



CMLM0305T

MULTI DISCRETE MODULE™

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



PICOmini™



SOT-563 CASE

Central™

Semiconductor Corp.

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 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: C35

FEATURES:

- 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 (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}	12	V
Continuous Drain Current	I _D	280	mA
Maximum Pulsed Drain Current	I _{DM}	1.5	A

MAXIMUM RATINGS D1: (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _R RM	40	V
Continuous Forward Current	I _F	500	mA
Peak Repetitive Forward Current, tp ≤ 1ms	I _F RM	3.5	A
Forward Surge Current, tp=8ms	I _F SM	10	A

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{GSSF} , I _{GSSR}	V _{GS} =5V			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} =0V			50	nA
BV _{DSS}	V _{GS} =0V, 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 4.0 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

R1 (11-June 2007)

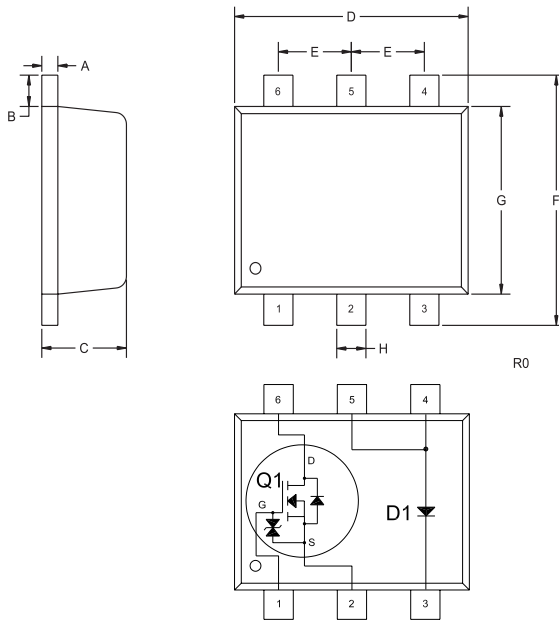
ELECTRICAL CHARACTERISTICS Q1 (continued)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=50mA$		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
gFS	$V_{DS}=10V, I_D=200mA$	200			mmhos
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
V_{SD}	$V_{GS}=0V, I_S=115mA$			1.4	V

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 - 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: C35

R1 (11-June 2007)