

CMLM0575

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



SOT-563 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0575 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: 75C

FEATURES:

- High current MOSFET ($I_D=650\text{mA}$)
- ESD protection up to 2kV
- Low $r_{DS(ON)}$ MOSFET ($275\text{m}\Omega$ MAX @ $V_{GS}=2.5\text{V}$)
- Low V_F Schottky diode (0.47V MAX @ 0.5A)

APPLICATIONS:

- DC-DC converters
- Boost converters
- Motor drive controls
- 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
Gate-Source Voltage
Continuous Drain 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, $t_p = 8.0\text{ms}$

SYMBOL

SYMBOL		UNITS
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	$^\circ\text{C/W}$

SYMBOL

SYMBOL		UNITS
V_{DS}	20	V
V_{GS}	8.0	V
I_D	650	mA

SYMBOL

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

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}, I_{GSSR}	$V_{GS}=4.5\text{V}, V_{DS}=0$			1.0	μA
I_{DSS}	$V_{DS}=16\text{V}, V_{GS}=0$			100	nA
BV_{DSS}	$V_{GS}=0, I_D=250\mu\text{A}$	20			V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5		1.1	V
V_{SD}	$V_{GS}=0, I_S=200\text{mA}$			1.1	V
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=600\text{mA}$		0.14	0.23	Ω
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=500\text{mA}$		0.2	0.275	Ω
$r_{DS(ON)}$	$V_{GS}=1.8\text{V}, I_D=350\text{mA}$			0.7	Ω

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

R4 (1-October 2015)

CMLM0575

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



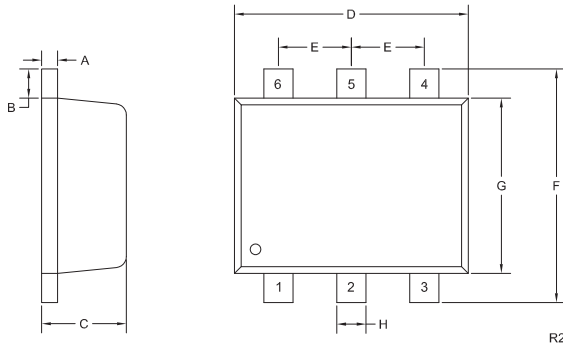
ELECTRICAL CHARACTERISTICS - Q1 Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$Q_{g(\text{tot})}$	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=500\text{mA}$		1.58		nC
Q_{gs}	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=500\text{mA}$		0.17		nC
Q_{gd}	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=500\text{mA}$		0.24		nC
g_{FS}	$V_{DS}=10\text{V}$, $I_D=100\text{mA}$	200			mS
C_{rss}	$V_{DS}=16\text{V}$, $V_{GS}=0$, $f=1.0\text{MHz}$		18		pF
C_{iss}	$V_{DS}=16\text{V}$, $V_{GS}=0$, $f=1.0\text{MHz}$		100		pF
C_{oss}	$V_{DS}=16\text{V}$, $V_{GS}=0$, $f=1.0\text{MHz}$		22		pF
t_{on}	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=200\text{mA}$, $R_G=10\Omega$		10		ns
t_{off}	$V_{DD}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=200\text{mA}$, $R_G=10\Omega$		25		ns

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

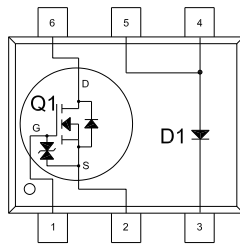
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_R	$V_R=10\text{V}$			20	μA
I_R	$V_R=30\text{V}$			100	μA
BV_R	$I_R=500\mu\text{A}$	40			V
V_F	$I_F=100\mu\text{A}$			0.13	V
V_F	$I_F=1.0\text{mA}$			0.21	V
V_F	$I_F=10\text{mA}$			0.27	V
V_F	$I_F=100\text{mA}$			0.35	V
V_F	$I_F=500\text{mA}$			0.47	V
C_J	$V_R=1.0\text{V}$, $f=1.0\text{MHz}$			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

