

CEDM7004VL

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



Top View Bottom View

SOT-883VL CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CEDM7004VL is an N-Channel Enhancement-mode MOSFET, manufactured by the N-Channel DMOS process, designed for high speed pulsed amplifier and driver applications. This MOSFET offers low $r_{DS(ON)}$ and low threshold voltage.

MARKING CODE: S

COMPLEMENTARY P-CHANNEL: CEDM8004VL

FEATURES:

- ESD protection up to 2kV
- 0.32mm very low package profile
- Low $r_{DS(ON)}$
- Low threshold voltage
- Logic level compatible
- Small leadless surface mount package

APPLICATIONS:

- Load/Power switches
- Power supply converter circuits
- Battery powered portable devices

MAXIMUM RATING: ($T_A=25^\circ\text{C}$)

Drain-Source Voltage	
Gate-Source Voltage	
Continuous Drain Current	
Continuous Drain Current ($T_L=25^\circ\text{C}$)	
Peak Drain Current, $t_p \leq 10\mu\text{s}$ ($T_L=25^\circ\text{C}$)	
Continuous Source Current ($T_L=25^\circ\text{C}$)	
Peak Source Current, $t_p \leq 10\mu\text{s}$ ($T_L=25^\circ\text{C}$)	
Power Dissipation	
Operating and Storage Junction Temperature	

SYMBOL

V_{DS}	30
V_{GS}	8.0
I_D	450
I_D	1.78
I_{DM}	3.56
I_S	1.78
I_{SM}	3.56
P_D	100
T_J, T_{stg}	-65 to +150

UNITS

V
V
mA
A
A
A
A
mW
$^\circ\text{C}$

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

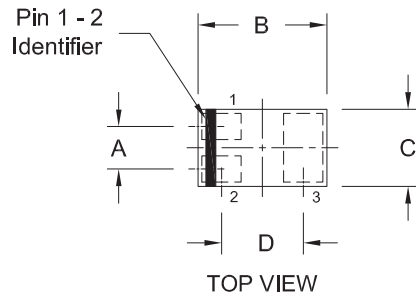
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=8.0\text{V}, V_{DS}=0$			3.0	μA
I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0$			1.0	μA
BV_{DSS}	$V_{GS}=0, I_D=10\mu\text{A}$	30			V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5		1.0	V
V_{SD}	$V_{GS}=0, I_S=400\text{mA}$	0.5		1.1	V
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=200\text{mA}$		280	460	$\text{m}\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=100\text{mA}$		390	560	$\text{m}\Omega$
$r_{DS(ON)}$	$V_{GS}=1.8\text{V}, I_D=75\text{mA}$		550	730	$\text{m}\Omega$
g_{FS}	$V_{DS}=10\text{V}, I_D=100\text{mA}$	200			mS
C_{rss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		5.0		pF
C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		43		pF
C_{oss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		8.0		pF
$Q_{g(tot)}$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		0.792		nC
Q_{gs}	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		0.15		nC
Q_{gd}	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		0.23		nC
t_{on}	$V_{DS}=5.0\text{V}, V_{GS}=4.0\text{V}, I_D=75\text{mA}, R_G=10\Omega$		20		ns
t_{off}	$V_{DS}=5.0\text{V}, V_{GS}=4.0\text{V}, I_D=75\text{mA}, R_G=10\Omega$		75		ns

R2 (21-November 2014)

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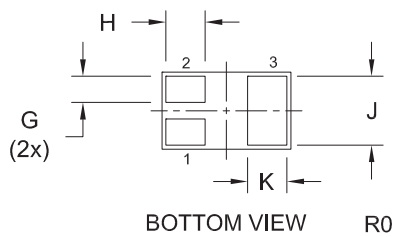
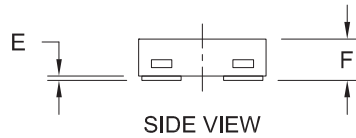


