

CMLM8205

**MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
P-CHANNEL MOSFET AND
LOW V_F 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_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.



SOT-563 CASE

MARKING CODE: C85

APPLICATIONS:

- DC-DC Converters
- Battery Powered Portable Equipment

FEATURES:

- Low r_{DS(on)} Transistor (3.0Ω MAX @ V_{GS}=5.0V)
- Low V_F Schottky Diode (0.47V MAX @ 0.5A)

MAXIMUM RATINGS - CASE: (T_A=25°C)

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

| SYMBOL | | UNITS |
|-----------------------------------|-------------|-------|
| P _D | 350 | mW |
| P _D | 300 | mW |
| P _D | 150 | mW |
| T _J , T _{stg} | -65 to +150 | °C |
| θ _{JA} | 357 | °C/W |

MAXIMUM RATINGS - Q1: (T_A=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 _{DS} | 50 | V |
| V _{DG} | 50 | V |
| V _{GS} | 20 | V |
| I _D | 280 | mA |
| I _S | 280 | mA |
| I _{DM} | 1.5 | A |
| I _{SM} | 1.5 | A |

MAXIMUM RATINGS - D1: (T_A=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 _{RRM} | 40 | V |
| I _F | 500 | mA |
| I _{FRM} | 3.5 | A |
| 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} =20V, V _{DS} =0 | | 100 | nA |
| I _{DSS} | V _{DS} =50V, V _{GS} =0 | | 1.0 | μA |
| I _{DSS} | V _{DS} =50V, V _{GS} =0, T _J =125°C | | 500 | μA |
| I _{D(ON)} | V _{GS} =10V, V _{DS} =10V | 500 | | mA |
| BV _{DSS} | V _{GS} =0, I _D =10μA | 50 | | V |
| V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 1.0 | 2.5 | V |

- Notes: 1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm²
2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm²
3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm²

R4 (8-January 2018)

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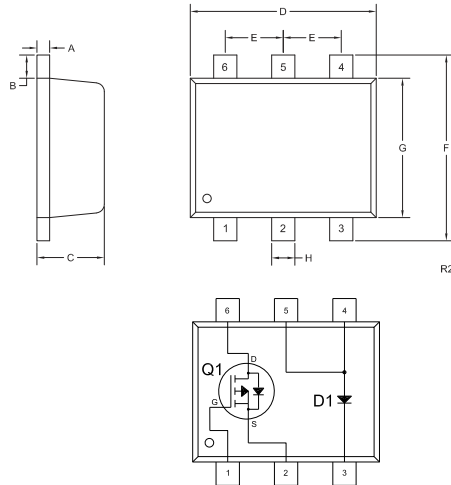
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|------------------------------------|---|-----|------|-------|
| V _{DS(ON)} | V _{GS} =10V, I _D =500mA | | 1.5 | V |
| V _{DS(ON)} | V _{GS} =5.0V, I _D =50mA | | 0.15 | V |
| V _{SD} | V _{GS} =0, I _S =115mA | | 1.3 | V |
| r _{DS(ON)} | V _{GS} =10V, I _D =500mA | | 2.5 | Ω |
| r _{DS(ON)} | V _{GS} =10V, I _D =500mA, T _J =125°C | | 4.0 | Ω |
| r _{DS(ON)} | V _{GS} =5.0V, I _D =50mA | | 3.0 | Ω |
| r _{DS(ON)} | V _{GS} =5.0V, I _D =50mA, T _J =125°C | | 5.0 | Ω |
| g _{FS} | V _{DS} =10V, I _D =200mA | 200 | | mS |
| C _{rss} | V _{DS} =25V, V _{GS} =0, f=1.0MHz | | 7.0 | pF |
| C _{iss} | V _{DS} =25V, V _{GS} =0, f=1.0MHz | | 70 | pF |
| C _{oss} | V _{DS} =25V, V _{GS} =0, f=1.0MHz | | 15 | pF |
| t _{on} , t _{off} | V _{DD} =30V, V _{GS} =10V, I _D =200mA, R _G =25Ω, R _L =150Ω | | 20 | ns |

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



| 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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R4 (8-January 2018)

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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http://www.centrasemi.com

Product End of Life Notification

| | |
|---------------------------|----------|
| PDN ID: | PDN01214 |
| Notification Date: | 2/22/22 |
| Last Buy Date: | 8/22/22 |
| Last Shipment Date | 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.

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.