

CDMS24740-120

**SILICON CARBIDE  
N-CHANNEL MOSFET**



**TO-247 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CDMS24740-120 is an N-channel silicon carbide MOSFET designed for high speed switching and fast reverse recovery applications.

**MARKING: CENTRAL**

**CDMS247**

**40-120**

**MAXIMUM RATINGS:** ( $T_J=25^{\circ}\text{C}$ )

Drain-Source Voltage  
Gate-Source Voltage  
Continuous Drain Current  
Pulsed Drain Current  
Operating and Storage Junction Temperature  
Continuous Power

**SYMBOL**

| SYMBOL         |             | UNITS              |
|----------------|-------------|--------------------|
| $V_{DS}$       | 1200        | V                  |
| $V_{GS}$       | 20          | V                  |
| $I_D$          | 26          | A                  |
| $I_{DM}$       | 40          | A                  |
| $T_J, T_{stg}$ | -55 to +175 | $^{\circ}\text{C}$ |
| $P_D$          | 28          | W                  |

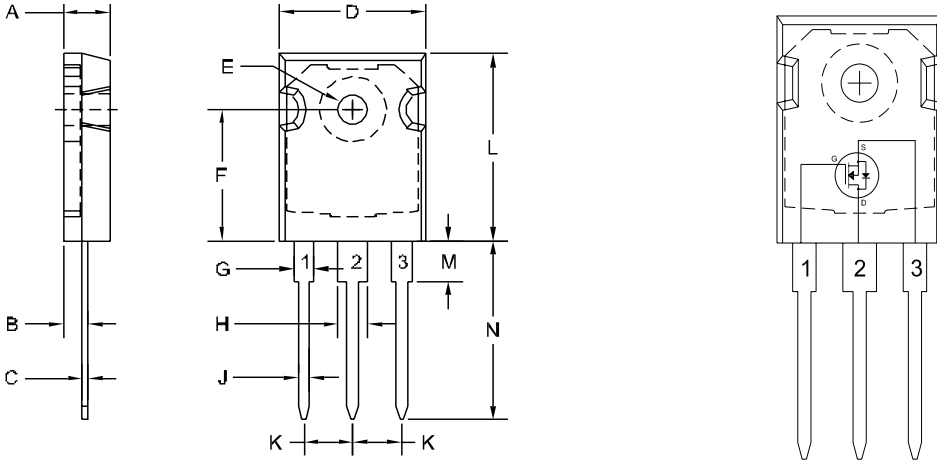
**ELECTRICAL CHARACTERISTICS:** ( $T_J=25^{\circ}\text{C}$ )

| SYMBOL       | TEST CONDITIONS  | MIN | TYP | MAX | UNITS         |
|--------------|--|-----|-----|-----|---------------|
| $I_{DSS}$    | $V_{DS}=1.2\text{kV}, V_{GS}=0\text{V}$                  |     | 13  |     | nA            |
| $I_{GSS}$    | $V_{GS}=15\text{V}, V_{DS}=0\text{V}$                    |     | 50  |     | pA            |
| $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=5\text{mA}$                          |     | 2.5 |     | V             |
| $r_{DS(ON)}$ | $V_{GS}=15\text{V}, I_D=8\text{A}$                       |     | 40  |     | m $\Omega$    |
| $V_F$        | $I_{DS}=8\text{A}$                                       |     | 3.5 |     | V             |
| $G_m$        | $V_{DS}=10\text{V}, I_{DS}=8\text{A}$                    |     | 10  |     | S             |
| $C_{iss}$    | $V_{DS}=200\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$  |     | 1.7 |     | nF            |
| $C_{oss}$    | $V_{DS}=200\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$  |     | 160 |     | pF            |
| $C_{rss}$    | $V_{DS}=200\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$  |     | 30  |     | pF            |
| $E_{oss}$    | $V_{GS}=15\text{V}, V_{DS}=200\text{V}, f=1.0\text{MHz}$ |     | 14  |     | $\mu\text{J}$ |
| $E_{on}$     | $V_{GS}=15\text{V}, V_{DS}=200\text{V}, f=1.0\text{MHz}$ |     | 150 |     | $\mu\text{J}$ |
| $E_{off}$    | $V_{GS}=15\text{V}, V_{DS}=200\text{V}, f=1.0\text{MHz}$ |     | 32  |     | $\mu\text{J}$ |
| $t_r$        | $V_{GS}=15\text{V}, V_{DS}=960, I_D=8\text{A}$           |     | 30  |     | ns            |
| $t_f$        | $V_{GS}=15\text{V}, V_{DS}=960, I_D=8\text{A}$           |     | 20  |     | ns            |
| $t_{d(on)}$  | $V_{GS}=15\text{V}, V_{DS}=960, I_D=8\text{A}$           |     | 30  |     | ns            |
| $t_{d(off)}$ | $V_{GS}=15\text{V}, V_{DS}=960, I_D=8\text{A}$           |     | 50  |     | ns            |
| $R_G$        | $f=1\text{MHz}$  |     | 3.0 |     | $\Omega$      |

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TO-247 CASE - MECHANICAL OUTLINE



**LEAD CODE:**

- 1) Gate
- 2) Drain
- 3) Source

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| SYMBOL  | DIMENSIONS |       |             |       |
|---------|------------|-------|-------------|-------|
|         | INCHES     |       | MILLIMETERS |       |
|         | MIN        | MAX   | MIN         | MAX   |
| A       | 0.184      | 0.211 | 4.68        | 5.36  |
| B       | 0.087      | 0.110 | 2.20        | 2.80  |
| C       | 0.019      | 0.028 | 0.48        | 0.70  |
| D       | 0.606      | 0.638 | 15.38       | 16.20 |
| E (DIA) | 0.128      | 0.144 | 3.25        | 3.65  |
| F       | 0.583      | 0.607 | 14.81       | 15.42 |
| G       | 0.072      | 0.097 | 1.82        | 2.46  |
| H       | 0.115      | 0.127 | 2.92        | 3.23  |
| J       | 0.035      | 0.060 | 0.89        | 1.53  |
| K       | 0.207      | 0.223 | 5.26        | 5.66  |
| L       | 0.812      | 0.881 | 20.63       | 22.38 |
| M       | 0.145      | 0.177 | 3.68        | 4.50  |
| N       | 0.728      | 0.846 | 18.50       | 21.50 |

TO-247 (REV: R3)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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