CMLM0708A

MULTI DISCRETE MODULE™

SURFACE MOUNT SILICON N-CHANNEL AND P-CHANNEL COMPLEMENTARY MOSFETS

SOT-563 CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0708A is a Multi Discrete Module™ consisting of complementary N-Channel and P-Channel enhancement-mode MOSFETs packaged in a space saving SOT-563 case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

MARKING CODE: C78

FEATURES:

- Dual Complementary MOSFETS
- Low $r_{DS(ON)}$ (3Ω MAX @ V_{GS}=5.0V)
- Small SOT-563 Surface Mount Package

APPLICATIONS:

- Switching Circuits
- DC-DC Converters
- Battery Powered Portable Equipment including Cell Phones, Digital Cameras, Pagers, PDAs, Notebook PCs, etc.

MAXIMUM RATINGS - CASE: (T_A=25°C)	**SYMBOL**		**UNITS**
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

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**	**N-Ch (Q1)**	**P-Ch (Q2)**	**UNITS**
Drain-Source Voltage	V_{DS}	60	50	V
Drain-Gate Voltage	V_{DG}	60	50	V
Gate-Source Voltage	V_{GS}	40	20	V
Continuous Drain Current	I_D	280	280	mA
Continuous Source Current (Body Diode)	I_S	280	280	mA
Maximum Pulsed Drain Current	I_{DM}	1.5	1.5	A
Maximum Pulsed Source Current	I_{SM}	1.5	1.5	A

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

		N-Ch (Q1)		**P-Ch (Q2)**		
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**MIN**	**MAX**	**UNITS**
I_{GSSF}, I_{GSSR}	V_{GS}=20V, V_{DS}=0	-	100	-	100	nA
I_{DSS} (N-Ch)	V_{DS}=60V, V_{GS}=0	-	1.0	-	-	μA
I_{DSS} (P-Ch)	V_{DS}=50V, V_{GS}=0	-	-	-	1.0	μA
I_{DSS} (N-Ch)	V_{DS}=60V, V_{GS}=0, T_J=125°C	-	500	-	-	μA
I_{DSS} (P-Ch)	V_{DS}=50V, V_{GS}=0, T_J=125°C	-	-	-	500	μA
$I_{D(ON)}$	V_{GS}=10V, V_{DS}=10V	500	-	500	-	mA
BV_{DSS}	V_{GS}=0, I_D=10μA	60	-	50	-	V

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

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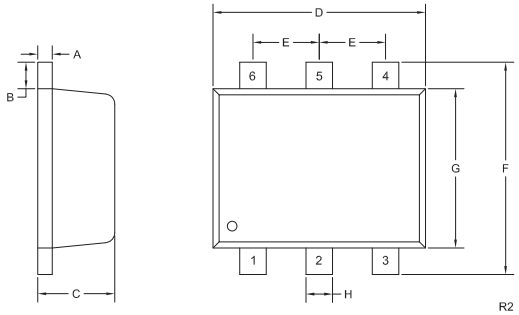
ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C unless otherwise noted)

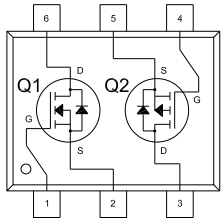
		N-Ch (Q1)			P-Ch (Q2)			
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**MAX**	**MIN**	**TYP**	**MAX**	**UNITS**
$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.5	1.0	-	2.5	V
$V_{DS(ON)}$	V_{GS}=10V, I_D=500mA	-	-	1.0	-	-	1.5	V
$V_{DS(ON)}$	V_{GS}=5.0V, I_D=50mA	-	-	0.15	-	-	0.15	V
V_{SD} (N-Ch)	V_{GS}=0, I_S=400mA	-	-	1.2	-	-	-	V
V_{SD} (P-Ch)	V_{GS}=0, I_S=115mA	-	-	-	-	-	1.3	V
$r_{DS(ON)}$	V_{GS}=10V, I_D=500mA	-	-	2.0	-	-	2.5	Ω
$r_{DS(ON)}$	V_{GS}=10V, I_D=500mA, T_J=125°C	-	-	3.5	-	-	4.0	Ω
$r_{DS(ON)}$	V_{GS}=5.0V, I_D=50mA	-	-	3.0	-	-	3.0	Ω
$r_{DS(ON)}$	V_{GS}=5.0V, I_D=50mA, T_J=125°C	-	-	5.0	-	-	5.0	Ω
g_{FS}	V_{DS}=10V, I_D=200mA	80	-	-	200	-	-	mS
C_{rss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz	-	-	5.0	-	-	7.0	pF
C_{iss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz	-	-	50	-	-	70	pF
C_{oss}	V_{DS}=25V, V_{GS}=0, f=1.0MHz	-	-	25	-	-	15	pF
$Q_{g(tot)}$ (N-Ch)	V_{DS}=30V, V_{GS}=4.5V, I_D=100mA	-	0.592	-	-	-	-	nC
Q_{gs} (N-Ch)	V_{DS}=30V, V_{GS}=4.5V, I_D=100mA	-	0.196	-	-	-	-	nC
Q_{gd} (N-Ch)	V_{DS}=30V, V_{GS}=4.5V, I_D=100mA	-	0.148	-	-	-	-	nC
$Q_{g(tot)}$ (P-Ch)	V_{DS}=25V, V_{GS}=4.5V, I_D=100mA	-	-	-	-	0.72	-	nC
Q_{gs} (P-Ch)	V_{DS}=25V, V_{GS}=4.5V, I_D=100mA	-	-	-	-	0.25	-	nC
Q_{gd} (P-Ch)	V_{DS}=25V, V_{GS}=4.5V, I_D=100mA	-	-	-	-	0.16	-	nC
t_{on}, t_{off}	V_{DD}=30V, V_{GS}=10V, I_D=200mA, R_G=25Ω, R_L=150Ω	-	-	20	-	-	20	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