MARKING CODE: 75C

R4 (1-October 2015)

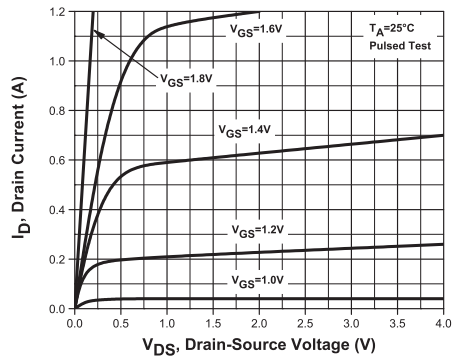
CMLM0575

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

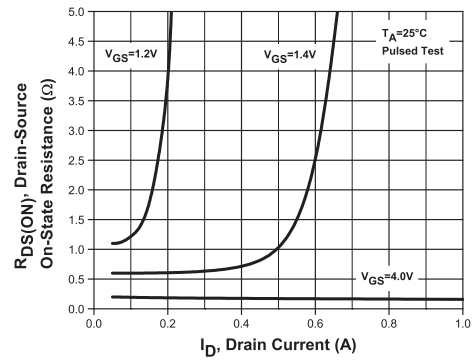


Q1 TYPICAL ELECTRICAL CHARACTERISTICS

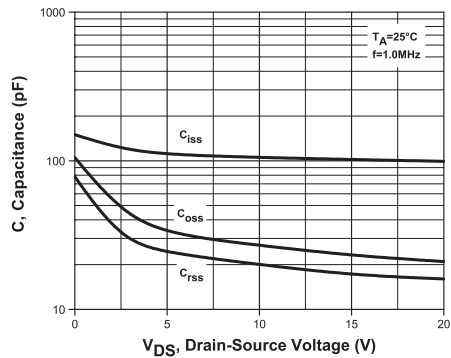
Output Characteristics



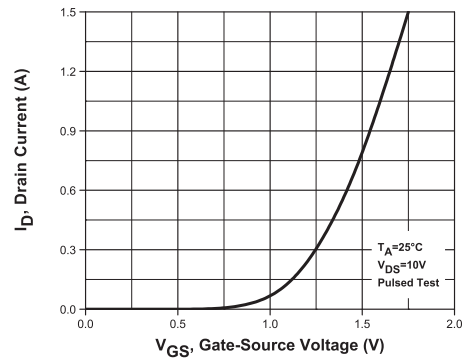
Drain Source On Resistance



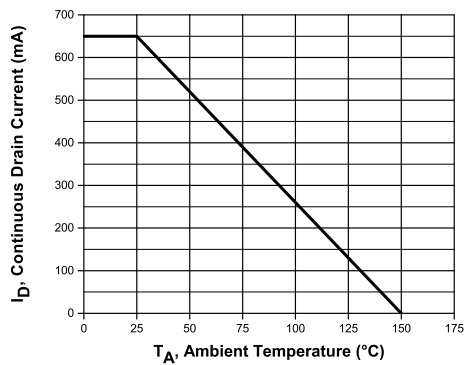
Capacitance



Transfer Characteristics



Current Derating



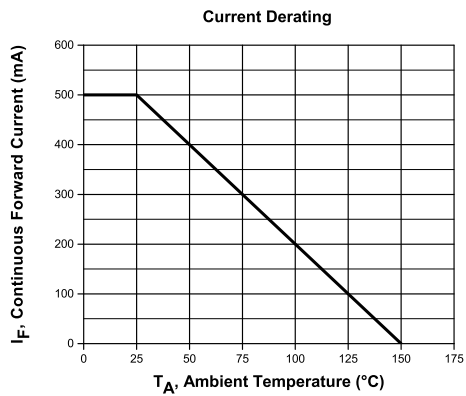
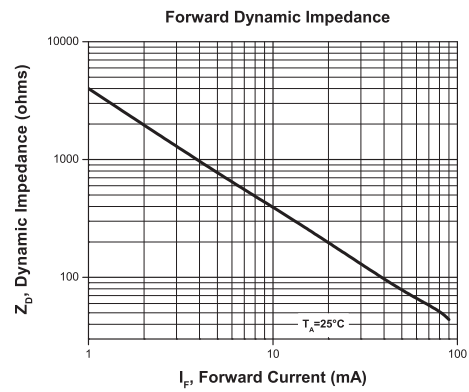
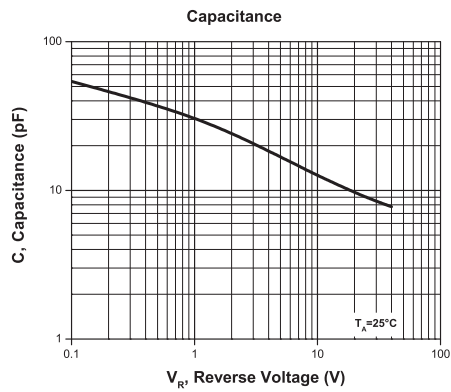
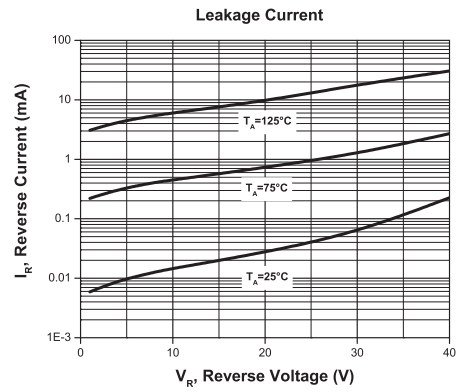
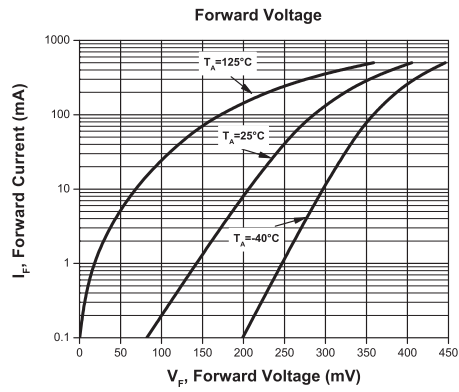
R4 (1-October 2015)

