



**THE DATASHEET OF
CMLDM8120 TR**



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

FEATURES:

- Low $r_{DS(on)}$
- Low Threshold Voltage
- Logic Level Compatible
- Small SOT-563 package

* 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	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	8.0	V
Continuous Drain Current (Steady State)	I_D	860	mA
Continuous Drain Current, $t \leq 5.0s$	I_D	950	mA
Continuous Source Current (Body Diode)	I_S	360	mA
Maximum Pulsed Drain Current, $t_p=10\mu s$	I_{DM}	4.0	A
Maximum Pulsed Source Current, $t_p=10\mu s$	I_{SM}	4.0	A
Power Dissipation (Note 1)	P_D	350	mW
Power Dissipation (Note 2)	P_D	300	mW
Power Dissipation (Note 3)	P_D	150	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357	$^\circ\text{C/W}$

SYMBOL

SYMBOL	UNITS
V_{DS}	V
V_{GS}	V
I_D	mA
I_D	mA
I_S	mA
I_{DM}	A
I_{SM}	A
P_D	mW
P_D	mW
P_D	mW
T_J, T_{stg}	$^\circ\text{C}$
θ_{JA}	$^\circ\text{C/W}$

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

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

Notes: 1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm²
2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm²
3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm²

R7 (17-October 2018)

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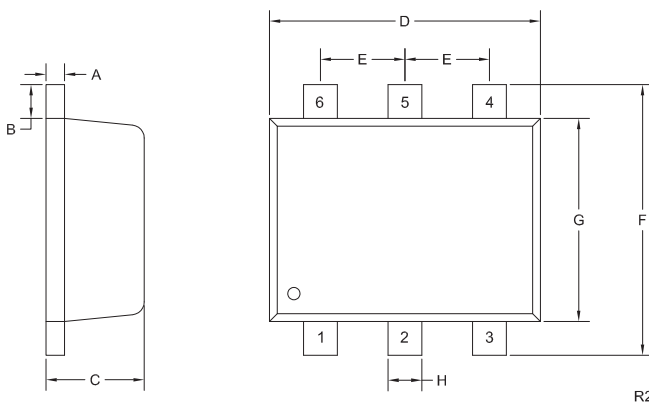
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

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_{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

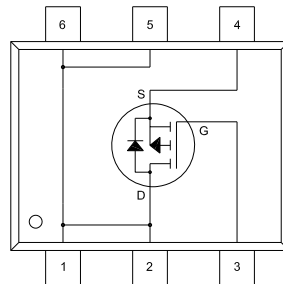
SOT-563 CASE - MECHANICAL OUTLINE



SYMBOL	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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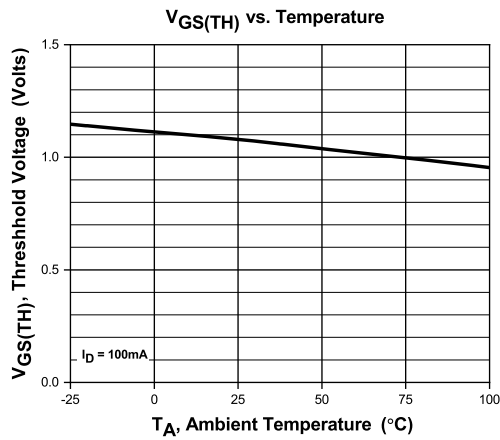
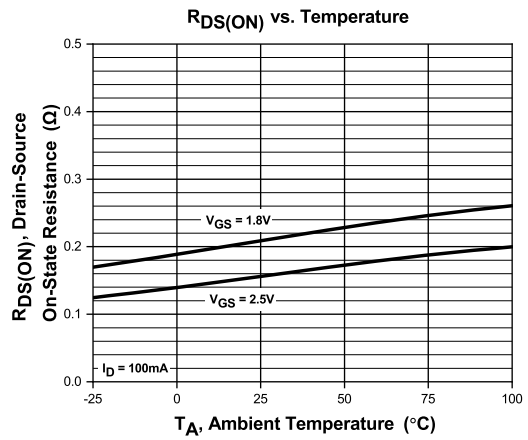
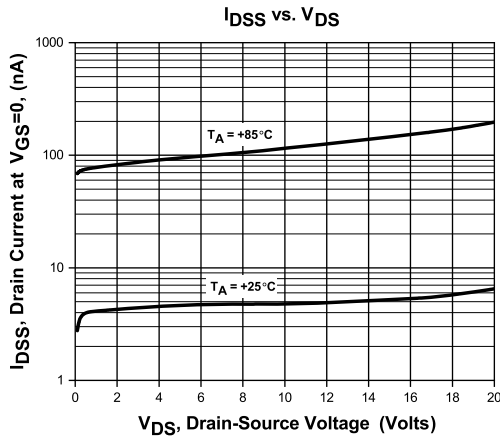
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TYPICAL ELECTRICAL CHARACTERISTICS



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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

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).

CONTACT US

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