

CMLM8205

MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
P-CHANNEL MOSFET AND
LOW V_F SCHOTTKY DIODE



SOT-563 CASE



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.

MARKING CODE: C85

APPLICATIONS:

- DC-DC Converters
- Battery Powered Portable Equipment

MAXIMUM RATINGS - CASE: ($T_A=25^\circ\text{C}$)

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

MAXIMUM RATINGS - Q1: ($T_A=25^\circ\text{C}$)

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

MAXIMUM RATINGS - D1: ($T_A=25^\circ\text{C}$)

Peak Repetitive Reverse Voltage
Continuous Forward Current
Peak Repetitive Forward Current, $t_p \leq 1.0\text{ms}$
Peak Forward Surge Current, $t_p = 8.0\text{ms}$

ELECTRICAL CHARACTERISTICS - Q1: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=20\text{V}, V_{DS}=0$		100	nA
I_{DSS}	$V_{DS}=50\text{V}, V_{GS}=0$		1.0	μA
I_{DSS}	$V_{DS}=50\text{V}, V_{GS}=0, T_J=125^\circ\text{C}$		500	μA
$I_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=10\text{V}$	50		mA
BV_{DSS}	$V_{GS}=0, I_D=10\mu\text{A}$	50		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0	2.5	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

SYMBOL

P_D	350	mW
P_D	300	mW
P_D	150	mW
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
θ_{JA}	357	$^\circ\text{C/W}$

UNITS

SYMBOL

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

UNITS

SYMBOL

V_{RRM}	40	V
I_F	500	mA
I_{FRM}	3.5	A
I_{FSM}	10	A

UNITS

R3 (1-July 2015)

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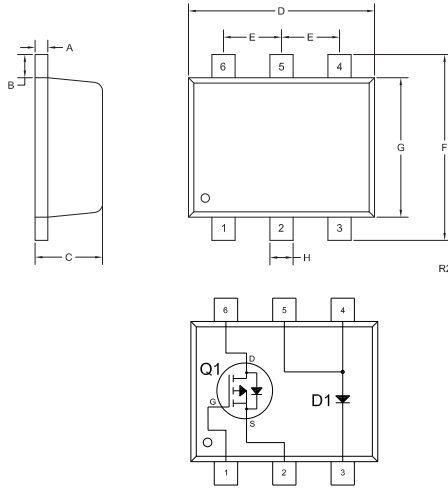
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

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		20	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	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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R3 (1-July 2015)

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.

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- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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