CMLM0575

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



D1 TYPICAL ELECTRICAL CHARACTERISTICS



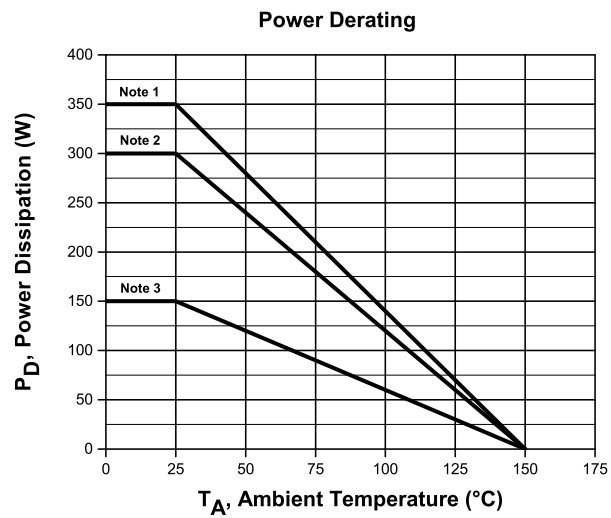
R4 (1-October 2015)

CMLM0575

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



TOTAL PACKAGE POWER DERATING



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

R4 (1-October 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.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

CONTACT US

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centrasemi.com

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: www.centrasemi.com/terms



**Стандарт
Электрон
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331