

CMLDM8120  
CMLDM8120G\*

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

**PICOmini™**



**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
Q <sub>g(tot)</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1.0A		3.56		nC
Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1.0A		0.36		nC
Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1.0A		1.52		nC

- 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 Field Effect Transistors, 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 Theshold 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

R4 (2-August 2011)

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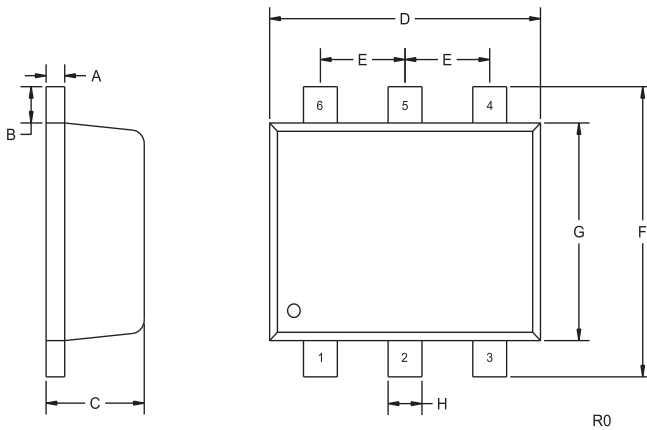
SURFACE MOUNT  
P-CHANNEL  
ENHANCEMENT-MODE  
SILICON MOSFET



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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$g_{FS}$	$V_{DS}=10\text{V}$ , $I_D=0.81\text{A}$	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
$t_{on}$	$V_{DD}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=0.95\text{A}$ , $R_G=6\Omega$		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

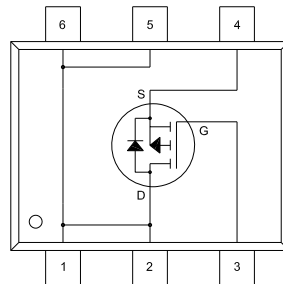
**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.10	0.18
B	0.008		0.20	
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.061	0.067	1.55	1.70
G	0.047		1.20	
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R0)

**PIN CONFIGURATION**



**LEAD CODE:**

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

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