

CZDM1003N
SURFACE MOUNT SILICON
N-CHANNEL
ENHANCEMENT-MODE
MOSFET



SOT-223 CASE



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

Drain-Source Voltage
Gate-Source Voltage
Continuous Drain Current (Steady State)
Maximum Pulsed Drain Current, $t_p=10\mu\text{s}$
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL

V_{DS}	100
V_{GS}	20
I_D	3.0
I_{DM}	12
P_D	2.0
T_J, T_{stg}	-55 to +150
θ_{JA}	62.5

UNITS

V
V
A
A
W
$^\circ\text{C}$
$^\circ\text{C/W}$

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

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

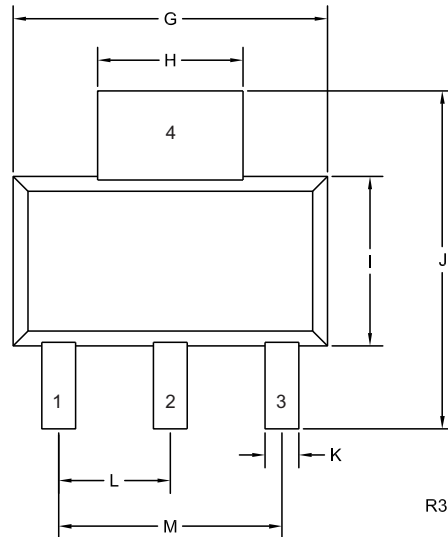
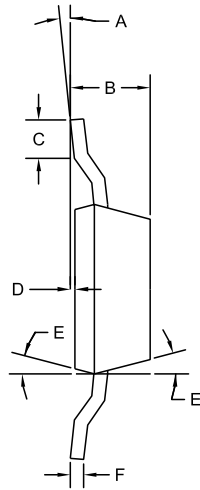
R1 (21-January 2013)

CZDM1003N

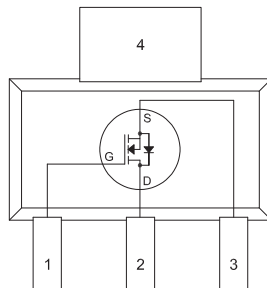
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SOT-223 CASE - MECHANICAL OUTLINE



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				
SYMBOL	INCHES		MILLIMETERS	
	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)

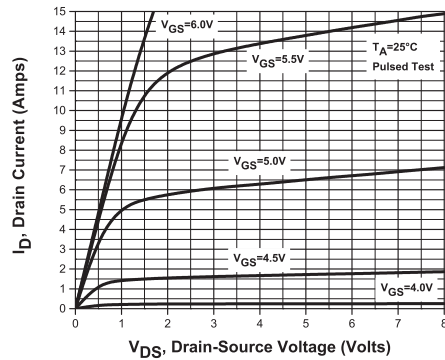
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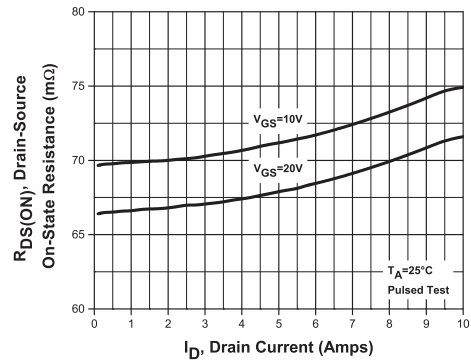


TYPICAL ELECTRICAL CHARACTERISTICS

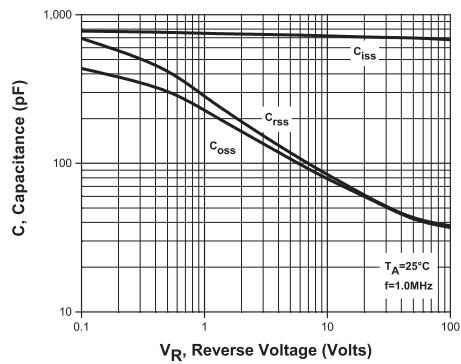
Output Characteristics



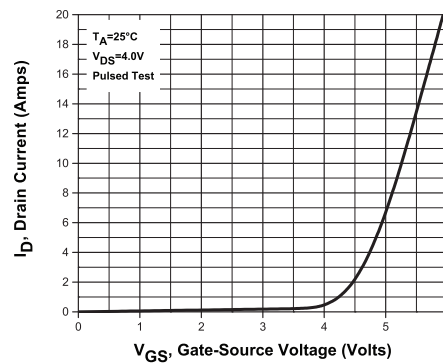
Drain Source On Resistance



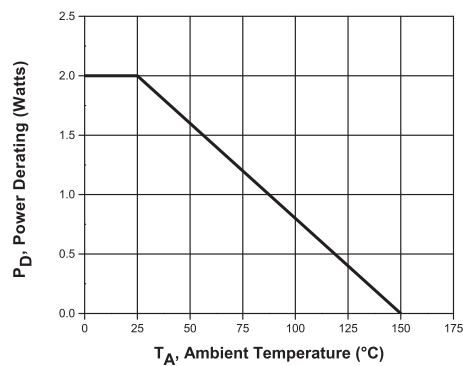
Capacitance



Transfer Characteristics



Power Derating



R1 (21-January 2013)



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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

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- Application notes
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