

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

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	$^\circ\text{C}$
Θ_{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	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}	$V_{GS}=0, I_S=115\text{mA}$ (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	Ω
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=100\text{mA}$ (Note 1)		1.1	1.8	Ω
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=10\text{mA}$ (Note 1)		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
Notes: (1) $t_p=380\mu\text{s}$

R2 (14-August 2014)

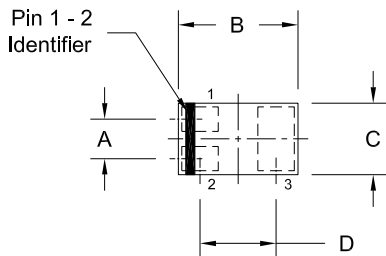
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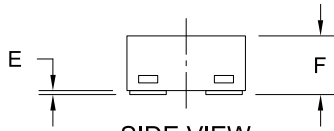
ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

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_{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

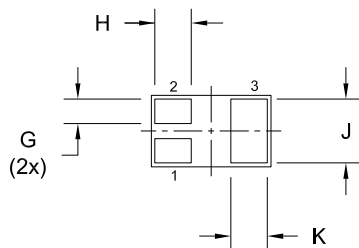
SOT-883L CASE - MECHANICAL OUTLINE



TOP VIEW



SIDE VIEW

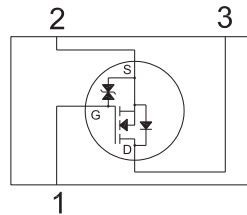


BOTTOM VIEW R2

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

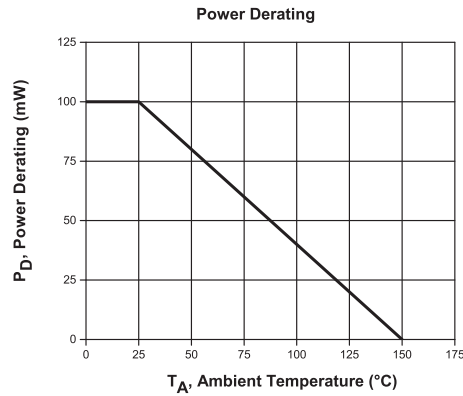
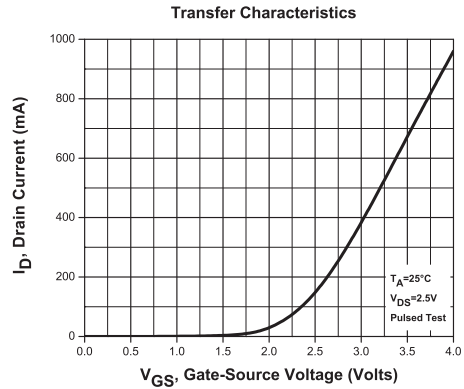
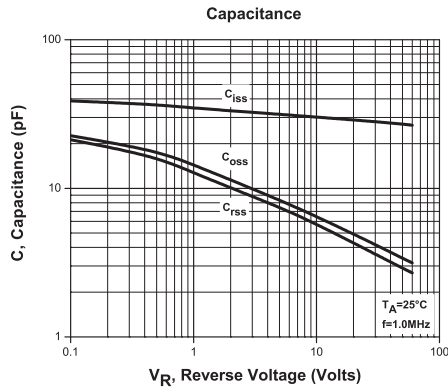
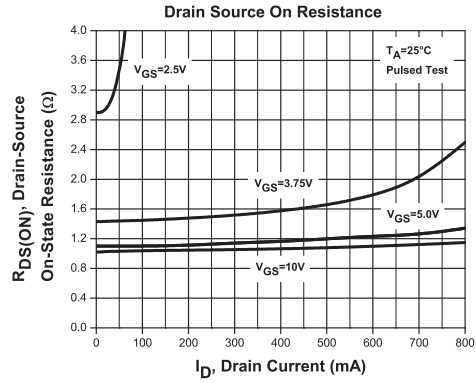
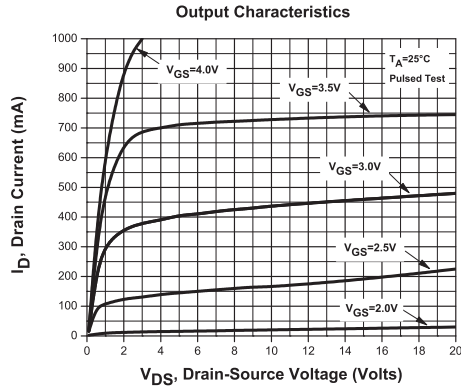
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TYPICAL ELECTRICAL CHARACTERISTICS



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