CMLM0305
CMLM0305G*

MULTI DISCRETE MODULE™

SURFACE MOUNT SILICON N-CHANNEL MOSFET AND LOW V_F SCHOTTKY DIODE

SOT-563 CASE

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

Central Semiconductor Corp.

www.centralsemi.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_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

APPLICATIONS:

- DC-DC converters
- Battery powered portable equipment

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)

MAXIMUM RATINGS - CASE: (T_A=25°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	°C
Thermal Resistance	Θ_{JA}	357	°C/W

MAXIMUM RATINGS - Q1: (T_A=25°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°C)	**SYMBOL**		**UNITS**
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
Continuous Forward Current	I_F	500	mA
Peak Repetitive Forward Current, tp≤1.0ms	I_{FRM}	3.5	A
Peak Forward Surge Current, tp=8.0ms	I_{FSM}	10	A

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 4.0mm^2
2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm^2
3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm^2

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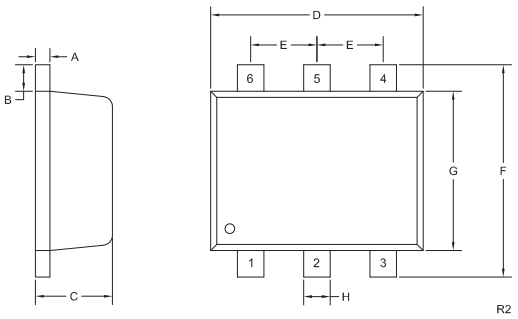
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

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°C)

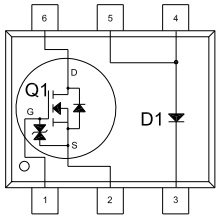
I_R	V_R=10V			30	μA
I_R	V_R=30V			100	μA
BV_R	I_R=500μA	40			V
V_F	I_F=100μA			0.13	V
V_F	I_F=1.0mA			0.21	V
V_F	I_F=10mA			0.27	V
V_F	I_F=100mA			0.35	V
V_F	I_F=500mA			0.47	V
C_J	V_R=1.0V, f=1.0MHz			50	pF

SOT-563 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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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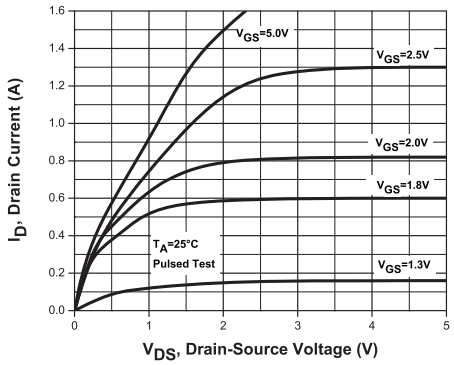
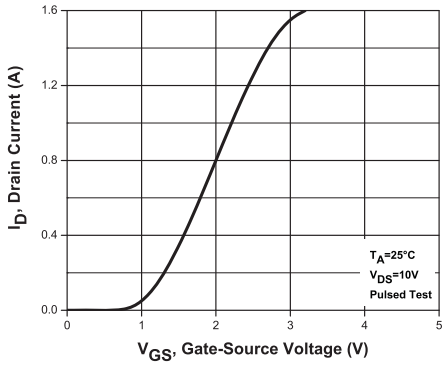
Q1 TYPICAL ELECTRICAL CHARACTERISTICS

