CMLDM8120
CMLDM8120G*

SURFACE MOUNT SILICON P-CHANNEL ENHANCEMENT-MODE MOSFET



SOT-563 CASE

* Device is ***Halogen Free*** by design

Central Semiconductor Corp.

www.centralsemi.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 theshold voltage.

MARKING CODES:

CMLDM8120: C81
CMLDM8120G*: C8G

APPLICATIONS:

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

FEATURES:

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

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
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≤5.0s	I_D	950	mA
Continuous Source Current (Body Diode)	I_S	360	mA
Maximum Pulsed Drain Current, tp=10μs	I_{DM}	4.0	A
Maximum Pulsed Source Current, tp=10μs	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	°C
Thermal Resistance	Θ_{JA}	357	°C/W

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

R7 (17-October 2018)

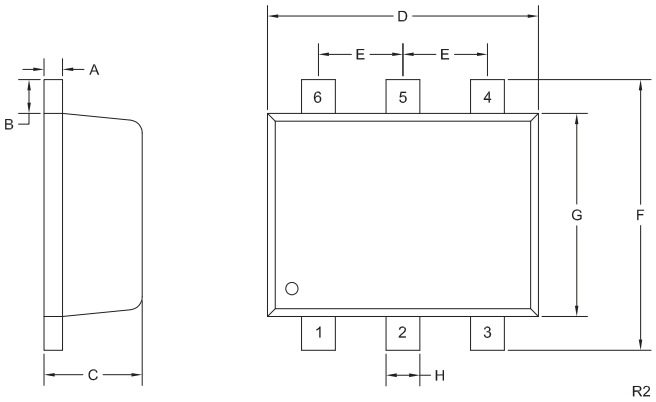
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ELECTRICAL CHARACTERISTICS - **Continued:** (T_A=25°C unless otherwise noted)

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

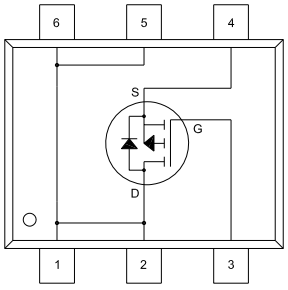
SOT-563 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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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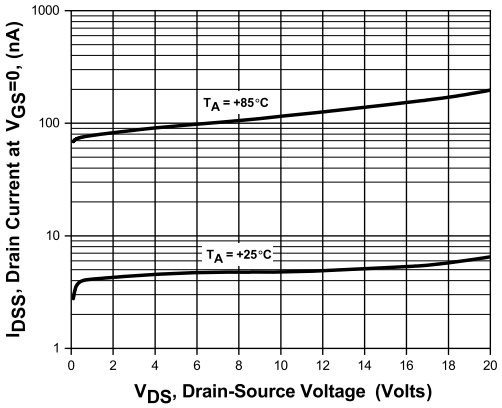
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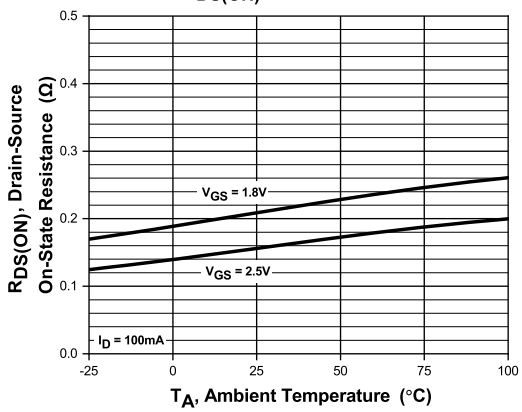
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TYPICAL ELECTRICAL CHARACTERISTICS

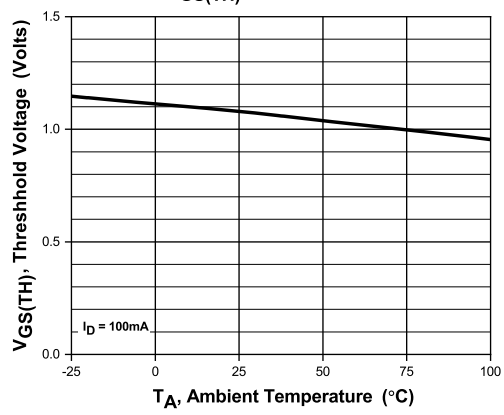
I_{DSS} vs. V_{DS}



$R_{DS(ON)}$ vs. Temperature



$V_{GS(TH)}$ vs. Temperature



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

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centralsemi.com

Worldwide Field Representatives:
www.centralsemi.com/wwreps

Worldwide Distributors:
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