



**THE DATASHEET OF
CMLDM8120G TR**



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_A=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_A=25°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 =250μA	20	24		V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	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



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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_{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

SYMBOL

SYMBOL	UNITS
V _{DS}	20 V
V _{GS}	8.0 V
I _D	860 mA
I _D	950 mA
I _S	360 mA
I _{DM}	4.0 A
I _{SM}	4.0 A
P _D	350 mW
P _D	300 mW
P _D	150 mW
T _J , T _{stg}	-65 to +150 °C
θ _{JA}	357 °C/W

R7 (17-October 2018)

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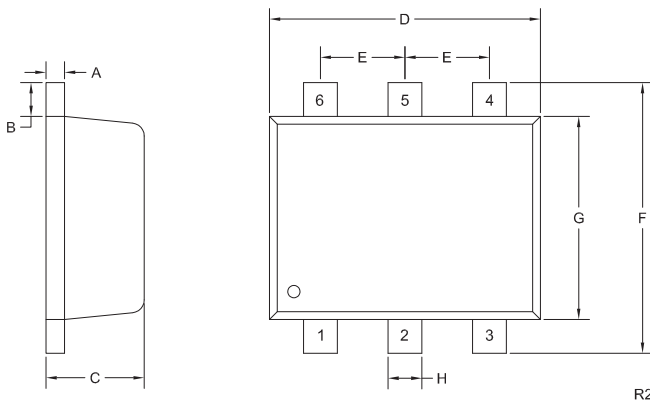
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

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

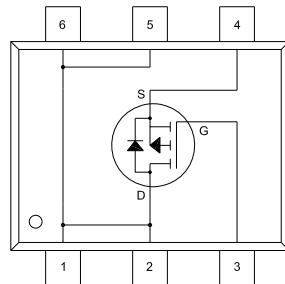
SOT-563 CASE - MECHANICAL OUTLINE



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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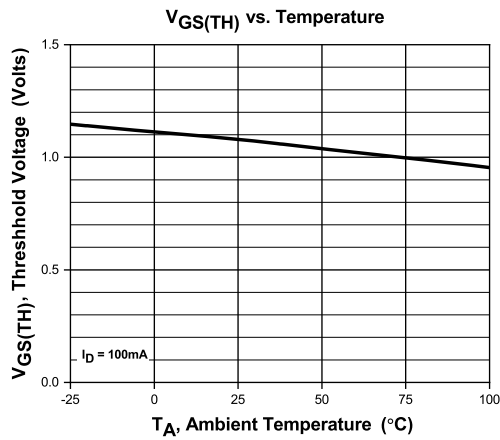
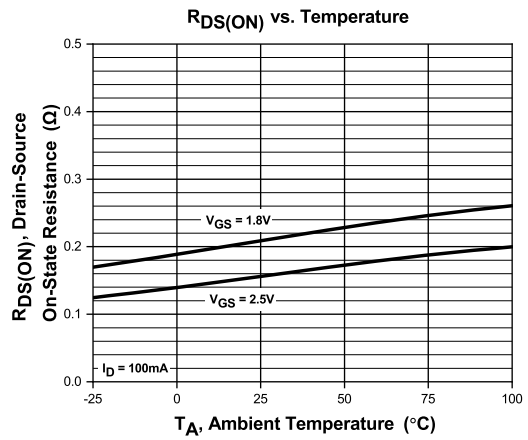
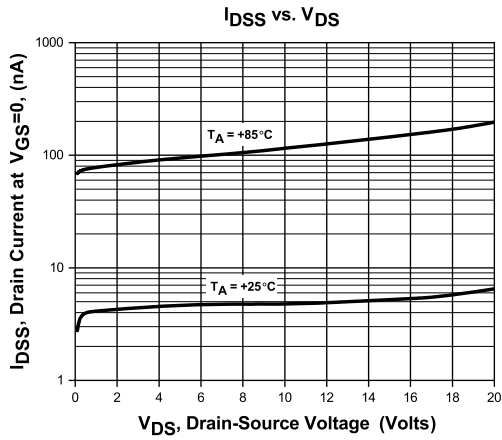
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TYPICAL ELECTRICAL CHARACTERISTICS



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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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