

CMPDM7003
SURFACE MOUNT SILICON
N-CHANNEL
ENHANCEMENT-MODE
MOSFET



SOT-23 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPDM7003 is an N-Channel enhancement-mode MOSFET manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications. This MOSFET offers low $r_{DS(ON)}$ and ESD protection up to 2kV.

MARKING CODE: C7003

FEATURES:

- ESD protection up to 2kV
- Low $r_{DS(ON)}$
- Low $V_{DS(ON)}$
- Low threshold voltage
- Fast switching
- Logic level compatibility

APPLICATIONS:

- Load/Power switches
- Power supply converter circuits
- Battery powered portable equipment

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

| |
|--|
| Drain-Source Voltage |
| Drain-Gate Voltage |
| Gate-Source Voltage |
| Continuous Drain Current |
| Maximum Pulsed Drain Current |
| Power Dissipation |
| Operating and Storage Junction Temperature |
| Thermal Resistance |

SYMBOL

| | |
|----------------|-------------|
| V_{DS} | 50 |
| V_{DG} | 50 |
| V_{GS} | 12 |
| I_D | 280 |
| I_{DM} | 1.5 |
| P_D | 350 |
| T_J, T_{stg} | -65 to +150 |
| θ_{JA} | 357 |

UNITS

| |
|--------------------|
| V |
| V |
| V |
| mA |
| A |
| mW |
| $^\circ\text{C}$ |
| $^\circ\text{C/W}$ |

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|----------------------|---|------|-------|-----|---------------|
| I_{GSSF}, I_{GSSR} | $V_{GS}=5.0\text{V}$ | | | 100 | nA |
| I_{GSSF}, I_{GSSR} | $V_{GS}=10\text{V}$ | | | 2.0 | μA |
| I_{GSSF}, I_{GSSR} | $V_{GS}=12\text{V}$ | | | 2.0 | μA |
| I_{DSS} | $V_{DS}=50\text{V}, V_{GS}=0$ | | | 50 | nA |
| BV_{DSS} | $V_{GS}=0, I_D=10\mu\text{A}$ | 50 | | | V |
| $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ | 0.49 | | 1.0 | V |
| V_{SD} | $V_{GS}=0, I_S=115\text{mA}$ | | | 1.4 | V |
| $r_{DS(ON)}$ | $V_{GS}=1.8\text{V}, I_D=50\text{mA}$ | | 1.6 | 3.0 | Ω |
| $r_{DS(ON)}$ | $V_{GS}=2.5\text{V}, I_D=50\text{mA}$ | | 1.3 | 2.5 | Ω |
| $r_{DS(ON)}$ | $V_{GS}=5.0\text{V}, I_D=50\text{mA}$ | | 1.1 | 2.0 | Ω |
| g_{FS} | $V_{DS}=10\text{V}, I_D=200\text{mA}$ | 200 | | | mS |
| C_{rss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | | 5.0 | pF |
| C_{iss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | | 60 | pF |
| C_{oss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | | 25 | pF |
| $Q_g(\text{tot})$ | $V_{DS}=25\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$ | | 0.764 | | nC |
| Q_{gs} | $V_{DS}=25\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$ | | 0.148 | | nC |
| Q_{gd} | $V_{DS}=25\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$ | | 0.156 | | nC |

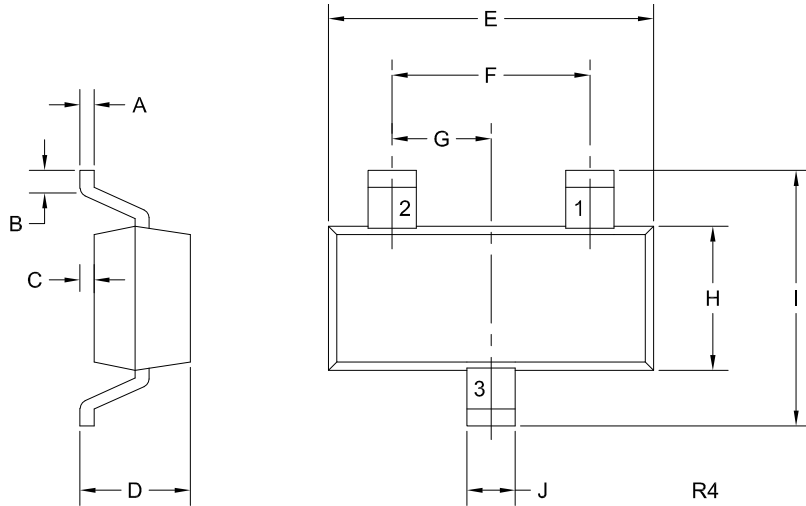
R3 (28-September 2021)

