CZDM1003N

SURFACE MOUNT SILICON N-CHANNEL ENHANCEMENT-MODE MOSFET



SOT-223 CASE

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CZDM1003N is a 3.0 Amp, 100 Volt silicon N-Channel enhancement-mode MOSFET, designed for motor control and relay driver applications. This MOSFET offers high current, low $r_{DS(ON)}$, and low gate charge.

MARKING: FULL PART NUMBER

APPLICATIONS:

- Motor control
- Relay driver
- DC-DC converters

FEATURES:

- Low $r_{DS(ON)}$
- High current
- Low gate charge

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current (Steady State)	I_D	3.0	A
Maximum Pulsed Drain Current, tp=10μs	I_{DM}	12	A
Power Dissipation	P_D	2.0	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-55 to +150	°C
Thermal Resistance	Θ_{JA}	62.5	°C/W

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

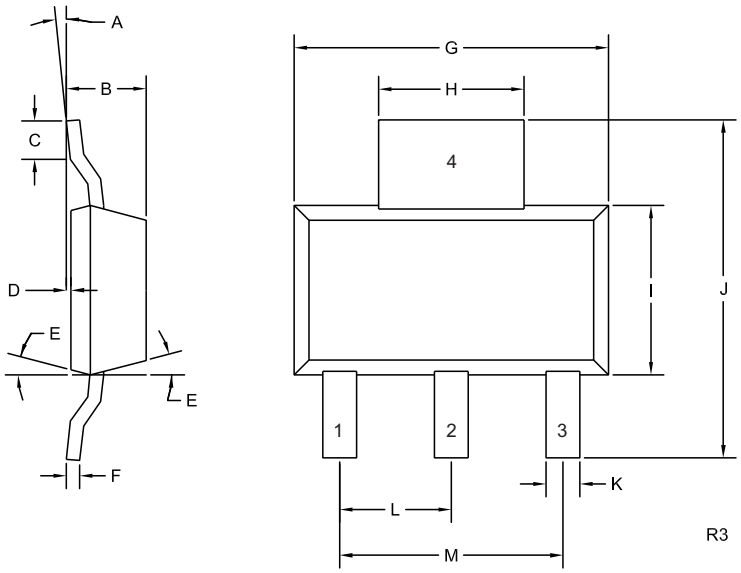
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNITS**
I_{GSSF}, I_{GSSR}	V_{GS}=20V, V_{DS}=0			100	nA
I_{DSS}	V_{DS}=100V, V_{GS}=0			1.0	μA
BV_{DSS}	V_{GS}=0, I_D=250μA	100			V
$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
V_{SD}	V_{GS}=0, I_S=3.0A			1.3	V
$r_{DS(ON)}$	V_{GS}=10V, I_D=2.0A		70	150	mΩ
C_{rss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz		55	70	pF
C_{iss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz		705	975	pF
C_{oss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz		55	80	pF
$Q_{g(tot)}$	V_{DS}=80V, V_{GS}=10V, I_D=9.2A		15		nC
Q_{gs}	V_{DS}=80V, V_{GS}=10V, I_D=9.2A		3.0		nC
Q_{gd}	V_{DS}=80V, V_{GS}=10V, I_D=9.2A		5.5		nC
t_{on}	V_{DD}=50V, V_{GS}=10V, I_D=9.2A		40	80	ns
t_{off}	R_G=18Ω		60	155	ns

R1 (21-January 2013)

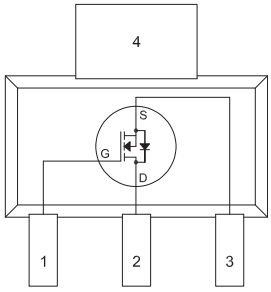
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SOT-223 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



Tab is common to pin 2
(Top View)

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

MARKING: FULL PART NUMBER

DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0°	10°	0°	10°
B	0.059	0.071	1.50	1.80
C	0.018	—	0.45	—
D	0.000	0.004	0.00	0.10
E	15°		15°	
F	0.009	0.014	0.23	0.35
G	0.248	0.264	6.30	6.70
H	0.114	0.122	2.90	3.10
I	0.130	0.146	3.30	3.70
J	0.264	0.287	6.70	7.30
K	0.024	0.033	0.60	0.85
L	0.091		2.30	
M	0.181		4.60	

SOT-223 (REV: R3)

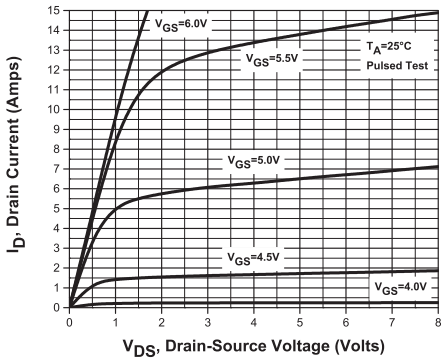
R1 (21-January 2013)

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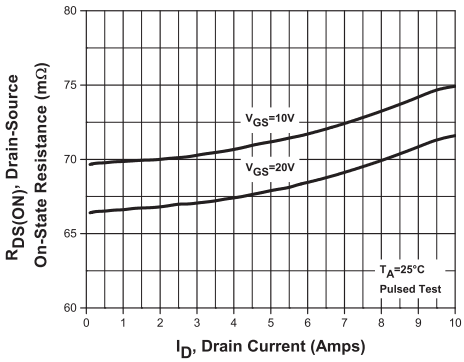
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TYPICAL ELECTRICAL CHARACTERISTICS

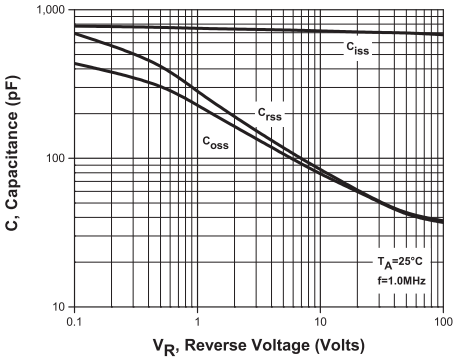
Output Characteristics



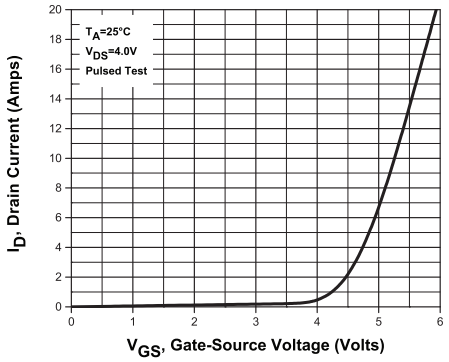
Drain Source On Resistance



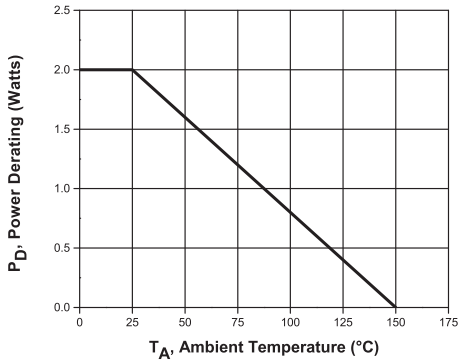
Capacitance



Transfer Characteristics



Power Derating



R1 (21-January 2013)