

CMPDM7002A
CMPDM7002AG*

SURFACE MOUNT SILICON
N-CHANNEL
ENHANCEMENT-MODE
MOSFET



SOT-23 CASE

* Device is *Halogen Free* by design



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPDM7002A and CMPDM7002AG are special versions of the 2N7002 enhancement-mode N-Channel MOSFET manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications. These special devices offer low $r_{DS(ON)}$ and low $V_{DS(ON)}$.

**MARKING CODES: CMPDM7002A: C702A
CMPDM7002AG*: 702G**

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

Drain-Source Voltage
Drain-Gate Voltage
Gate-Source Voltage
Continuous Drain Current
Continuous Source Current (Body Diode)
Maximum Pulsed Drain Current
Maximum Pulsed Source Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL

V_{DS} 60
 V_{DG} 60
 V_{GS} 40
 I_D 280
 I_S 280
 I_{DM} 1.5
 I_{SM} 1.5
 P_D 350
 T_J, T_{stg} -65 to +150
 θ_{JA} 357

UNITS

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

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

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|----------------------|--|-----|------|---------------|
| I_{GSSF}, I_{GSSR} | $V_{GS}=20\text{V}, V_{DS}=0$ | | 100 | nA |
| I_{DSS} | $V_{DS}=60\text{V}, V_{GS}=0$ | | 1.0 | μA |
| I_{DSS} | $V_{DS}=60\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$ | | 500 | μA |
| $I_{D(ON)}$ | $V_{GS}=10\text{V}, V_{DS}=10\text{V}$ | 500 | | mA |
| BV_{DSS} | $V_{GS}=0, I_D=10\mu\text{A}$ | 60 | | V |
| $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ | 1.0 | 2.5 | V |
| $V_{DS(ON)}$ | $V_{GS}=10\text{V}, I_D=500\text{mA}$ | | 1.0 | V |
| $V_{DS(ON)}$ | $V_{GS}=5.0\text{V}, I_D=50\text{mA}$ | | 0.15 | V |
| V_{SD} | $V_{GS}=0, I_S=400\text{mA}$ | | 1.2 | V |
| $r_{DS(ON)}$ | $V_{GS}=10\text{V}, I_D=500\text{mA}$ | | 2.0 | Ω |
| $r_{DS(ON)}$ | $V_{GS}=10\text{V}, I_D=500\text{mA}, T_J=125^\circ\text{C}$ | | 3.5 | Ω |
| $r_{DS(ON)}$ | $V_{GS}=5.0\text{V}, I_D=50\text{mA}$ | | 3.0 | Ω |
| $r_{DS(ON)}$ | $V_{GS}=5.0\text{V}, I_D=50\text{mA}, T_J=125^\circ\text{C}$ | | 5.0 | Ω |
| g_{FS} | $V_{DS}=10\text{V}, I_D=200\text{mA}$ | 80 | | mS |
| C_{rss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | 5.0 | pF |
| C_{iss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | 50 | pF |
| C_{oss} | $V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$ | | 25 | pF |

R5 (9-February 2015)

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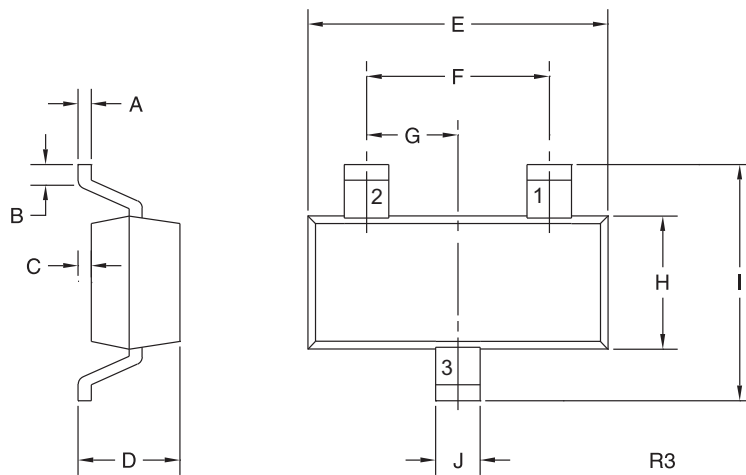
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | TYP | MAX | UNITS |
|------------------------------------|--|-------|-----|-------|
| $Q_{g(\text{tot})}$ | $V_{DS}=30\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=100\text{mA}$ | 0.592 | | nC |
| Q_{gs} | $V_{DS}=30\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=100\text{mA}$ | 0.196 | | nC |
| Q_{gd} | $V_{DS}=30\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=100\text{mA}$ | 0.148 | | nC |
| t_{on} , t_{off} | $V_{DD}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=200\text{mA}$, $R_G=25\Omega$, $R_L=150\Omega$ | | 20 | ns |

