

**CMLM0205**  
**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 CMLM0205 is a Multi Discrete Module™ consisting of a single N-Channel MOSFET and a low V<sub>F</sub> Schottky diode packaged in a space saving SOT-563 case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

- Combination: N-Channel MOSFET and Low V<sub>F</sub> Schottky Diode.



**MARKING CODE: C25**

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

Power Dissipation	
Operating and Storage Junction Temperature	
Thermal Resistance	

SYMBOL		UNITS
P <sub>D</sub>	350	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>	60	V
V <sub>DG</sub>	60	V
V <sub>GS</sub>	40	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> =60V, V <sub>GS</sub> =0		1.0	μA
I <sub>DSS</sub>	V <sub>DS</sub> =60V, 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	60		V
V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	2.5	V
V <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA		1.0	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> =400mA		1.2	V
r <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA		2.0	Ω
r <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =500mA, T <sub>J</sub> =125°C		3.5	Ω

R4 (8-January 2018)

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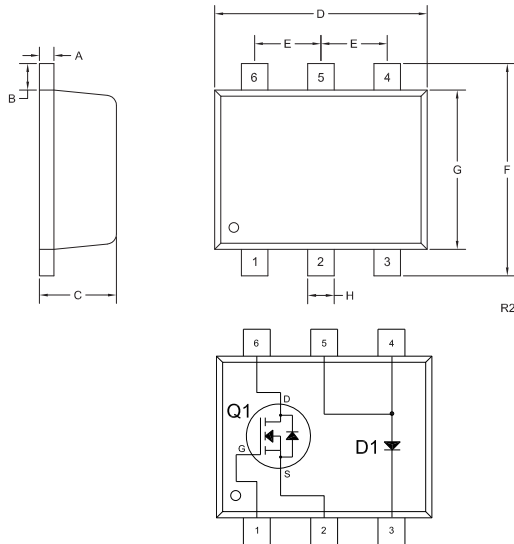
**ELECTRICAL CHARACTERISTICS - Q1 - Continued:**

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
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	80		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
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	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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## 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)

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