

CMLM8205

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



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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 Shottky 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 _R RM	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	50		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

R3 (1-July 2015)

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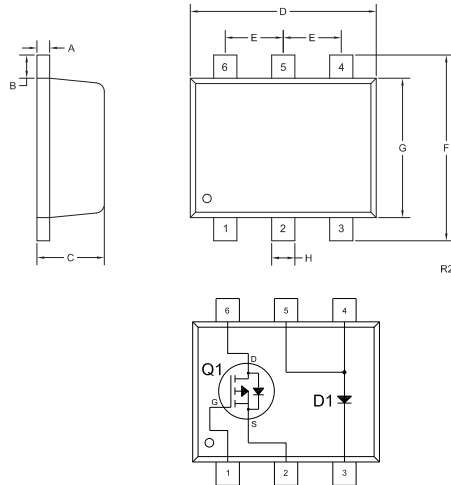
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

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	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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R3 (1-July 2015)

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Central's operations team provides the highest level of support to insure product is delivered on-time.

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- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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- Application notes
- Application and design sample kits
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