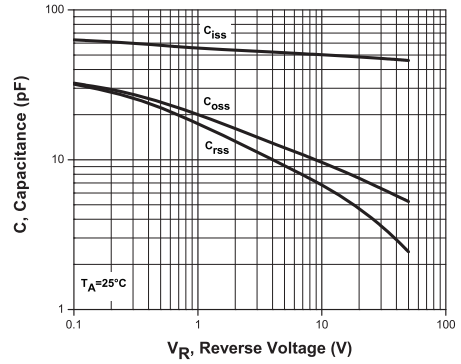
Output Characteristics



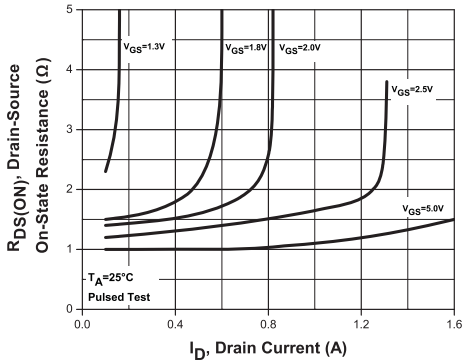
Transfer Characteristics



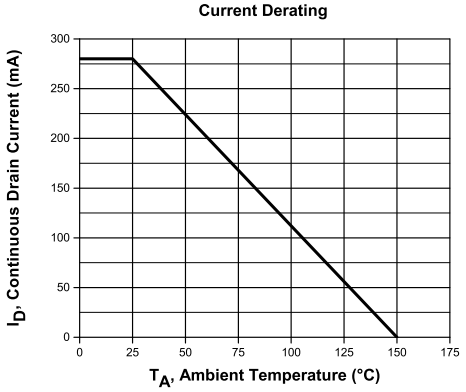
Capacitance



Drain Source On Resistance



Current Derating



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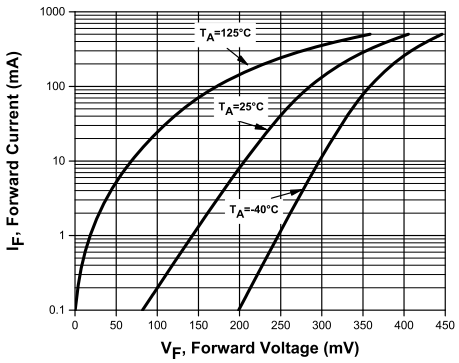
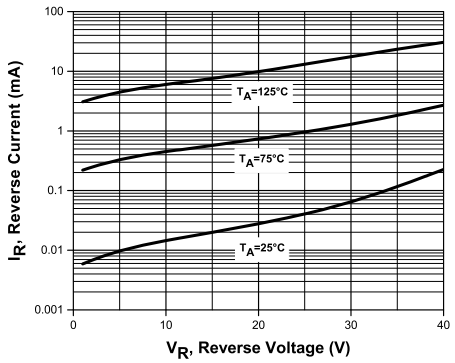
D1 TYPICAL ELECTRICAL CHARACTERISTICS

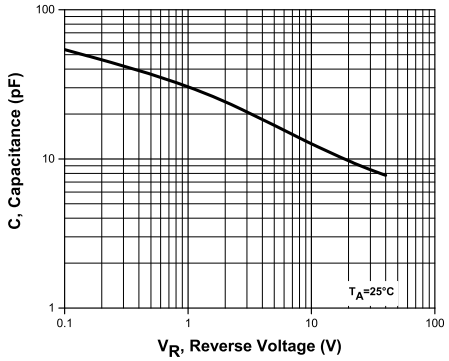
Forward Voltage



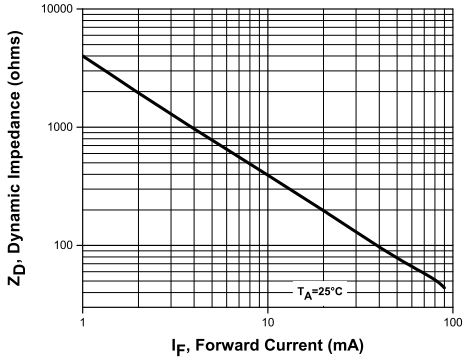
Leakage Current



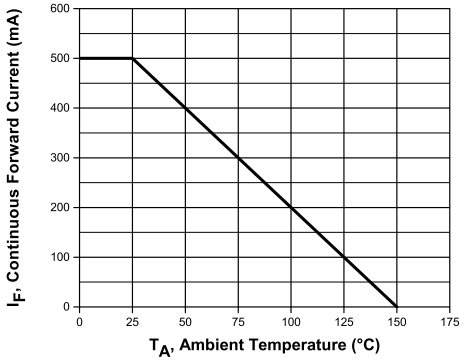
Capacitance



Forward Dynamic Impedance



Current Derating



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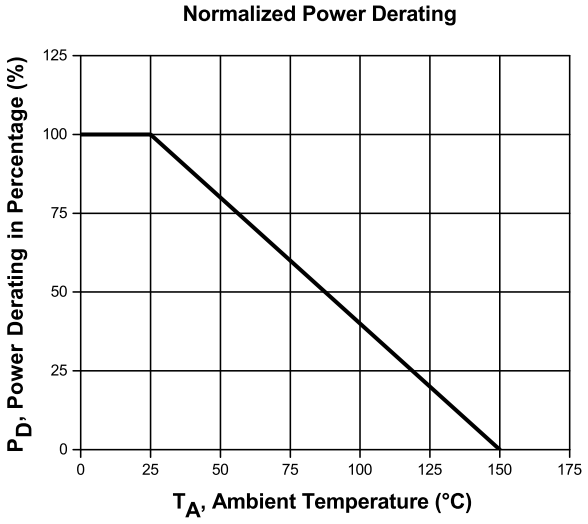
TOTAL PACKAGE POWER DERATING



OUTSTANDING SUPPORT AND SUPERIOR SERVICES

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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

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