

CMLM0574

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



www.centrasemi.com



SOT-563 CASE

• Device is **Halogen Free** by design

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0574 is a Multi Discrete Module™ consisting of a single N-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: 57C

APPLICATIONS:

- DC-DC Converters
- Battery Powered Portable Equipment

FEATURES:

- ESD protection up to 2kV
- Low r_{DS(on)} Transistor (560mΩ MAX @ V_{GS}=2.5V)
- Low V_F Schottky Diode (0.47V MAX @ 0.5A)

MAXIMUM RATINGS - CASE: (T_A=25°C)

Parameter	Value	Units
Power Dissipation (Note 1)	350	mW
Power Dissipation (Note 2)	300	mW
Power Dissipation (Note 3)	150	mW
Operating and Storage Junction Temperature	-65 to +150	°C
Thermal Resistance	357	°C/W

SYMBOL	Value	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	30	V
Gate-Source Voltage	8.0	V
Continuous Drain Current	450	mA

SYMBOL	Value	UNITS
V _{DS}	30	V
V _{GS}	8.0	V
I _D	450	mA

MAXIMUM RATINGS - D1: (T_A=25°C)

Peak Repetitive Reverse Voltage	40	V
Continuous Forward Current	500	mA
Peak Repetitive Forward Current, tp≤1.0ms	3.5	A
Peak Forward Surge Current, tp=8.0ms	10	A

SYMBOL	Value	UNITS
V _R RM	40	V
I _F	500	mA
I _F RM	3.5	A
I _F SM	10	A

ELECTRICAL CHARACTERISTICS - Q1: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{GSS} F, I _{GSS} R	V _{GS} =8.0V, V _{DS} =0			3.0	μA
I _{DSS}	V _{DS} =30V, V _{GS} =0			1.0	μA
BV _{DSS}	V _{GS} =0, I _D =10μA	30			V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5		1.0	V
V _{SD}	V _{GS} =0, I _S =400mA	0.5		1.1	V
r _{DS(ON)}	V _{GS} =4.5V, I _D =200mA		280	460	mΩ
r _{DS(ON)}	V _{GS} =2.5V, I _D =100mA		390	560	mΩ
r _{DS(ON)}	V _{GS} =1.8V, I _D =75mA		550	730	mΩ
g _{FS}	V _{DS} =10V, I _D =100mA	200			mS

- 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 (18-February 2014)

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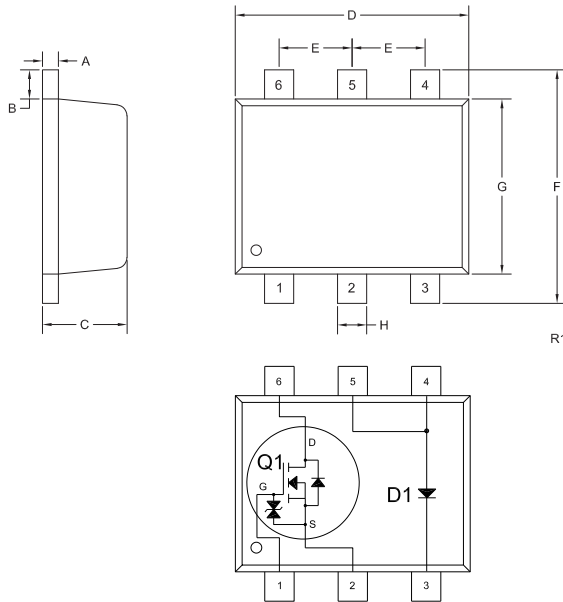
ELECTRICAL CHARACTERISTICS - Q1 - Continued: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	TYP	UNITS
Q _{g(tot)}	V _{DS} =15V, V _{GS} =4.5, I _D =1.0A	0.792	nC
Q _{gs}	V _{DS} =15V, V _{GS} =4.5, I _D =1.0A	0.15	nC
Q _{gd}	V _{DS} =15V, V _{GS} =4.5, I _D =1.0A	0.23	nC
C _{rss}	V _{DS} =25V, V _{GS} =0, f=1.0MHz	5.0	pF
C _{iss}	V _{DS} =25V, V _{GS} =0, f=1.0MHz	43	pF
C _{oss}	V _{DS} =25V, V _{GS} =0, f=1.0MHz	8.0	pF

ELECTRICAL CHARACTERISTICS - D1: (T_A=25°C)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
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	0.061	0.067	1.55	1.70
G	0.045	0.049	1.15	1.25
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R1)

LEAD CODE:

- 1) Gate Q1
- 2) Source Q1
- 3) Cathode D1
- 4) Anode D1
- 5) Anode D1
- 6) Drain Q1

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