

CMPDM7002AE
ENHANCED SPECIFICATION
SURFACE MOUNT SILICON
N-CHANNEL
ENHANCEMENT-MODE
MOSFET



www.centrasemi.com



DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPDM7002AE is a special ESD protected version of the 2N7002 enhancement-mode N-Channel MOSFET designed for high speed pulsed amplifier and driver applications.

MARKING CODE: C702E

APPLICATIONS:

- Load/Power switches
- DC-DC converter circuits
- Power management

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

FEATURES:

- ◆ ESD protection up to 1800V
- 350mW power dissipation
- Low gate charge
- Low $r_{DS(ON)}$

SYMBOL		UNITS
V_{DS}	60	V
V_{DG}	60	V
V_{GS}	20	V
I_D	300	mA
I_{DM}	800	mA
P_D	350	mW
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Θ_{JA}	357	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=20\text{V}, V_{DS}=0$			10	μA
◆ I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0$			100	nA
I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$			500	μA
◆ BV_{DSS}	$V_{GS}=0, I_D=10\mu\text{A}$	60	70		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.2	1.5	2.0	V
V_{SD}	$V_{GS}=0, I_S=115\text{mA}$	0.5		1.1	V
◆ $r_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$		1.0	1.4	Ω
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=100\text{mA}$		1.1	1.8	Ω
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=10\text{mA}$		3.0	6.0	Ω
g_{FS}	$V_{DS}=10\text{V}, I_D=200\text{mA}$	220			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

◆ Enhanced specification

R3 (3-October 2013)

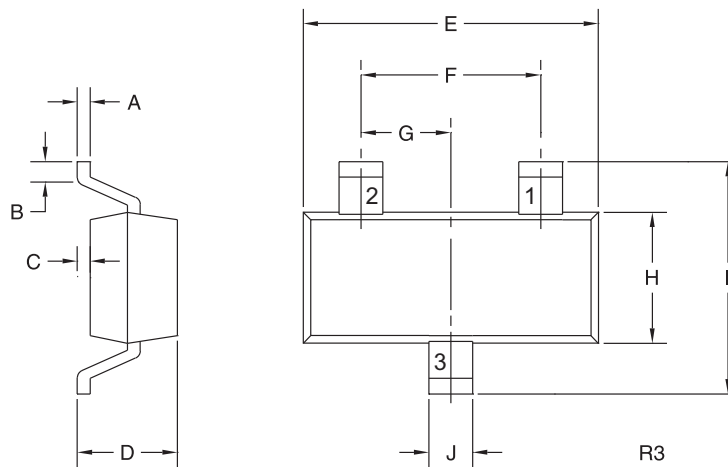
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	TYP	MAX	UNITS
$Q_{g(\text{tot})}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$	0.5		nC
Q_{gs}	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$	0.2		nC
Q_{gd}	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$	0.14		nC
t_{on}	$[V_{DD}=30\text{V}, V_{GS}=10\text{V}, I_D=200\text{mA}]$		20	ns
t_{off}	$[R_G=25\Omega, R_L=150\Omega]$		45	ns

SOT-23 CASE - MECHANICAL OUTLINE



LEAD CODE:

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

MARKING CODE: C702E

SYMBOL	DIMENSIONS			
	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

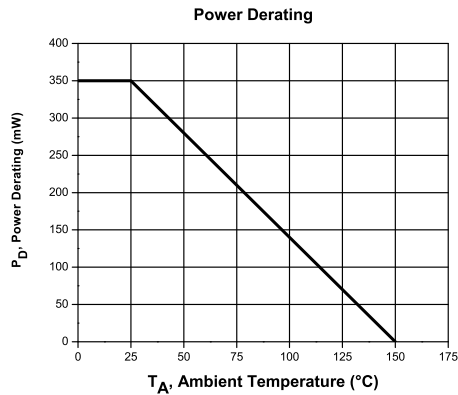
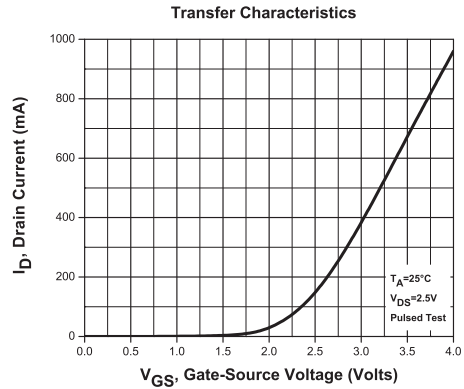
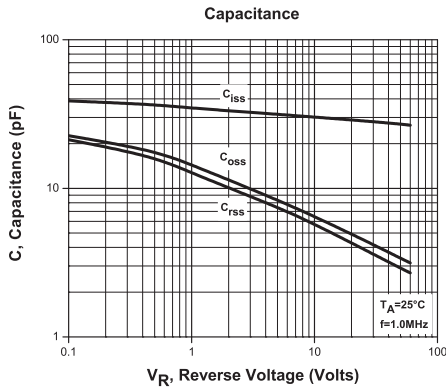
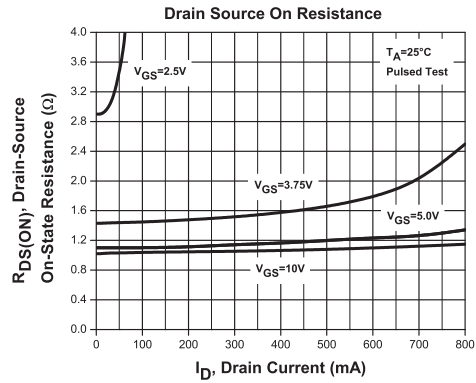
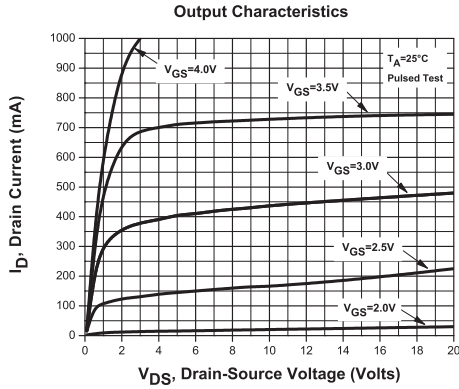
SOT-23 (REV: R3)

R3 (3-October 2013)

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TYPICAL ELECTRICAL CHARACTERISTICS



R3 (3-October 2013)



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).

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