



**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	$\theta_{JA}$	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	$\mu A$
$I_{GSSF}, I_{GSSR}$	$V_{GS}=12V$		2.0	$\mu A$
$I_{DSS}$	$V_{DS}=50V, V_{GS}=0V$		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 mm<sup>2</sup>  
 (2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0 mm<sup>2</sup>  
 (3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4 mm<sup>2</sup>

R2 (22-May 2008)

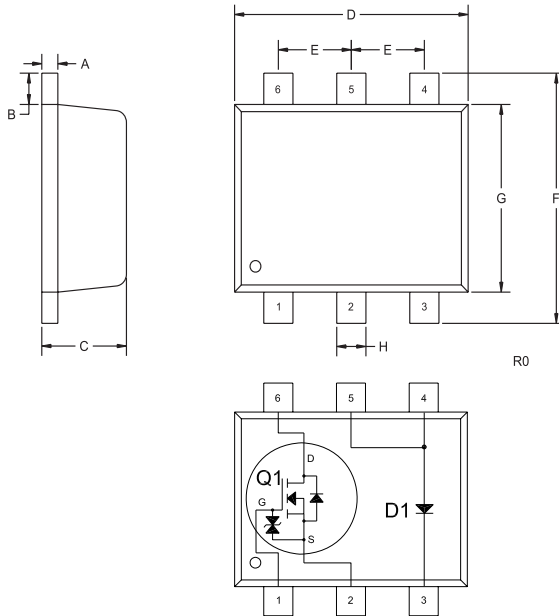
**ELECTRICAL CHARACTERISTICS Q1 - Continued:**

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=50mA$		1.6	3.0	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5V, I_D=50mA$		1.3	2.5	$\Omega$
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$		1.1	2.0	$\Omega$
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	$\mu A$
$I_R$	$V_R=30V$			100	$\mu A$
$BV_R$	$I_R=500\mu A$	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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