



**THE DATASHEET OF  
CEDM7002AE TR PBFREE**



CEDM7002AE

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



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**



Top View Bottom View



**SOT-883L CASE**

**APPLICATIONS:**

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

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°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<sub>DS(ON)</sub>

**SYMBOL**

SYMBOL		UNITS
V <sub>DS</sub>	60	V
V <sub>DG</sub>	60	V
V <sub>GS</sub>	20	V
I <sub>D</sub>	300	mA
I <sub>DM</sub>	800	mA
P <sub>D</sub>	100	mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
θ <sub>JA</sub>	1250	°C/W

**ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =20V, V <sub>DS</sub> =0			10	µA
◆ I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0			100	nA
I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0, T <sub>J</sub> =125°C			500	µA
◆ BV <sub>DSS</sub>	V <sub>GS</sub> =0, I <sub>D</sub> =10µA	60	70		V
V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250µA	1.2	1.5	2.0	V
V <sub>SD</sub>	V <sub>GS</sub> =0, I <sub>S</sub> =115mA (Note 1)	0.5		1.1	V
◆ r <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA (Note 1)		1.1	1.6	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =5.0V, I <sub>D</sub> =100mA (Note 1)		1.15	2.0	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =2.5V, I <sub>D</sub> =10mA (Note 1)		3.0	6.0	Ω
g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =200mA	220			mS
C <sub>rss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			5.0	pF
C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			50	pF
C <sub>oss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			25	pF

◆ Enhanced specification  
Notes: (1) tp=380µs

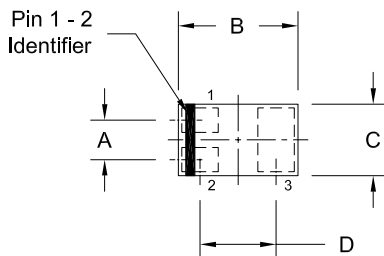
**CEDM7002AE**  
**ENHANCED SPECIFICATION**  
**SURFACE MOUNT SILICON**  
**N-CHANNEL**  
**ENHANCEMENT-MODE**  
**MOSFET**



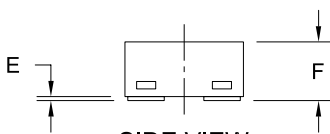
**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

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

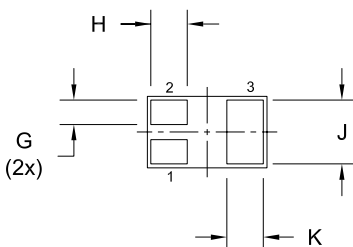
**SOT-883L CASE - MECHANICAL OUTLINE**



TOP VIEW



SIDE VIEW

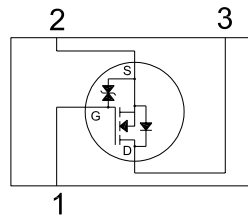


BOTTOM VIEW R2

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

**MARKING CODE: 7**

R3 (21-January 2022)

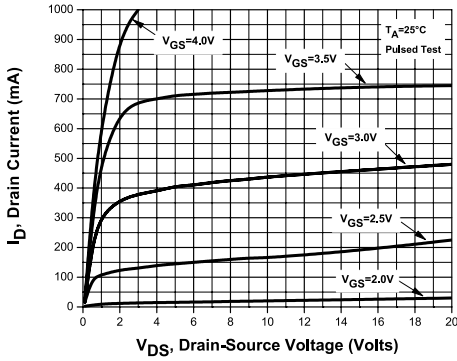
CEDM7002AE

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

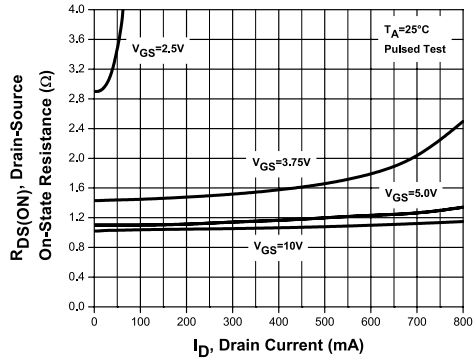


**TYPICAL ELECTRICAL CHARACTERISTICS**

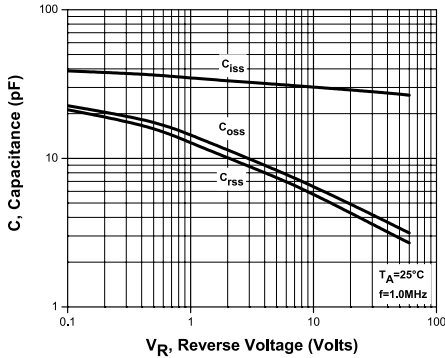
**Output Characteristics**



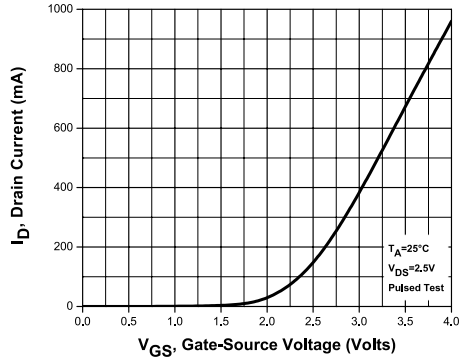
**Drain Source On Resistance**



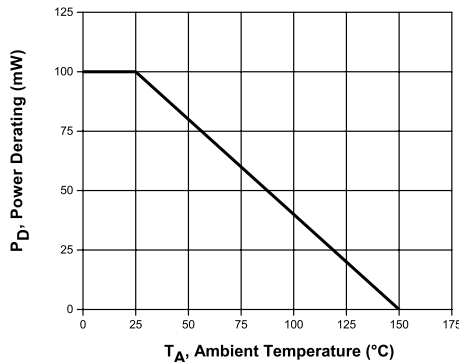
**Capacitance**



**Transfer Characteristics**



**Power Derating**



R3 (21-January 2022)

## 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 (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

---

### 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

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://www.centrasemi.com/wwdistributors)

---

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View CEDM7002AE TR PBFREE on WIN SOURCE](#)
- ⊖ [Central Semiconductor Corp Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management