

CMLM0305T
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
N-CHANNEL MOSFET AND
LOW V_F SCHOTTKY DIODE



www.centrasemi.com



* Device is **Halogen Free** by design

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0305T 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: C35

FEATURES:

- ESD protection up to 2kV
- Low r_{DS(on)} Transistor (1.5Ω MAX @ V_{GS}=5.0V)
- Low V_F Schottky Diode (0.47V MAX @ 0.5A)

APPLICATIONS:

- DC / DC Converters
- Battery Powered Portable Equipment

MAXIMUM RATINGS - CASE: (T_A=25°C)

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

MAXIMUM RATINGS - Q1: (T_A=25°C)

Drain-Source Voltage	SYMBOL	UNITS
Drain-Gate Voltage	V _{DS}	50 V
Gate-Source Voltage	V _{DG}	50 V
Continuous Drain Current	V _{GS}	12 V
Maximum Pulsed Drain Current	I _D	280 mA
	I _{DM}	1.5 A

MAXIMUM RATINGS - D1: (T_A=25°C)

Peak Repetitive Reverse Voltage	SYMBOL	UNITS
Continuous Forward Current	V _R RM	40 V
Peak Repetitive Forward Current, tp≤1.0ms	I _F	500 mA
Peak Forward Surge Current, tp=8.0ms	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} =5.0V		50	nA
I _{GSSF} , I _{GSSR}	V _{GS} =10V		0.5	μA
I _{GSSF} , I _{GSSR}	V _{GS} =12V		1.0	μA
I _{DSS}	V _{DS} =50V, V _{GS} =0		50	nA
BV _{DSS}	V _{GS} =0, I _D =10μA	50		V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.75	1.2	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

R4 (15-June 2015)

CMLM0305T
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
N-CHANNEL MOSFET AND
LOW V_F SCHOTTKY DIODE



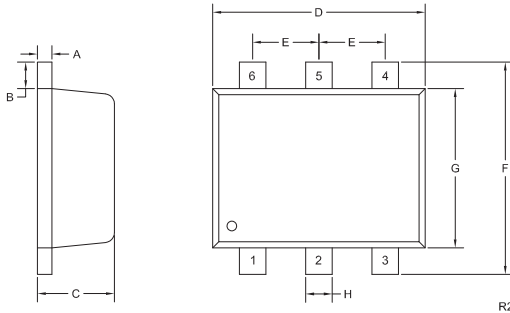
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{SD}	$V_{GS}=0, I_S=115mA$			1.4	V
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=50mA$		1.6	2.3	Ω
$r_{DS(ON)}$	$V_{GS}=2.5V, I_D=50mA$		1.3	1.9	Ω
$r_{DS(ON)}$	$V_{GS}=5.0V, I_D=50mA$		1.1	1.5	Ω
g_{FS}	$V_{DS}=10V, I_D=200mA$	200			mS
C_{rss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			5.0	pF
C_{iss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			50	pF
C_{oss}	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$			25	pF

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_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

MARKING CODE: C35

R4 (15-June 2015)

CMLM0305T
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
N-CHANNEL MOSFET AND
LOW V_F SCHOTTKY DIODE



SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development/ Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

LIMITATIONS AND DAMAGES DISCLAIMER: In no event shall Central be liable for any collateral, indirect, punitive, incidental, consequential, or exemplary damages in connection with or arising out of a purchase order or contract or the use of products provided hereunder, regardless of whether Central has been advised of the possibility of such damages. Excluded damages shall include, but not be restricted to: cost of removal or reinstallation, rework, ancillary costs to the procurement of substitute products, loss of profits, loss of savings, loss of use, loss of data, or business interruption. No claim, suit, or action shall be brought against Central more than two (2) years after the related cause of action has occurred.

In no event shall Central's aggregate liability from any warranty, indemnity, or other obligation arising out of or in connection with a purchase order or contract, or any use of any Central product provided hereunder, exceed the total amount paid to Central for the specific products sold under a purchase order or contract with respect to which losses or damages are claimed. The existence of more than one (1) claim against the specific products sold to Buyer under a purchase order or contract shall not enlarge or extend this limit.

Buyer understands and agrees that the foregoing liability limitations are essential elements of a purchase order or contract and that in the absence of such limitations, the material and economic terms of the purchase order or contract would be substantially different.

R4 (15-June 2015)