BSC | | 0,215 BSC | |
| L | 19,81 | 20,60 | 0,780 | 0,811 |
| L1 | 3,81 | 4,38 | 0,150 | 0,172 |
| Q | 5,59 | 6,20 | 0,220 | 0,244 |
| R | 4,32 | 4,85 | 0,170 | 0,191 |
| S | 13,21 | 13,72 | 0,520 | 0,540 |
| T | 15,75 | 16,26 | 0,620 | 0,640 |
| U | 1,65 | 2,03 | 0,065 | 0,080 |
| W | - | 0,10 | - | 0,004 |

The convex bow of substrate is typ. < 0.04 mm over plastic surface level of device bottom side
This drawing will meet all dimensions requirement of JEDEC outline TO-247 AD except screw hole and except Lmax.



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