

# CoolMOS Power MOSFET ISOPLUS220™

## Electrically Isolated Back Surface

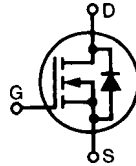
N-Channel Enhancement Mode  
Low  $R_{DS(on)}$ , High Voltage MOSFET

**IXKC 13N80C**

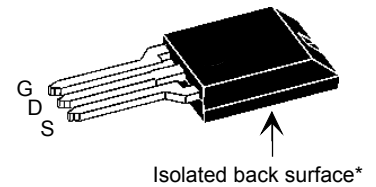
$$V_{DSS} = 800 \text{ V}$$

$$I_{D25} = 13 \text{ A}$$

$$R_{DS(on)} = 290 \text{ m}\Omega$$



| Symbol        | Test Conditions   | Maximum Ratings        |                  |
|---------------|---|------------------------|------------------|
| $V_{DSS}$     | $T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$   | 800                    | V                |
| $V_{GS}$      | Continuous  | $\pm 20$               | V                |
| $I_{D25}$     | $T_C = 25^\circ\text{C}$ ; Note 1   | 13                     | A                |
| $I_{D90}$     | $T_C = 90^\circ\text{C}$ ; Note 1   | 9                      | A                |
| $I_{D(RMS)}$  | Package lead current limit  | 45                     | A                |
| $E_{AS}$      | $I_D = 4\text{A}$ , $T_C = 25^\circ\text{C}$  | 670                    | mJ               |
| $E_{AR}$      | $I_D = 10\text{A}$  | 0.5                    | mJ               |
| $dv/dt$       | $V_{DS} < V_{DSS}$ , $I_F \leq 17\text{A}$ , $T_{VJ} = 150^\circ\text{C}$<br>$d_s/dt = 100\text{A}/\mu\text{s}$ | 6                      | V/ns             |
| $P_D$         | $T_C = 25^\circ\text{C}$  | 125                    | W                |
| $T_J$         |   | -55 ... +150           | $^\circ\text{C}$ |
| $T_{JM}$      |   | 150                    | $^\circ\text{C}$ |
| $T_{stg}$     |   | -55 ... +125           | $^\circ\text{C}$ |
| $T_L$         | 1.6 mm (0.062 in.) from case for 10 s   | 300                    | $^\circ\text{C}$ |
| $V_{ISOL}$    | RMS leads-to-tab, 50/60 Hz, $t = 1$ minute  | 2500                   | V~               |
| $F_c$         | Mounting force  | 11 ... 65 / 2.4 ... 11 | N/lb             |
| <b>Weight</b> |   | 2                      | g                |

**ISOPLUS 220™**


G = Gate, D = Drain,  
S = Source

\* Patent pending

**Features**

- Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
- 3<sup>RD</sup> generation CoolMOS power MOSFET
  - High blocking capability
  - Low on resistance
  - Avalanche rated for unclamped inductive switching (UIS)
- Low thermal resistance due to reduced chip thickness
- Low drain to tab capacitance (<30pF)

**Applications**

- Switched Mode Power Supplies (SMPS)
- Uninterruptible Power Supplies (UPS)
- Power Factor Correction (PFC)
- Welding
- Inductive Heating

**Advantages**

- Easy assembly: no screws or isolation foils required
- Space savings
- High power density

| Symbol       | Test Conditions  | Characteristic Values<br>( $T_J = 25^\circ\text{C}$ , unless otherwise specified) |            |              |
|--------------|--|---|------------|--------------|
|              |  | min.  | typ.       | max.         |
| $R_{DS(on)}$ | $V_{GS} = 10\text{V}$ , $I_D = I_{D90}$ , Note 3<br>$V_{GS} = 10\text{V}$ , $I_D = I_{D90}$ , Note 3 $T_J = 125^\circ\text{C}$ |   | 250<br>550 | mΩ<br>mΩ     |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$ , $I_D = 1\text{mA}$   | 2   |            | 4 V          |
| $I_{DSS}$    | $V_{DS} = V_{DSS}$ , $T_J = 25^\circ\text{C}$<br>$V_{GS} = 0\text{V}$ , $T_J = 125^\circ\text{C}$                              |   | 125        | 25 μA<br>μA  |
| $I_{GSS}$    | $V_{GS} = \pm 20\text{V}_{DC}$ , $V_{DS} = 0$  |   |            | $\pm 100$ nA |

COOLMOS is a trademark of Infineon Technology.

