

**CMLM0305T**  
**MULTI DISCRETE MODULE™**  
**SURFACE MOUNT SILICON**  
**N-CHANNEL MOSFET AND**  
**LOW V<sub>F</sub> SCHOTTKY DIODE**



www.centrasemi.com



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLM0305T is a Multi Discrete Module™ 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 CODE: C35**

**APPLICATIONS:**

- DC-DC Converters
- Battery Powered Portable Equipment

**FEATURES:**

- ESD protection up to 2kV
- Low r<sub>DS(on)</sub> Transistor (1.5Ω MAX @ V<sub>GS</sub>=5.0V)
- Low V<sub>F</sub> Schottky Diode (0.47V MAX @ 0.5A)

**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		UNITS
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

**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		UNITS
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

**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		UNITS
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

**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		50	nA
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =10V		0.5	μA
I <sub>GSSF</sub> , I <sub>GSSR</sub>	V <sub>GS</sub> =12V		1.0	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	0.75	1.2	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>

R5 (8-January 2018)

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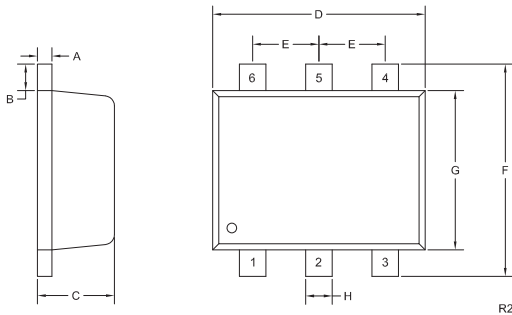
**ELECTRICAL CHARACTERISTICS - Q1 - Continued:**

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V <sub>SD</sub>	V <sub>GS</sub> =0, I <sub>S</sub> =115mA			1.4	V
r <sub>DS(ON)</sub>	V <sub>GS</sub> =1.8V, I <sub>D</sub> =50mA		1.6	2.3	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =2.5V, I <sub>D</sub> =50mA		1.3	1.9	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =5.0V, I <sub>D</sub> =50mA		1.1	1.5	Ω
g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =200mA	200			mS
C <sub>rss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			5.0	pF
C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			50	pF
C <sub>oss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz			25	pF

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

I <sub>R</sub>	V <sub>R</sub> =10V			30	μA
I <sub>R</sub>	V <sub>R</sub> =30V			100	μA
BV <sub>R</sub>	I <sub>R</sub> =500μA	40			V
V <sub>F</sub>	I <sub>F</sub> =100μA			0.13	V
V <sub>F</sub>	I <sub>F</sub> =1.0mA			0.21	V
V <sub>F</sub>	I <sub>F</sub> =10mA			0.27	V
V <sub>F</sub>	I <sub>F</sub> =100mA			0.35	V
V <sub>F</sub>	I <sub>F</sub> =500mA			0.47	V
C <sub>J</sub>	V <sub>R</sub> =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

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R5 (8-January 2018)

## 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

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