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SOT-23 CASE - MECHANICAL OUTLINE



LEAD CODE:

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

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| DIMENSIONS | | | | |
|------------|--------|-------|-------------|------|
| SYMBOL | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.003 | 0.007 | 0.08 | 0.18 |
| B | 0.006 | - | 0.15 | - |
| C | - | 0.005 | - | 0.13 |
| D | 0.035 | 0.044 | 0.89 | 1.12 |
| E | 0.110 | 0.120 | 2.80 | 3.05 |
| F | 0.075 | | 1.90 | |
| G | 0.037 | | 0.95 | |
| H | 0.047 | 0.055 | 1.19 | 1.40 |
| I | 0.083 | 0.104 | 2.10 | 2.64 |
| J | 0.014 | 0.020 | 0.35 | 0.50 |

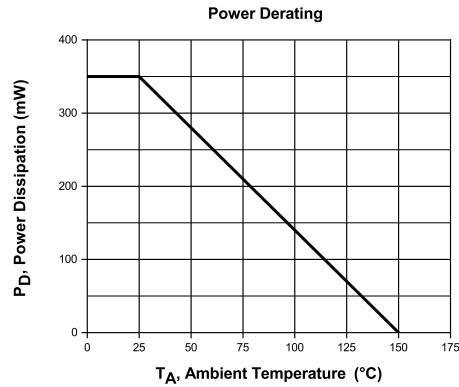
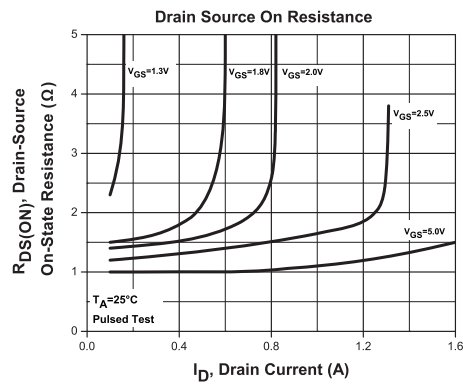
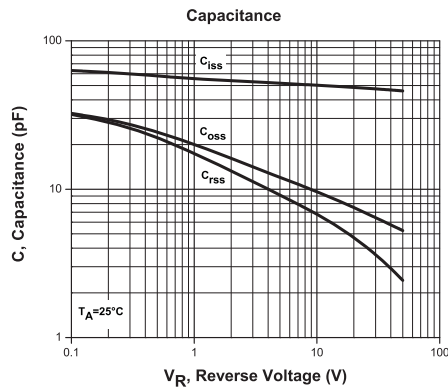
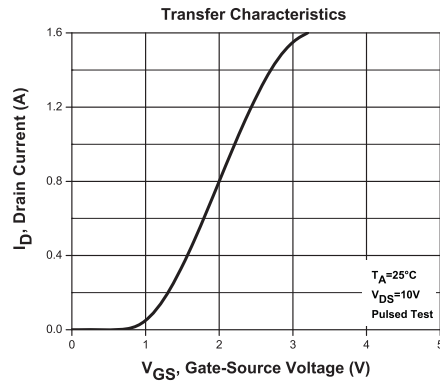
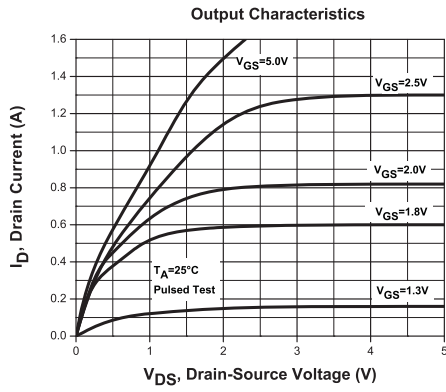
SOT-23 (REV: R4)

R3 (28-September 2021)

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TYPICAL ELECTRICAL CHARACTERISTICS



R3 (28-September 2021)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

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