



**CMLM0305
CMLM0305G**

MULTI DISCRETE MODULE™
SURFACE MOUNT
N-CHANNEL MOSFET AND
LOW V_F SILICON SCHOTTKY DIODE



PICOmini™



SOT-563 CASE

Central™

Semiconductor Corp.

DESCRIPTION:

The Central Semiconductor CMLM0305 and CMLM0305G are Multi Discrete Modules™ consisting of a single N-Channel Enhancement-mode MOSFET and a Low V_F Schottky diode packaged in a space saving PICOmini™ SOT-563 surface mount case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

CMLM0305 MARKING CODE: 5C3

CMLM0305G MARKING CODE: 5CG

FEATURES:

- The CMLM0305G is **Halogen Free** by design.
- ESD protection up to 2kV
- Low $r_{DS(on)}$ Transistor (3Ω MAX @ $V_{GS}=1.8V$)
- Low V_F Schottky Diode (0.47V MAX @ 0.5A)

APPLICATIONS:

- DC / DC Converters
- Battery Powered Portable Equipment

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

	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	$^\circ C$
Thermal Resistance	θ_{JA}	357	$^\circ C/W$

MAXIMUM RATINGS Q1: ($T_A=25^\circ C$)

	SYMBOL		UNITS
Drain-Source Voltage	V_{DS}	50	V
Drain-Gate Voltage	V_{DG}	50	V
Gate-Source Voltage	V_{GS}	12	V
Continuous Drain Current	I_D	280	mA
Maximum Pulsed Drain Current	I_{DM}	1.5	A

MAXIMUM RATINGS D1: ($T_A=25^\circ C$)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
Continuous Forward Current	I_F	500	mA
Peak Repetitive Forward Current, $t_p \leq 1ms$	I_{FRM}	3.5	A
Forward Surge Current, $t_p=8ms$	I_{FSM}	10	A

ELECTRICAL CHARACTERISTICS Q1: ($T_A=25^\circ C$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=5V$		100	nA
I_{GSSF}, I_{GSSR}	$V_{GS}=10V$		2.0	μA
I_{GSSF}, I_{GSSR}	$V_{GS}=12V$		2.0	μA
I_{DSS}	$V_{DS}=50V, V_{GS}=0V$		50	nA
BV_{DSS}	$V_{GS}=0V, I_D=10\mu A$	50		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.49	1.0	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

R2 (22-May 2008)

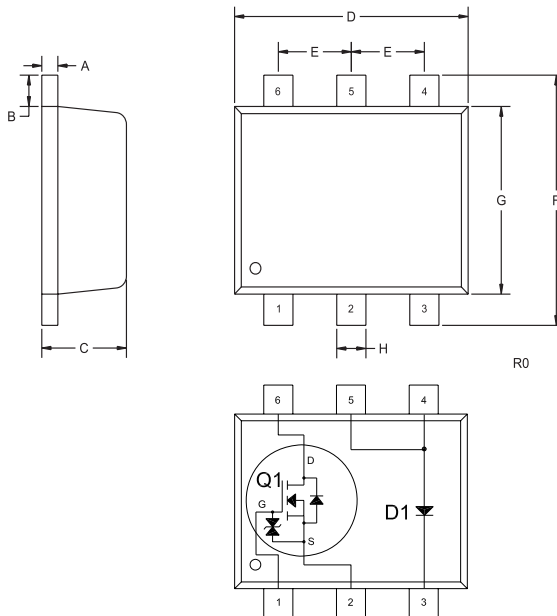
ELECTRICAL CHARACTERISTICS Q1 - Continued:

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=50mA$		1.6	3.0	Ω
$r_{DS(ON)}$	$V_{GS}=2.5V, I_D=50mA$		1.3	2.5	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$		1.1	2.0	Ω
gFS	$V_{DS}=10V, I_D=200mA$	200			mS
C_{rss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			5.0	pF
C_{iss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			50	pF
C_{oss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			25	pF
V_{SD}	$V_{GS}=0V, I_S=115mA$			1.4	V

ELECTRICAL CHARACTERISTICS D1: ($T_A=25^\circ C$)

I_R	$V_R=10V$			20	μA
I_R	$V_R=30V$			100	μA
BV_R	$I_R=500\mu A$	40			V
V_F	$I_F=100\mu A$			0.13	V
V_F	$I_F=1.0mA$			0.21	V
V_F	$I_F=10mA$			0.27	V
V_F	$I_F=100mA$			0.35	V
V_F	$I_F=500mA$			0.47	V
C_T	$V_R=1.0V, f=1.0MHz$			50	pF

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) CATHODE D1
- 4) ANODE D1
- 5) ANODE D1
- 6) DRAIN Q1

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