SOT-883VL CASE - MECHANICAL OUTLINE

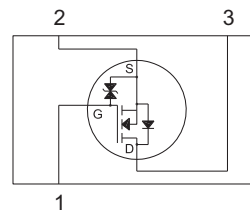


SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.014		0.35	
B	0.037	0.041	0.95	1.05
C	0.022	0.026	0.55	0.65
D	0.026		0.65	
E	0.000	0.002	0.00	0.05
F	0.012	0.013	0.30	0.32
G	0.004	0.008	0.10	0.20
H	0.008	0.012	0.20	0.30
J	0.018	0.022	0.45	0.55
K	0.008	0.012	0.20	0.30

SOT-883VL (REV:R0)



PIN CONFIGURATION
(Bottom View)



LEAD CODE:

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

MARKING CODE: S

Package Type Options (all dimensions are maximum - in mm)

Package	Length	Width	Height	P _D (mW)	Central Item Number
SOT-883VL	1.05	0.65	0.32	100	CEDM7004VL
SOT-883L	1.05	0.65	0.40	100	CEDM7004
SOT-523	1.70	1.70	0.78	250	CMUDM7004

R2 (21-November 2014)

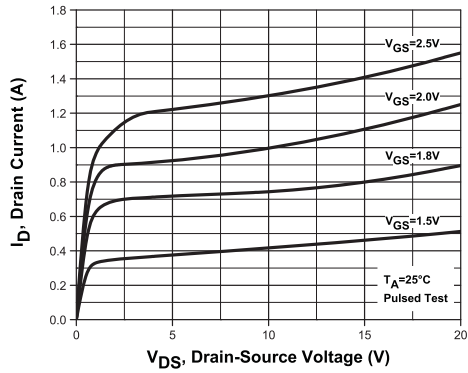
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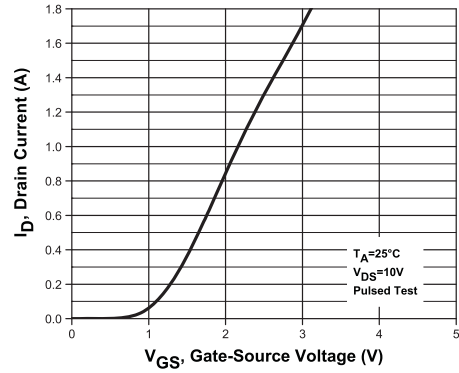


TYPICAL ELECTRICAL CHARACTERISTICS

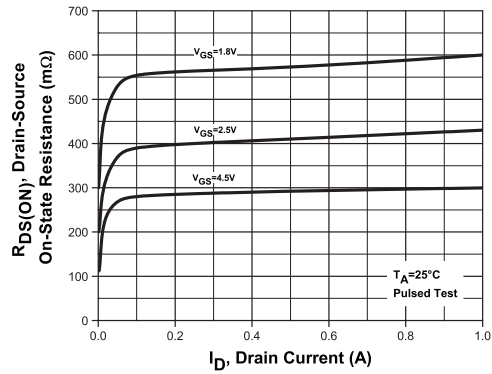
Output Characteristics



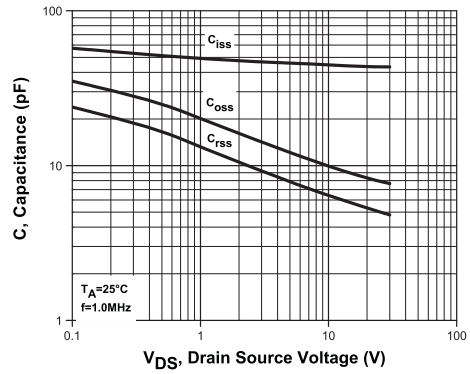
Transfer Characteristics



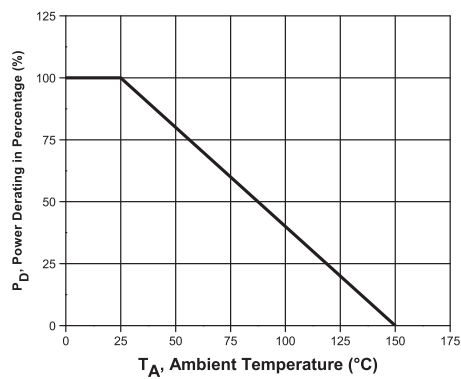
Drain Source On Resistance



Capacitance



Normalized Power Derating



R2 (21-November 2014)

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 (2nd 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

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

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
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