

**CMLM0305
CMLM0305G***
MULTI DISCRETE MODULE™
**SURFACE MOUNT SILICON
N-CHANNEL MOSFET AND
LOW V_F SCHOTTKY DIODE**



* Device is **Halogen Free** by design

APPLICATIONS:

- DC / DC Converters
- Battery Powered Portable Equipment

MAXIMUM RATINGS - CASE: (T_A=25°C)

Power Dissipation (Note 1)	
Power Dissipation (Note 2)	
Power Dissipation (Note 3)	
Operating and Storage Junction Temperature	
Thermal Resistance	

MAXIMUM RATINGS - Q1: (T_A=25°C)

Drain-Source Voltage	
Drain-Gate Voltage	
Gate-Source Voltage	
Continuous Drain Current	
Maximum Pulsed Drain Current	

MAXIMUM RATINGS - D1: (T_A=25°C)

Peak Repetitive Reverse Voltage	
Continuous Forward Current	
Peak Repetitive Forward Current, tp≤1.0ms	
Peak Forward Surge Current, tp=8.0ms	

ELECTRICAL CHARACTERISTICS - Q1: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{GSSF} , I _{GSSR}	V _{GS} =5.0V		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} =0		50	nA
BV _{DSS}	V _{GS} =0, I _D =10μA	50		V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.49	1.0	V

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



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

**MARKING CODES: CMLM0305: 5C3
CMLM0305G*: 5CG**

FEATURES:

- 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)

SYMBOL		UNITS
P _D	350	mW
P _D	300	mW
P _D	150	mW
T _J , T _{stg}	-65 to +150	°C
θ _{JA}	357	°C/W

SYMBOL		UNITS
V _{DS}	50	V
V _{DG}	50	V
V _{GS}	12	V
I _D	280	mA
I _{DM}	1.5	A

SYMBOL		UNITS
V _{RRM}	40	V
I _F	500	mA
I _{FRM}	3.5	A
I _{FSM}	10	A

R5 (15-June 2015)

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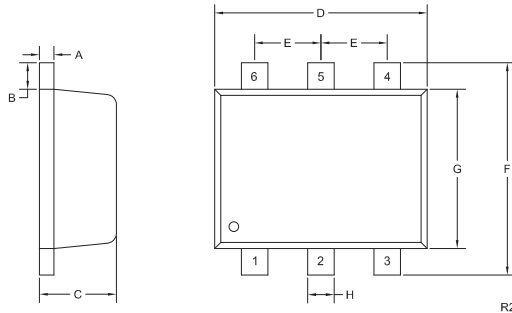
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{SD}	$V_{GS}=0, I_S=115mA$			1.4	V
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=50mA$		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
g_{FS}	$V_{DS}=10V, I_D=200mA$	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

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_J	$V_R=1.0V, f=1.0MHz$			50	pF

SOT-563 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	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) Cathode D1
- 4) Anode D1
- 5) Anode D1
- 6) Drain Q1

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SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development/ Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

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R5 (15-June 2015)