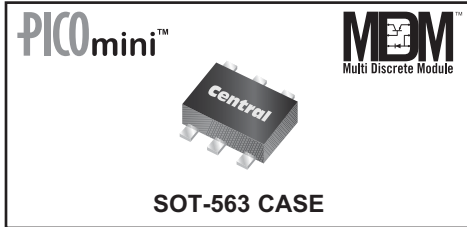


CMLM8205
MULTI DISCRETE MODULE™
 SURFACE MOUNT
 P-CHANNEL MOSFET AND
 LOW V_F SILICON SCHOTTKY DIODE



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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 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 (3.0Ω MAX @ $V_{GS}=5.0V$)
- Low V_F Shottky Diode (0.47V MAX @ 0.5A)

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

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	$^\circ C$
θ_{JA}	357	$^\circ C/W$

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

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: ($T_A=25^\circ C$)

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

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

ELECTRICAL CHARACTERISTICS - Q1: ($T_A=25^\circ C$ 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}	$V_{DS}=50V, V_{GS}=0, T_J=125^\circ C$		500	μA
$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=10V$	50		mA
BV_{DSS}	$V_{GS}=0, I_D=10\mu A$	50		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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

R1 (20-January 2010)

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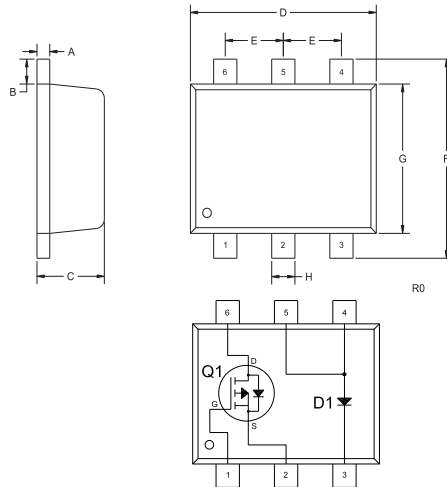
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

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
$r_{DS(ON)}$	$V_{GS}=10V, I_D=500mA, T_J=125^\circ C$		4.0	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$		3.0	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA, T_J=125^\circ C$		5.0	Ω
gFS	$V_{DS}=10V, I_D=200mA$	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}	$V_{DD}=30V, V_{GS}=10V, I_D=200mA,$ $R_G=25\Omega, R_L=150\Omega$		20	ns

ELECTRICAL CHARACTERISTICS - D1: ($T_A=25^\circ C$)

I_R	$V_R=10V$		20	μA
I_R	$V_R=30V$		100	μA
BV_R	$I_R=500\mu A$	40		V
V_F	$I_F=100\mu A$		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	$V_R=1.0V, f=1.0MHz$		50	pF

SOT-563 CASE - 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

MARKING CODE: C85

R1 (20-January 2010)

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