

CMLM8205

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



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLM8205 is a Multi Discrete Module™ consisting of a single P-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.



SOT-563 CASE

**MARKING CODE: C85**

**APPLICATIONS:**

- DC-DC Converters
- Battery Powered Portable Equipment

**FEATURES:**

- Low r<sub>DS(on)</sub> Transistor (3.0Ω 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  
Continuous Source Current (Body Diode)  
Maximum Pulsed Drain Current  
Maximum Pulsed Source Current

SYMBOL		UNITS
V <sub>DS</sub>	50	V
V <sub>DG</sub>	50	V
V <sub>GS</sub>	20	V
I <sub>D</sub>	280	mA
I <sub>S</sub>	280	mA
I <sub>DM</sub>	1.5	A
I <sub>SM</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> =20V, V <sub>DS</sub> =0		100	nA
I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0		1.0	μA
I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0, T <sub>J</sub> =125°C		500	μA
I <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =10V	500		mA
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	1.0	2.5	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>

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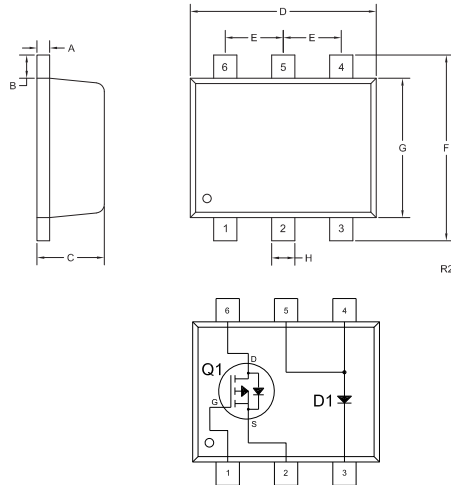
**ELECTRICAL CHARACTERISTICS - Q1 - Continued:**

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
V <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA		1.5	V
V <sub>DS(ON)</sub>	V <sub>GS</sub> =5.0V, I <sub>D</sub> =50mA		0.15	V
V <sub>SD</sub>	V <sub>GS</sub> =0, I <sub>S</sub> =115mA		1.3	V
r <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA		2.5	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA, T <sub>J</sub> =125°C		4.0	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =5.0V, I <sub>D</sub> =50mA		3.0	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =5.0V, I <sub>D</sub> =50mA, T <sub>J</sub> =125°C		5.0	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		7.0	pF
C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz		70	pF
C <sub>oss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1.0MHz		15	pF
t <sub>on</sub> , t <sub>off</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =200mA, R <sub>G</sub> =25Ω, R <sub>L</sub> =150Ω		20	ns

**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

**MARKING CODE: C85**

R4 (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

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)

# Product End of Life Notification

<b>PDN ID:</b>	PDN01214
<b>Notification Date:</b>	2/22/22
<b>Last Buy Date:</b>	8/22/22
<b>Last Shipment Date</b>	2/22/23

Summary: The CMLM8205 MOSFET/Schottky diode MDM is discontinued and now classified as End Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Management Process. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

**\* All Plating types (PBFREE,TIN/LEAD) for each item listed are included in this notice.**

<u>Central Part Number</u>	<u>Suggested Replacement</u>
CMLM8205 BK	N/A
CMLM8205 TR	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. If you would like assistance, please visit <https://my.centrasemi.com/submit-inquiry?type=ER> to submit an online inquiry.

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DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.