



CMLM0708A

MULTI DISCRETE MODULE™

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



PICOmini™



SOT-563 CASE

Central™

Semiconductor Corp.

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 PICOmini™ SOT-563 case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

MARKING CODE: C78

APPLICATIONS:

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

FEATURES:

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

MAXIMUM RATINGS (SOT-563 Package) ($T_A=25^\circ C$)

	SYMBOL		UNITS
Power Dissipation	P_D	350	mW (Note 1)
Power Dissipation	P_D	300	mW (Note 2)
Power Dissipation	P_D	150	mW (Note 3)
Operating and Storage			
Junction Temperature	T_J, T_{stg}	-65 to +150	$^\circ C$
Thermal Resistance	θ_{JA}	357	$^\circ C/W$

MAXIMUM RATINGS ($T_A=25^\circ C$)

	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 ($T_A=25^\circ C$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	N-Ch (Q1)		P-Ch (Q2)		UNITS
		MIN	MAX	MIN	MAX	
I_{GSSF}	$V_{GS}=20V, V_{DS}=0V$	-	100	-	100	nA
I_{GSSR}	$V_{GS}=20V, V_{DS}=0V$	-	100	-	100	nA
I_{DSS} (N-Ch)	$V_{DS}=60V, V_{GS}=0V$	-	1.0	-	-	μA
I_{DSS} (P-Ch)	$V_{DS}=50V, V_{GS}=0V$	-	-	-	1.0	μA
I_{DSS} (N-Ch)	$V_{DS}=60V, V_{GS}=0V, T_J=125^\circ C$	-	500	-	-	μA
I_{DSS} (P-Ch)	$V_{DS}=50V, V_{GS}=0V, T_J=125^\circ C$	-	-	-	500	μA
$I_{D(ON)}$ (N-Ch)	$V_{GS}=10V, V_{DS} \geq 2V_{DS(ON)}$	500	-	-	-	mA
$I_{D(ON)}$ (P-Ch)	$V_{GS}=10V, V_{DS}=10V$	-	-	500	-	mA
BV_{DSS}	$V_{GS}=0V, I_D=10\mu A$	60	-	50	-	V

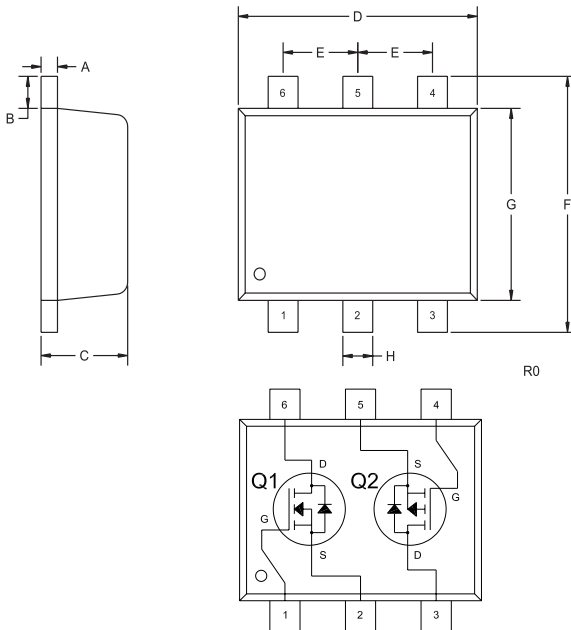
- Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0 mm²
 (2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0 mm²
 (3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4 mm²

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ELECTRICAL CHARACTERISTICS (continued)

SYMBOL	TEST CONDITIONS	N-Ch (Q1)		P-Ch (Q2)		UNITS
		MIN	MAX	MIN	MAX	
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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
$r_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$	-	2.0	-	2.5	Ω
$r_{DS(ON)}$	$V_{GS}=10V, I_D=500mA, T_J=125^\circ C$	-	3.5	-	4.0	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$	-	3.0	-	3.0	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA, T_J=125^\circ C$	-	5.0	-	5.0	Ω
g_{FS} (N-Ch)	$V_{DS} \geq 2V_{DS(ON)}, I_D=200mA$	80	-	-	-	mmhos
g_{FS} (P-Ch)	$V_{DS}=10V, I_D=200mA$	-	-	200	-	mmhos
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
t_{on}	$V_{DD}=30V, V_{GS}=10V, I_D=200mA$	-	20	-	20	ns
t_{off}	$R_G=25\Omega, R_L=150\Omega$	-	20	-	20	ns
V_{SD} (N-Ch)	$V_{GS}=0V, I_S=400mA$	-	1.2	-	-	V
V_{SD} (P-Ch)	$V_{GS}=0V, I_S=115mA$	-	-	-	1.3	V

SOT-563 - 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)

LEAD CODE:

- 1) GATE Q1
- 2) SOURCE Q1
- 3) DRAIN Q2
- 4) GATE Q2
- 5) SOURCE Q2
- 6) DRAIN Q1

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