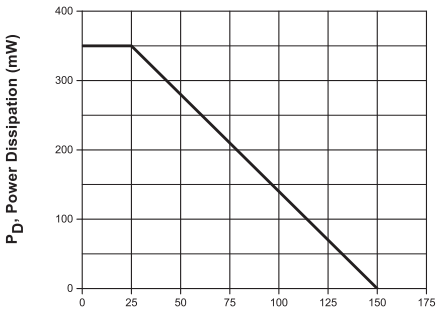
SOT-563 (REV: R2)



LEAD CODE:
1) Gate Q1
2) Source Q1
3) Drain Q2
4) Gate Q2
5) Source Q2
6) Drain Q1

MARKING CODE: C78

Power Derating



R4 (1-July 2015)

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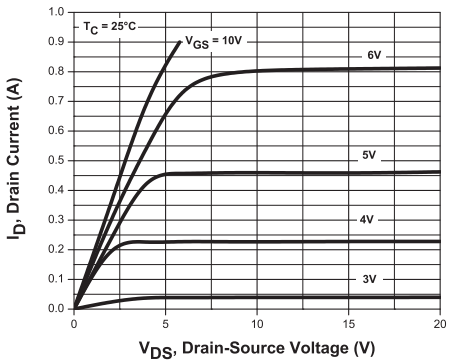
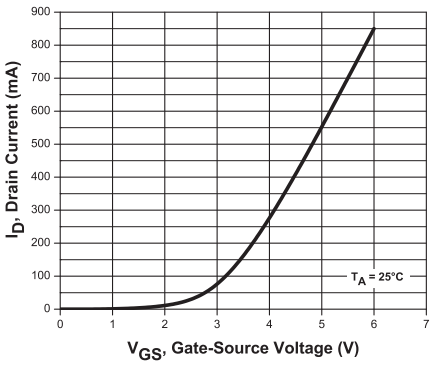
N-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS

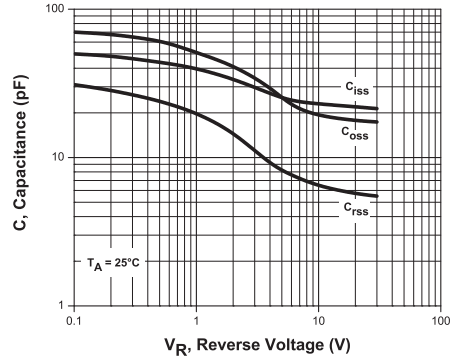
Output Characteristics



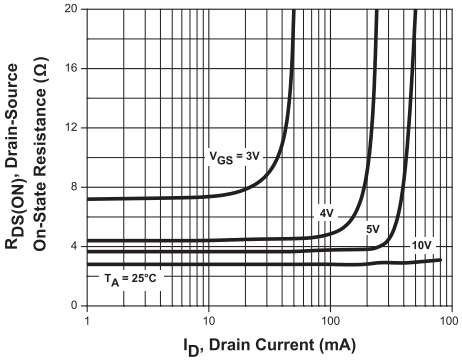
Transfer Characteristics



Capacitance



Drain Source On Resistance



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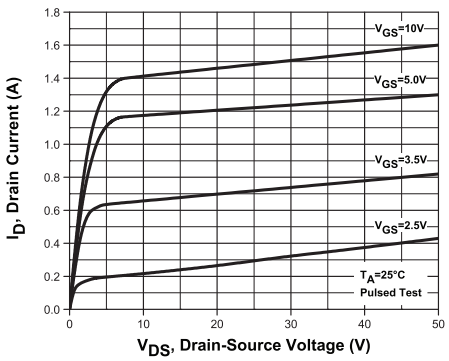
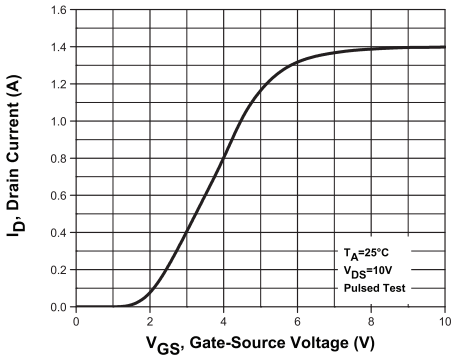
P-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS

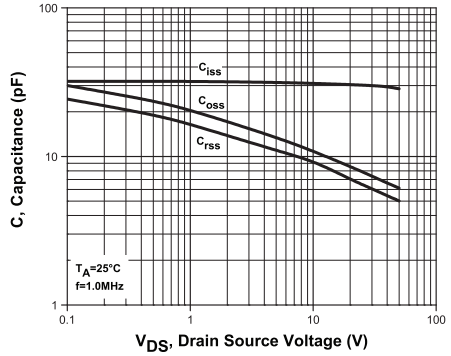
Output Characteristics



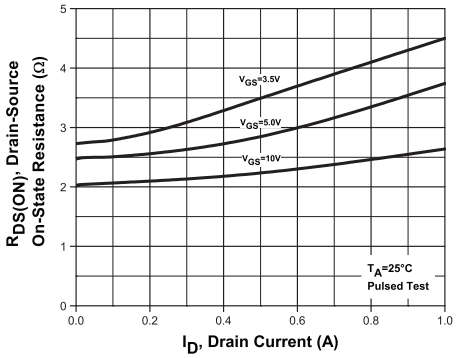
Transfer Characteristics



Capacitance



Drain Source On Resistance



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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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