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**CMLDM8120
CMLDM8120G***

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



SOT-563 CASE



www.centrasemi.com

DESCRIPTION:

These CENTRAL SEMICONDUCTOR devices are enhancement-mode P-Channel MOSFETs, manufactured by the P-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications. This MOSFET offers low $r_{DS(on)}$ and low threshold voltage.

MARKING CODES:

CMLDM8120: C81

CMLDM8120G*: C8G

* Device is **Halogen Free** by design

APPLICATIONS:

- Load/Power Switches
- Power Supply Converter Circuits
- Battery Powered Portable Equipment

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

Drain-Source Voltage
Gate-Source Voltage
Continuous Drain Current (Steady State)
Continuous Drain Current, $t \leq 5.0\text{s}$
Continuous Source Current (Body Diode)
Maximum Pulsed Drain Current, $t_p=10\mu\text{s}$
Maximum Pulsed Source Current, $t_p=10\mu\text{s}$
Power Dissipation (Note 1)
Power Dissipation (Note 2)
Power Dissipation (Note 3)
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL

V_{DS} 20
 V_{GS} 8.0
 I_D 860
 I_D 950
 I_S 360
 I_{DM} 4.0
 I_{SM} 4.0
 P_D 350
 P_D 300
 P_D 150
 T_J, T_{stg} -65 to +150
 θ_{JA} 357

UNITS

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

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=8.0\text{V}, V_{DS}=0$		1.0	50	nA
I_{DSS}	$V_{DS}=20\text{V}, V_{GS}=0$		5.0	500	nA
BV_{DSS}	$V_{GS}=0, I_D=250\mu\text{A}$	20	24		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.45	0.76	1.0	V
V_{SD}	$V_{GS}=0\text{V}, I_S=360\text{mA}$			0.9	V
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=0.95\text{A}$		0.085	0.15	Ω
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=0.77\text{A}$		0.085	0.142	Ω
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=0.67\text{A}$		0.13	0.20	Ω
$r_{DS(ON)}$	$V_{GS}=1.8\text{V}, I_D=0.2\text{A}$		0.19	0.24	Ω
gFS	$V_{DS}=10\text{V}, I_D=0.81\text{A}$	2.0			S
C_{rss}	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		80		pF
C_{iss}	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		200		pF
C_{oss}	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		60		pF

Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm^2
(2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm^2
(3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm^2

R6 (8-June 2015)

**CMLDM8120
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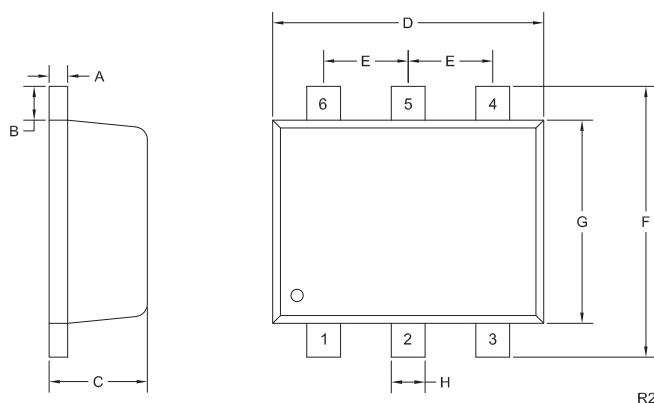
**SURFACE MOUNT SILICON
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MOSFET**



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

SYMBOL	TEST CONDITIONS	TYP	UNITS
$Q_{g(\text{tot})}$	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=1.0\text{A}$	3.56	nC
Q_{gs}	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=1.0\text{A}$	0.36	nC
Q_{gd}	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=1.0\text{A}$	1.52	nC
t_{on}	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=0.95\text{A}$, $R_G=6\Omega$	20	ns
t_{off}	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=0.95\text{A}$, $R_G=6\Omega$	25	ns

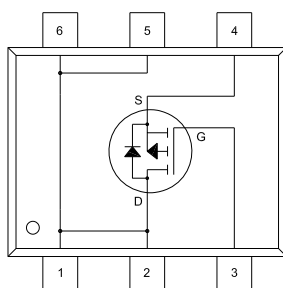
SOT-563 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.0027	0.007	0.07	0.18
B	0.008		0.20	
C	0.017	0.024	0.45	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.059	0.067	1.50	1.70
G	0.043	0.051	1.10	1.30
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R2)

PIN CONFIGURATION



LEAD CODE:

- 1) Drain
- 2) Drain
- 3) Gate
- 4) Source
- 5) Drain
- 6) Drain

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OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

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