

CMLM0205
MULTI DISCRETE MODULE™
SURFACE MOUNT
N-CHANNEL MOSFET AND
LOW V_F SILICON SCHOTTKY DIODE



Central™

Semiconductor Corp.

DESCRIPTION:

The Central Semiconductor CMLM0205 is a Multi Discrete Module™ consisting of a single N-Channel MOSFET and a Low V_F Schottky diode packaged in a space saving PICOmini™ SOT-563 case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

- Combination: N-Channel MOSFET and Low V_F Schottky Diode.

MARKING CODE: C25

MAXIMUM RATINGS (SOT-563 Package): (T_A=25°C)

	SYMBOL		UNITS
Power Dissipation	P _D	350	mW
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}	60	V
Drain-Gate Voltage	V _{DG}	60	V
Gate-Source Voltage	V _{GS}	40	V
Continuous Drain Current	I _D	280	mA
Continuous Source Current (Body Diode)	I _S	280	mA
Maximum Pulsed Drain Current	I _{DM}	1.5	A
Maximum Pulsed Source Current	I _{SM}	1.5	A

MAXIMUM RATINGS D1: (T_A=25°C)

	SYMBOL		UNITS
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Continuous Forward Current	I _F	500	mA
Peak Repetitive Forward Current, tp ≤ 1ms	I _{FRM}	3.5	A
Forward Surge Current, tp=8ms	I _{FSM}	10	A

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _{GSSF}	V _{GS} =20V, V _{DS} =0V		100	nA
I _{GSSR}	V _{GS} =20V, V _{DS} =0V		100	nA
I _{DSS}	V _{DS} =60V, V _{GS} =0V		1.0	μA
I _{DSS}	V _{DS} =60V, V _{GS} =0V, T _J =125°C		500	μA
I _{D(ON)}	V _{GS} =10V, V _{DS} ≥ 2V _{DS(ON)}	500		mA
BV _{DSS}	V _{GS} =0V, I _D =10μA	60		V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	2.5	V
V _{DS(ON)}	V _{GS} =10V, I _D =500mA		1.0	V
V _{DS(ON)}	V _{GS} =5.0V, I _D =50mA		0.15	V
r _{DS(ON)}	V _{GS} =10V, I _D =500mA		2.0	Ω
r _{DS(ON)}	V _{GS} =10V, I _D =500mA, T _J =125°C		3.5	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°C		5.0	Ω
9FS	V _{DS} ≥ 2V _{DS(ON)} , I _D =200mA	80		mmhos

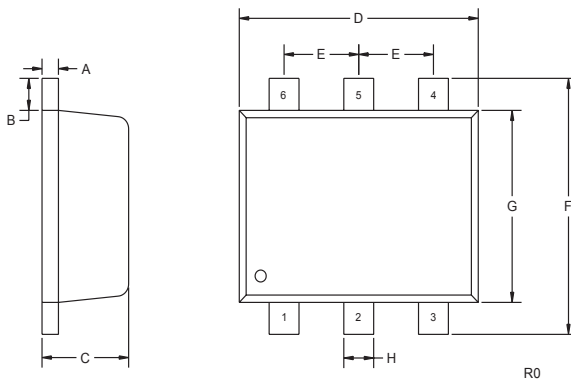
ELECTRICAL CHARACTERISTICS Q1 (continued)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
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
t_{on}	$V_{DD}=30V, V_{GS}=10V, I_D=200mA,$		20	ns
t_{off}	$R_G=25\Omega, R_L=150\Omega$		20	ns
V_{SD}	$V_{GS}=0V, I_S=400mA$		1.2	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)

MARKING CODE: C25

LEAD CODE:

- 1) GATE Q1
- 2) SOURCE Q1
- 3) CATHODE D1
- 4) ANODE D1
- 5) ANODE D1
- 6) DRAIN Q1

R0 (12-October 2004)