



CMLM8205

MULTI DISCRETE MODULE™

**SURFACE MOUNT
P-CHANNEL MOSFET AND
LOW V_F SILICON SCHOTTKY DIODE**



PICOmini™



SOT-563 CASE

Central™

Semiconductor Corp.

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 PICOmini™ 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

FEATURES:

- Low r_{DS(on)} Transistor (3Ω MAX @ V_{GS}=5.0V)
- Low V_F Schottky Diode (0.47V MAX @ 0.5A)

MAXIMUM RATINGS (SOT-563 Package): (T_A=25°C)

	SYMBOL		UNITS
Power Dissipation	P _D	350	mW (Note 1)
Power Dissipation	P _D	300	mW (Note 2)
Power Dissipation	P _D	150	mW (Note 3)
Operating and Storage			
Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	θ _{JA}	357	°C/W

MAXIMUM RATINGS Q1: (T_A=25°C)

	SYMBOL		UNITS
Drain-Source Voltage	V _{DS}	50	V
Drain-Gate Voltage	V _{DG}	50	V
Gate-Source Voltage	V _{GS}	20	V
Continuous Drain Current	I _D	280	mA
Continuous Source Current (Body Diode)	I _S	280	mA
Maximum Pulsed Drain Current	I _{DM}	1.5	A
Maximum Pulsed Source Current	I _{SM}	1.5	A

MAXIMUM RATINGS D1: (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Continuous Forward Current	I _F	500	mA
Peak Repetitive Forward Current, tp ≤ 1ms	I _{FRM}	3.5	A
Forward Surge Current, tp=8ms	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} =0V		100	nA
I _{DSS}	V _{DS} =50V, V _{GS} =0V		1.0	μA
I _{DSS}	V _{DS} =50V, V _{GS} =0V, T _J =125°C		500	μA
I _{D(ON)}	V _{GS} =10V, V _{DS} =10V	500		mA
BV _{DSS}	V _{GS} =0V, 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 4.0 mm²
 (2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0 mm²
 (3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4 mm²

R0 (6-June 2007)

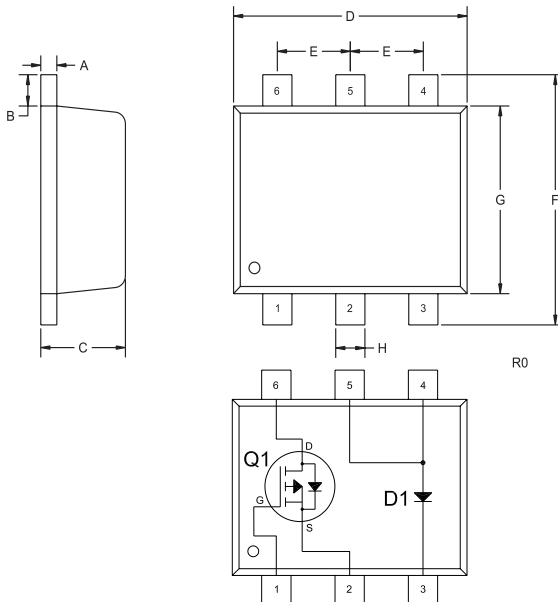
ELECTRICAL CHARACTERISTICS Q1 (continued)

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
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		mmhos
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}	V _{DD} =30V, V _{GS} =10V, I _D =200mA		20	ns
t _{off}	R _G =25Ω, R _L =150Ω		20	ns
V _{SD}	V _{GS} =0V, I _S =115mA		1.3	V

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 _T	V _R = 1.0V, f=1.0 MHz		50	pF

SOT-563 - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.10	0.18
B	0.008		0.20	
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.061	0.067	1.55	1.70
G	0.047		1.20	
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R0)

LEAD CODE:

- 1) GATE Q1
- 2) SOURCE Q1
- 3) CATHODE D1
- 4) ANODE D1
- 5) ANODE D1
- 6) DRAIN Q1

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