

**CMLM0305  
CMLM0305G\***  
**MULTI DISCRETE MODULE™**  
**SURFACE MOUNT SILICON  
N-CHANNEL MOSFET AND  
LOW V<sub>F</sub> SCHOTTKY DIODE**



[www.centrasemi.com](http://www.centrasemi.com)



**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLM0305 and CMLM0305G are Multi Discrete Modules™ consisting of a single N-Channel enhancement-mode MOSFET and a low V<sub>F</sub> 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**

\* Device is **Halogen Free** by design

**APPLICATIONS:**

- DC-DC converters
- Battery powered portable equipment

**MAXIMUM RATINGS - CASE: (T<sub>A</sub>=25°C)**

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

**SYMBOL**

P <sub>D</sub>	350	mW
P <sub>D</sub>	300	mW
P <sub>D</sub>	150	mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
θ <sub>JA</sub>	357	°C/W

**UNITS**

**MAXIMUM RATINGS - Q1: (T<sub>A</sub>=25°C)**

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

**SYMBOL**

V <sub>DS</sub>	50	V
V <sub>DG</sub>	50	V
V <sub>GS</sub>	12	V
I <sub>D</sub>	280	mA
I <sub>DM</sub>	1.5	A

**UNITS**

**MAXIMUM RATINGS - D1: (T<sub>A</sub>=25°C)**

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

**SYMBOL**

V <sub>RRM</sub>	40	V
I <sub>F</sub>	500	mA
I <sub>FRM</sub>	3.5	A
I <sub>FSM</sub>	10	A

**UNITS**

**ELECTRICAL CHARACTERISTICS - Q1: (T<sub>A</sub>=25°C unless otherwise noted)**

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =5.0V		100	nA
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =10V		2.0	μA
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =12V		2.0	μA
I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0		50	nA
BV <sub>DSS</sub>	V <sub>GS</sub> =0, I <sub>D</sub> =10μA	50		V
V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.49	1.0	V

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

R7 (8-January 2018)

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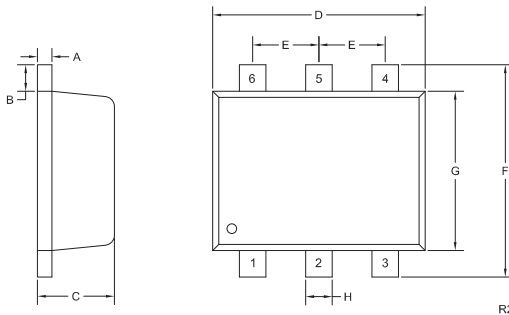
**ELECTRICAL CHARACTERISTICS - Q1 - Continued:**

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	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5V, I_D=50mA$		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

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

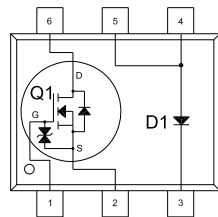
$I_R$	$V_R=10V$			30	$\mu A$
$I_R$	$V_R=30V$			100	$\mu A$
$BV_R$	$I_R=500\mu A$	40			V
$V_F$	$I_F=100\mu A$			0.13	V
$V_F$	$I_F=1.0mA$			0.21	V
$V_F$	$I_F=10mA$			0.27	V
$V_F$	$I_F=100mA$			0.35	V
$V_F$	$I_F=500mA$			0.47	V
$C_J$	$V_R=1.0V, f=1.0MHz$			50	pF

**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	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

**MARKING CODES:**

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**CMLM0305G\*: 5CG**

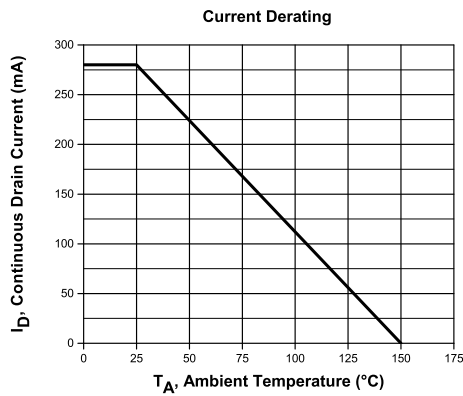
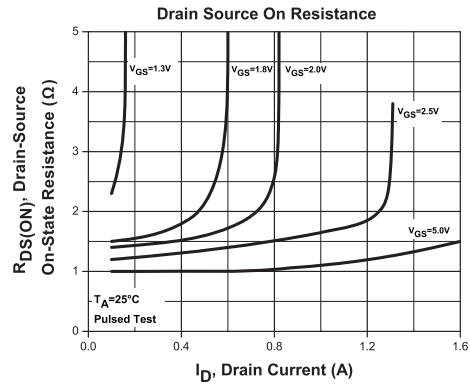
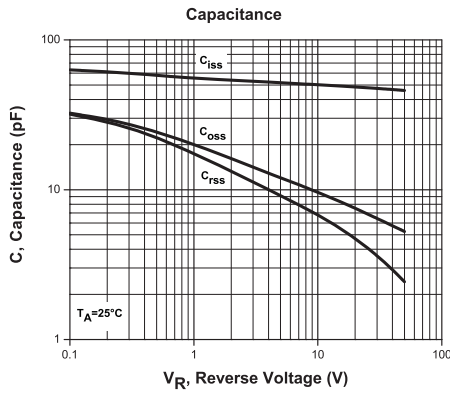
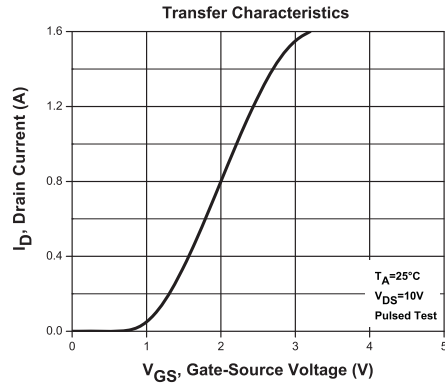
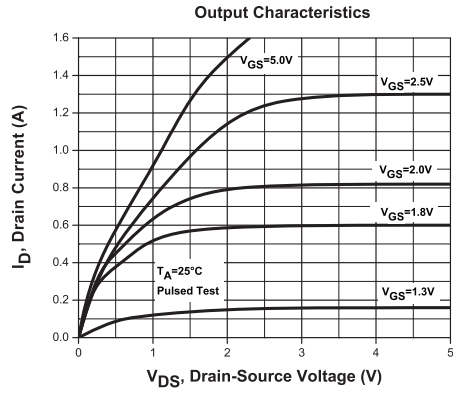
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**Q1 TYPICAL ELECTRICAL CHARACTERISTICS**

