CEDM7002AE

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

TLP *Tiny Leadless Package* ™

Top View   Bottom View

ENHANCED ⟨E⟩ SPECIFICATION

SOT-883L CASE

Central™
Semiconductor Corp.

www.centralsemi.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

FEATURES:
♦ ESD protection up to 1800V
• 350mW power dissipation
• Low gate charge
• Low $r_{DS(ON)}$
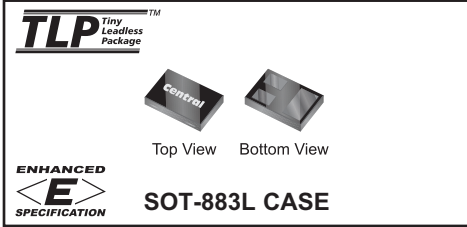
APPLICATIONS:
• Load/Power switches
• DC-DC converter circuits
• Power management

MAXIMUM RATINGS: (T_A=25°C)

	SYMBOL		UNITS
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage	V_{DG}	60	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current	I_D	300	mA
Maximum Pulsed Drain Current	I_{DM}	800	mA
Power Dissipation	P_D	100	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance	Θ_{JA}	1250	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	V_{GS}=20V, V_{DS}=0			10	µA
♦ I_{DSS}	V_{DS}=60V, V_{GS}=0			100	nA
I_{DSS}	V_{DS}=60V, V_{GS}=0, T_J=125°C			500	µA
♦ BV_{DSS}	V_{GS}=0, I_D=10µA	60	70		V
$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250µA	1.2	1.5	2.0	V
V_{SD}	V_{GS}=0, I_S=115mA (Note 1)	0.5		1.1	V
♦ $r_{DS(ON)}$	V_{GS}=10V, I_D=500mA (Note 1)		1.0	1.4	Ω
$r_{DS(ON)}$	V_{GS}=5.0V, I_D=100mA (Note 1)		1.1	1.8	Ω
$r_{DS(ON)}$	V_{GS}=2.5V, I_D=10mA (Note 1)		3.0	6.0	Ω
g_{FS}	V_{DS}=10V, I_D=200mA	220			mS
C_{rss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz			5.0	pF
C_{iss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz			50	pF
C_{oss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz			25	pF

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

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ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C unless otherwise noted)

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

SOT-883L CASE - MECHANICAL OUTLINE

Pin 1 - 2 Identifier
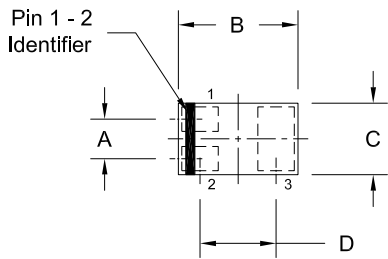
TOP VIEW
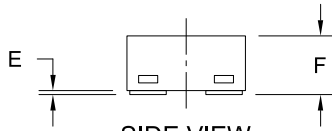
SIDE VIEW
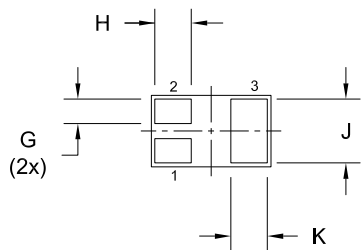
BOTTOM VIEW   R2

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)
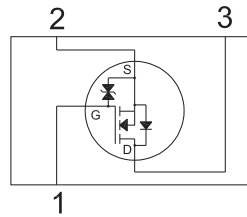
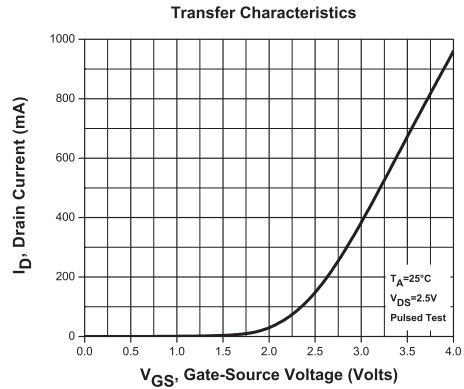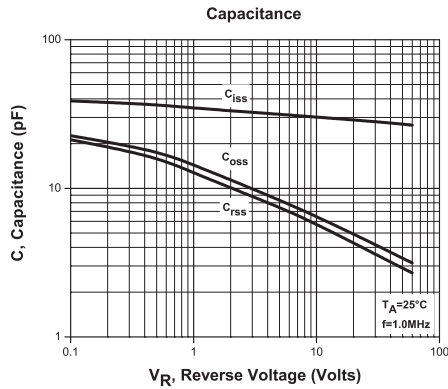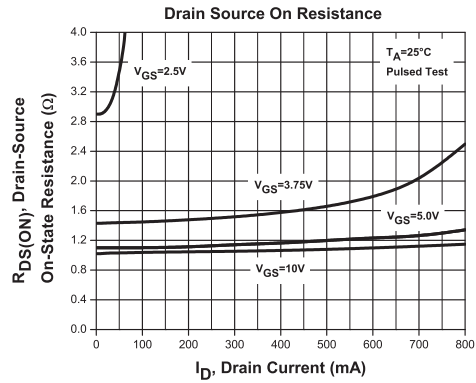**LEAD CODE:**
1) Gate
2) Source
3) Drain

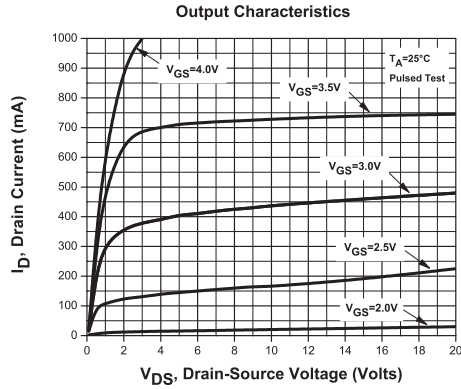**MARKING CODE: 7**

R1 (3-October 2013)

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TYPICAL ELECTRICAL CHARACTERISTICS

Output Characteristics

Drain Source On Resistance

Capacitance

Transfer Characteristics

Power Derating

R1 (3-October 2013)