

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



[www.centrasemi.com](http://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	$^\circ\text{C}$
$\Theta_{JA}$	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	$\mu\text{A}$
◆ $I_{DSS}$	$V_{DS}=60\text{V}, V_{GS}=0$			100	nA
$I_{DSS}$	$V_{DS}=60\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$			500	$\mu\text{A}$
◆ $BV_{DSS}$	$V_{GS}=0, I_D=10\mu\text{A}$	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	$\Omega$
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=100\text{mA}$		1.1	1.8	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=10\text{mA}$		3.0	6.0	$\Omega$
$g_{FS}$	$V_{DS}=10\text{V}, I_D=200\text{mA}$	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)

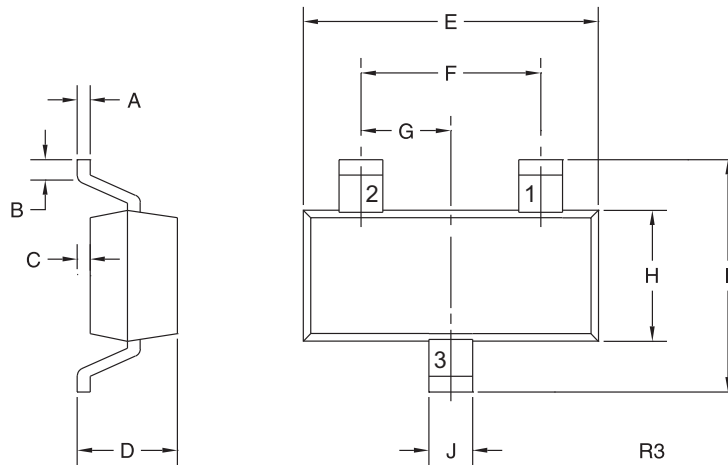
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

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
$t_{\text{on}}$	$[V_{DD}=30\text{V}, V_{GS}=10\text{V}, I_D=200\text{mA}]$		20	ns
$t_{\text{off}}$	$[R_G=25\Omega, R_L=150\Omega]$		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

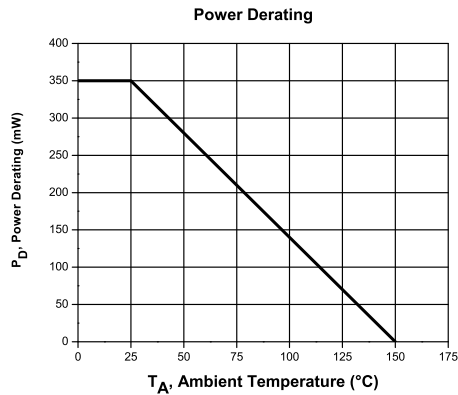
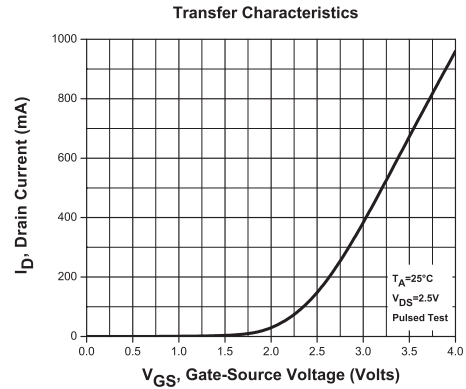
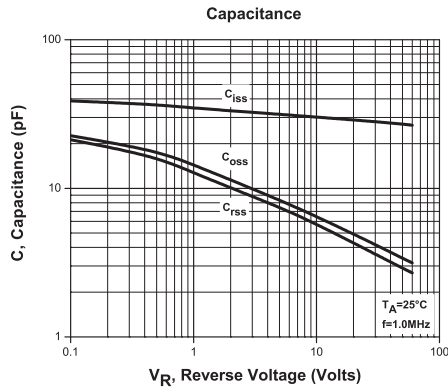
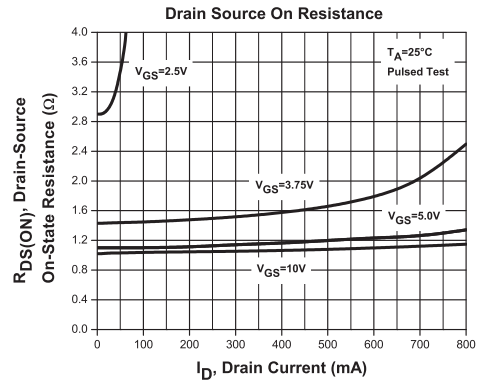
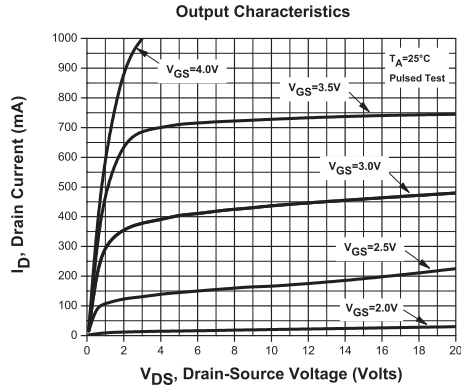
SOT-23 (REV: R3)

R3 (3-October 2013)

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**TYPICAL ELECTRICAL CHARACTERISTICS**



R3 (3-October 2013)