

**CEDM7002AE**  
**ENHANCED SPECIFICATION**  
**SURFACE MOUNT SILICON**  
**N-CHANNEL**  
**ENHANCEMENT-MODE**  
**MOSFET**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CEDM7002AE 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: 7**

**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
- 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
$P_D$	100	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\Theta_{JA}$	1250	$^\circ\text{C/W}$

**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
$V_{SD}$	$V_{GS}=0, I_S=115\text{mA}$ (Note 1)	0.5		1.1	V
◆ $r_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$ (Note 1)		1.0	1.4	$\Omega$
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=100\text{mA}$ (Note 1)		1.1	1.8	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=10\text{mA}$ (Note 1)		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

Notes: (1)  $t_p=380\mu\text{s}$

R2 (14-August 2014)

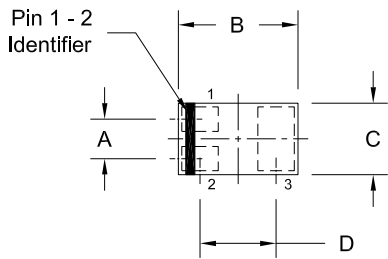
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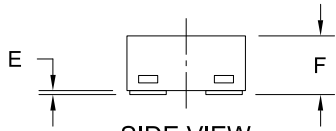
**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

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

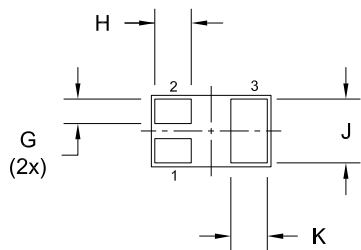
**SOT-883L CASE - MECHANICAL OUTLINE**



TOP VIEW



SIDE VIEW

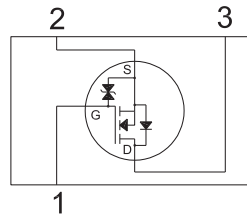


BOTTOM VIEW R2

DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.014		0.35	
B	0.037	0.041	0.95	1.05
C	0.022	0.026	0.55	0.65
D	0.026		0.65	
E	0.000	0.002	0.00	0.05
F	0.012	0.016	0.30	0.40
G	0.005	0.007	0.13	0.18
H	0.008	0.012	0.20	0.30
J	0.018	0.022	0.45	0.55
K	0.008	0.012	0.20	0.30

SOT-883L (REV:R2)

**PIN CONFIGURATION**  
(Bottom View)



**LEAD CODE:**

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

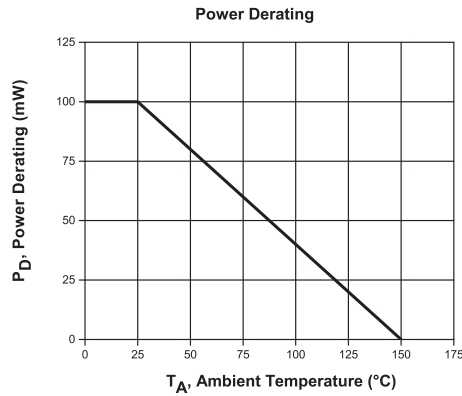
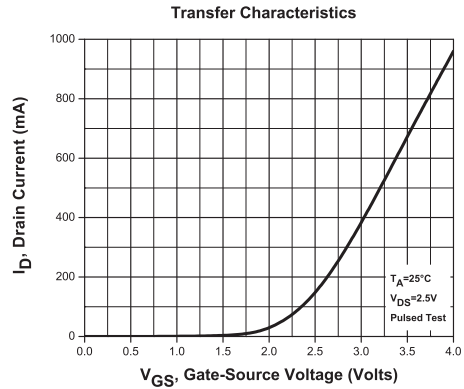
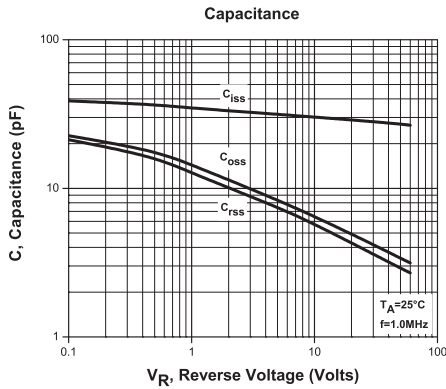
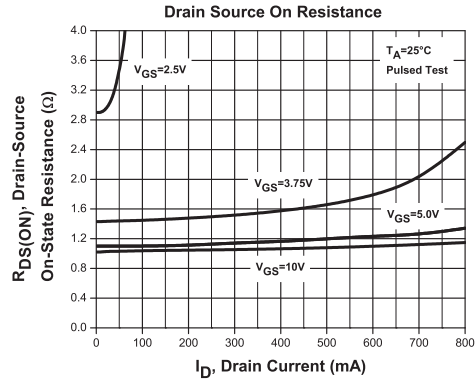
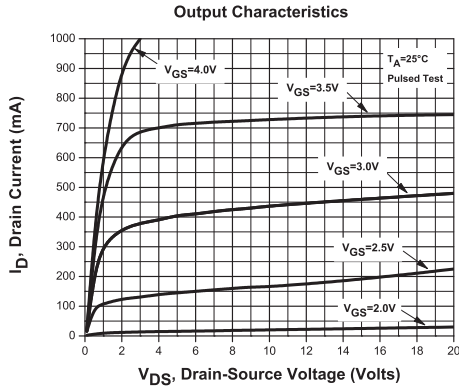
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R2 (14-August 2014)

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**TYPICAL ELECTRICAL CHARACTERISTICS**



R2 (14-August 2014)

## 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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