CMLM2205

MULTI DISCRETE MODULE™

SURFACE MOUNT
SILICON SWITCHING NPN TRANSISTOR
AND
LOW V_F SILICON SCHOTTKY DIODE

MDM™ Multi Discrete Module

PICOmini™

SOT-563 CASE

Central™
Semiconductor Corp.

DESCRIPTION:

The Central Semiconductor CMLM2205 is a Multi Discrete Module™ consisting of a single NPN Transistor and 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: Small Signal Switching NPN Transistor and Low V_F Schottky Diode.
- Complementary Device: **CMLM0705**

Marking code: C22

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**
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
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**	**TYP**	**MAX**	**UNITS**
I_{CBO}	V_{CB}=60V			10	nA
I_{CBO}	V_{CB}=60V, T_A=125°C			10	µA
I_{CEV}	V_{CE}=60V, V_{EB}=3.0V			10	nA
I_{EBO}	V_{EB}=3.0V			10	nA
BV_{CBO}	I_C=10µA	100	145		V
BV_{CEO}	I_C=10mA	45	53		V
BV_{EBO}	I_E=10µA	6.0			V
$V_{CE(SAT)}$	I_C=150mA, I_B=15mA		0.09	0.15	V
$V_{CE(SAT)}$	I_C=500mA, I_B=50mA		0.12	0.50	V
$V_{BE(SAT)}$	I_C=150mA, I_B=15mA	0.6		1.2	V
$V_{BE(SAT)}$	I_C=500mA, I_B=50mA			2.0	V
h_{FE}	V_{CE}=10V, I_C=0.1mA	100	210		
h_{FE}	V_{CE}=10V, I_C=1.0mA	100	205		
h_{FE}	V_{CE}=10V, I_C=10mA	100	205		
h_{FE}	V_{CE}=1.0V, I_C=150mA	75	150		
h_{FE}	V_{CE}=10V, I_C=150mA	100		300	
h_{FE}	V_{CE}=10V, I_C=500mA	60	130		

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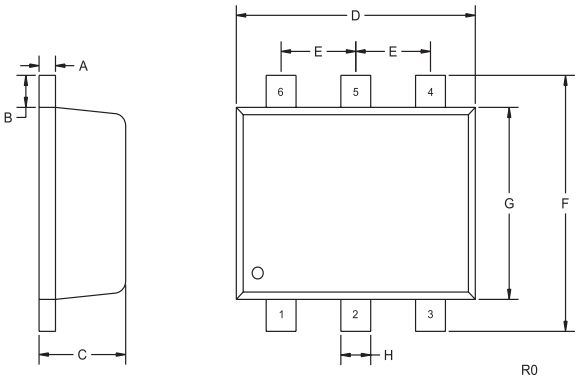
ELECTRICAL CHARACTERISTICS Q1 - Continued: (T_A=25°C)

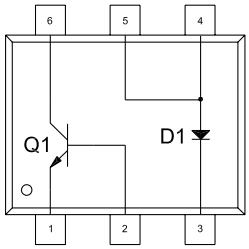
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	V_{CE}=20V, I_C=20mA, f=100MHz	300		MHz
C_{ob}	V_{CB}=10V, I_E=0, f=1.0MHz		8.0	pF
C_{ib}	V_{EB}=0.5V, I_C=0, f=1.0MHz		25	pF
NF	V_{CE}=10V, I_C=100mA, R_S=1.0kΩ, f=1.0kHz		4.0	dB
t_d	V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA		10	ns
t_r	V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA		25	ns
t_s	V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA		225	ns
t_f	V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA		60	ns

ELECTRICAL CHARACTERISTICS D1: (TA=25°C)

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_T	V_R=1.0V, f=1.0 MHz		50	pF

SOT-563 - MECHANICAL OUTLINE





DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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) EMITTER Q1
2) BASE Q1
3) CATHODE D1
4) ANODE D1
5) ANODE D1
6) COLLECTOR Q1

MARKING CODE: C22

R1 (11-December 2007)