SOT-23 CASE - MECHANICAL OUTLINE



LEAD CODE:

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

MARKING CODES:

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CMPDM7002AG*: 702G

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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 | 0.043 | 0.89 | 1.09 |
| 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 | 0.098 | 2.10 | 2.49 |
| J | 0.014 | 0.020 | 0.35 | 0.50 |

SOT-23 (REV: R3)

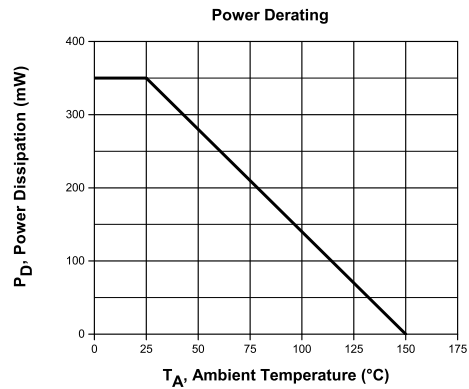
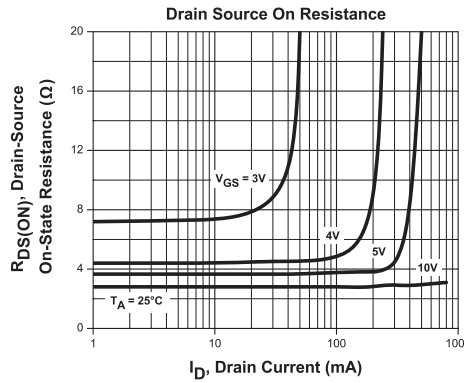
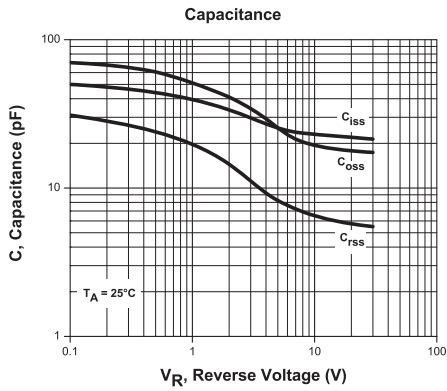
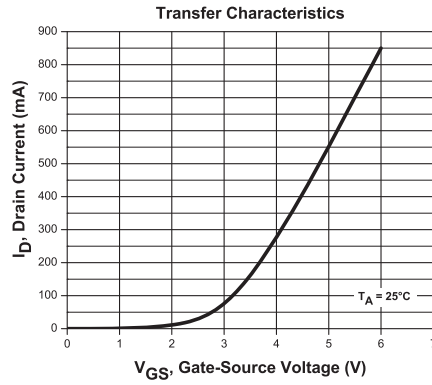
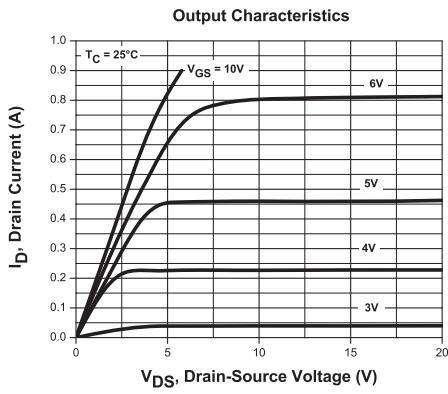
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TYPICAL ELECTRICAL CHARACTERISTICS



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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.

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- 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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