



**THE DATASHEET OF  
CEDM7004VL TR**



CEDM7004VL

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



www.centrasemi.com



Top View Bottom View

**SOT-883VL CASE**

**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**

SYMBOL		UNITS
$V_{DS}$	30	V
$V_{GS}$	8.0	V
$I_D$	450	mA
$I_D$	1.78	A
$I_{DM}$	3.56	A
$I_S$	1.78	A
$I_{SM}$	3.56	A
$P_D$	100	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$

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

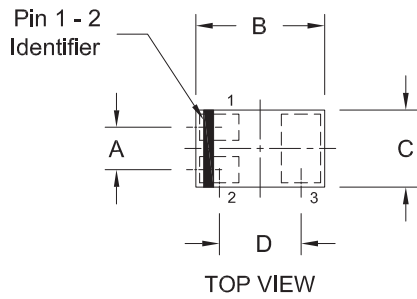
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{GSSF}, I_{GSSR}$	$V_{GS}=8.0\text{V}, V_{DS}=0$			3.0	$\mu\text{A}$
$I_{DSS}$	$V_{DS}=30\text{V}, V_{GS}=0$			1.0	$\mu\text{A}$
$BV_{DSS}$	$V_{GS}=0, I_D=10\mu\text{A}$	30			V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5		1.0	V
$V_{SD}$	$V_{GS}=0, I_S=400\text{mA}$	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	$\text{m}\Omega$
gFS	$V_{DS}=10\text{V}, I_D=100\text{mA}$	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
$Q_g(\text{tot})$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		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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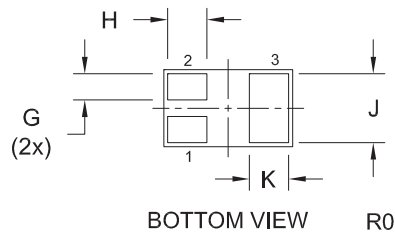
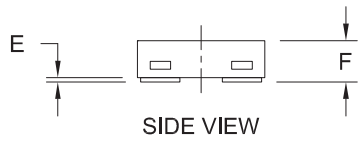


**SOT-883VL CASE - MECHANICAL OUTLINE**

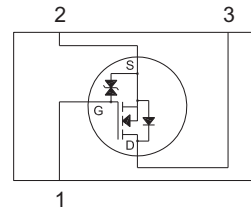


SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.014		0.35	
B	0.037	0.041	0.95	1.05
C	0.022	0.026	0.55	0.65
D	0.026		0.65	
E	0.000	0.002	0.00	0.05
F	0.012	0.013	0.30	0.32
G	0.004	0.008	0.10	0.20
H	0.008	0.012	0.20	0.30
J	0.018	0.022	0.45	0.55
K	0.008	0.012	0.20	0.30

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 <sub>D</sub> (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

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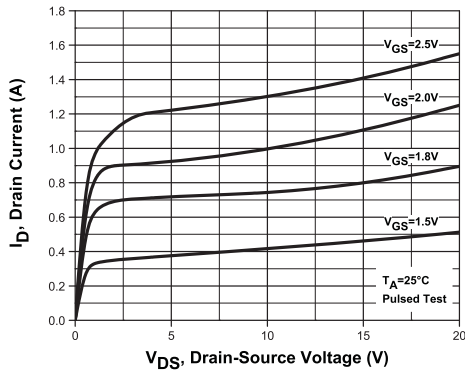
CEDM7004VL

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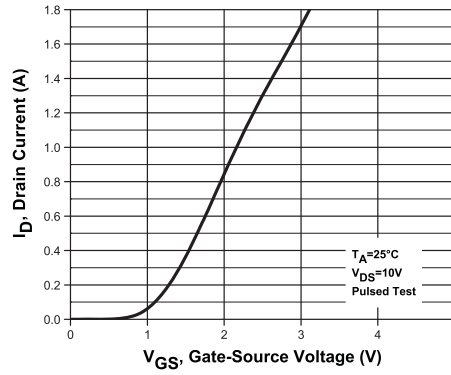


### TYPICAL ELECTRICAL CHARACTERISTICS

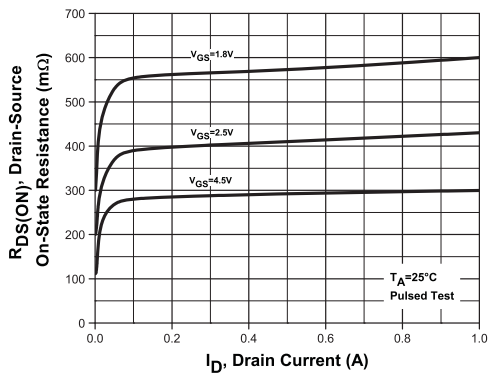
Output Characteristics



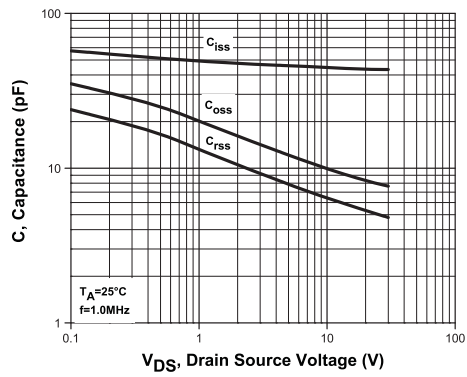
Transfer Characteristics



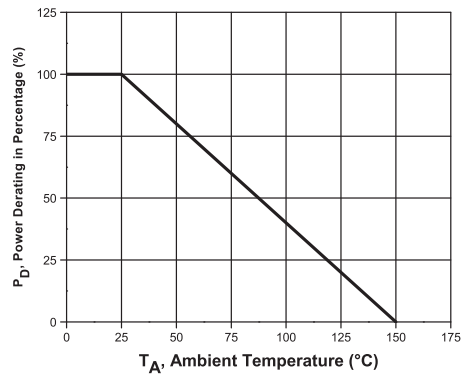
Drain Source On Resistance



Capacitance



Normalized Power Derating



R2 (21-November 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

#### 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)

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