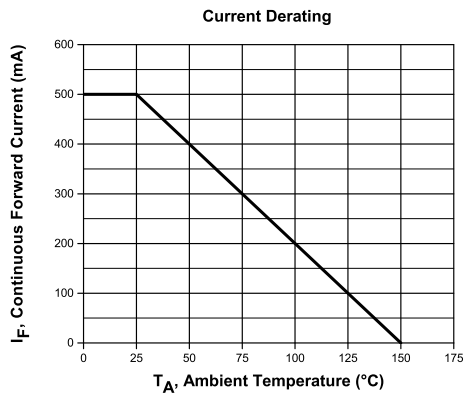
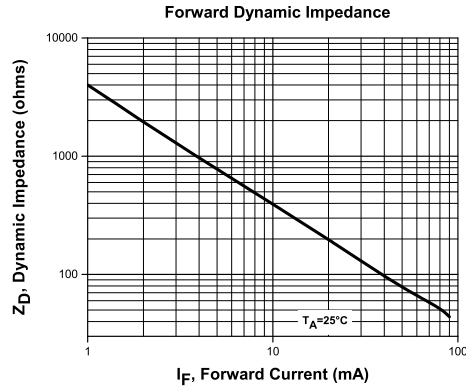
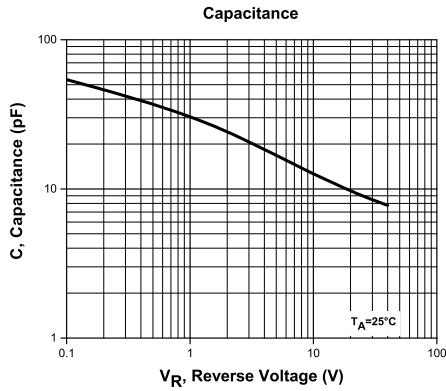
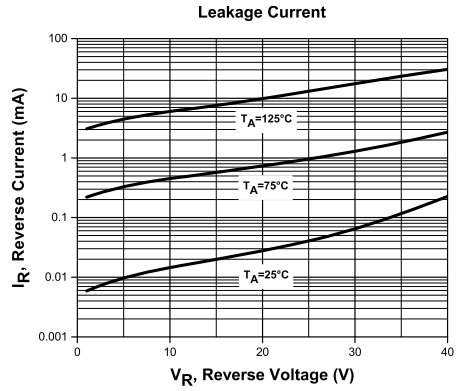
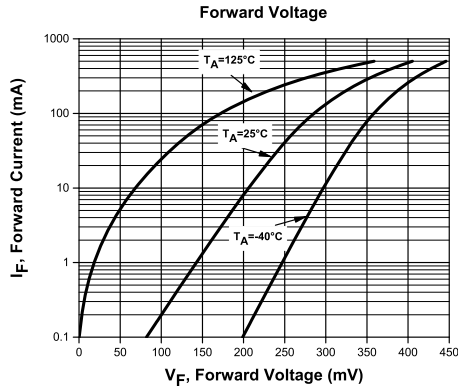


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**D1 TYPICAL ELECTRICAL CHARACTERISTICS**



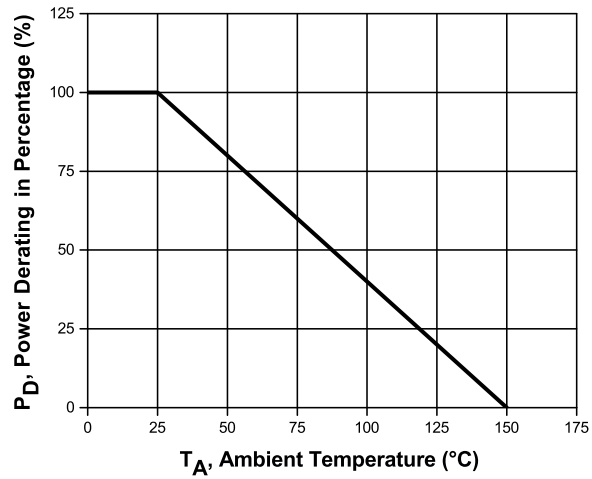
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### TOTAL PACKAGE POWER DERATING

#### Normalized Power Derating



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## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> 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

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### 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).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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