

CMLDM8120  
CMLDM8120G\*

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



**SOT-563 CASE**

\* Device is *Halogen Free* by design

**APPLICATIONS:**

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

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

Drain-Source Voltage	
Gate-Source Voltage	
Continuous Drain Current (Steady State)	
Continuous Drain Current, t≤5.0s	
Continuous Source Current (Body Diode)	
Maximum Pulsed Drain Current, tp=10μs	
Maximum Pulsed Source Current, tp=10μs	
Power Dissipation (Note 1)	
Power Dissipation (Note 2)	
Power Dissipation (Note 3)	
Operating and Storage Junction Temperature	
Thermal Resistance	

**ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =8.0V, V <sub>DS</sub> =0		1.0	50	nA
I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0		5.0	500	nA
BV <sub>DSS</sub>	V <sub>GS</sub> =0, I <sub>D</sub> =250μA	20	24		V
V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.45	0.76	1.0	V
V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =360mA			0.9	V
r <sub>DS(ON)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.95A		0.085	0.15	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.77A		0.085	0.142	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.67A		0.13	0.20	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.2A		0.19	0.24	Ω
g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =0.81A	2.0			S
C <sub>rss</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0, f=1.0MHz		80		pF
C <sub>iss</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0, f=1.0MHz		200		pF
C <sub>oss</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0, f=1.0MHz		60		pF

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



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**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<sub>DS(on)</sub> and low threshold voltage.

**MARKING CODES:**

CMLDM8120: C81  
CMLDM8120G\*: C8G

**FEATURES:**

- Low r<sub>DS(on)</sub>
- Low Threshold Voltage
- Logic Level Compatible
- Small SOT-563 package

**SYMBOL**

SYMBOL	UNITS
V <sub>DS</sub>	20 V
V <sub>GS</sub>	8.0 V
I <sub>D</sub>	860 mA
I <sub>D</sub>	950 mA
I <sub>S</sub>	360 mA
I <sub>DM</sub>	4.0 A
I <sub>SM</sub>	4.0 A
P <sub>D</sub>	350 mW
P <sub>D</sub>	300 mW
P <sub>D</sub>	150 mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150 °C
θ <sub>JA</sub>	357 °C/W

R7 (17-October 2018)

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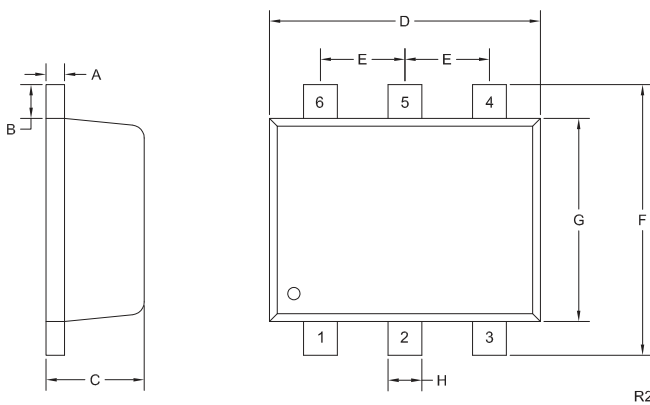
**SURFACE MOUNT SILICON  
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

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
$t_{\text{on}}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=0.95\text{A}, R_G=6\Omega$	20	ns
$t_{\text{off}}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=0.95\text{A}, R_G=6\Omega$	25	ns

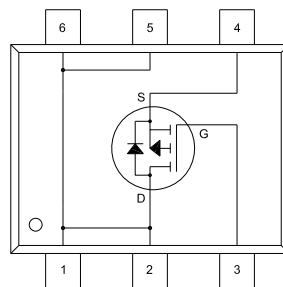
**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	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

**MARKING CODES:**

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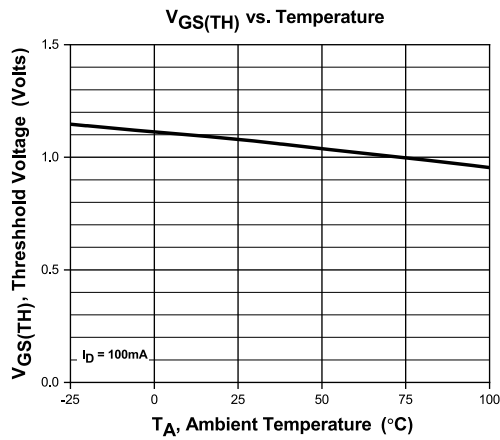
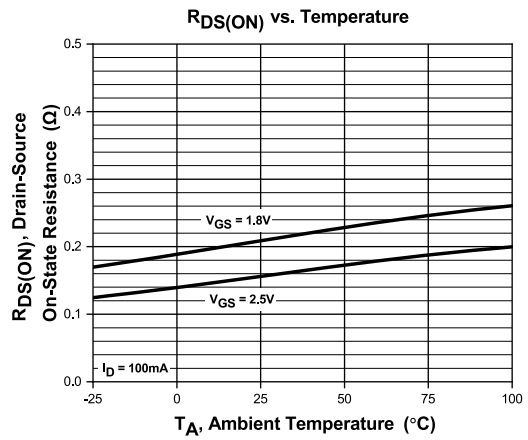
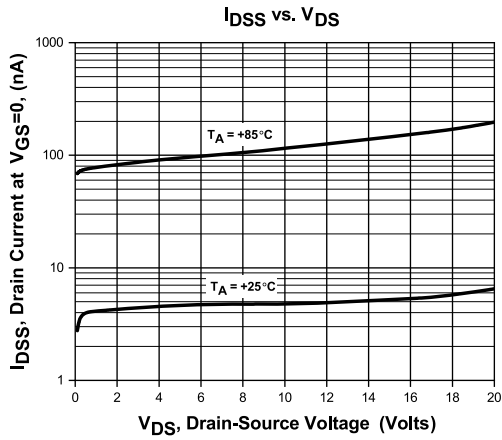
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### TYPICAL ELECTRICAL CHARACTERISTICS



R7 (17-October 2018)

## 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

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