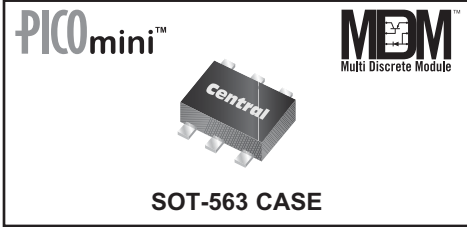


CMLM2205
MULTI DISCRETE MODULE™
SURFACE MOUNT
SILICON SWITCHING NPN TRANSISTOR
AND
LOW V_F SILICON SCHOTTKY DIODE



www.centrasemi.com



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 - CASE: (T_A=25°C)

Power Dissipation
 Operating and Storage Junction Temperature
 Thermal Resistance

SYMBOL		UNITS
P _D	350	mW
T _J , T _{stg}	-65 to +150	°C
θ _{JA}	357	°C/W

MAXIMUM RATINGS - Q1: (T_A=25°C)

Collector-Base Voltage
 Collector-Emitter Voltage
 Emitter-Base Voltage
 Continuous Collector Current

SYMBOL		UNITS
V _{CBO}	100	V
V _{CEO}	45	V
V _{EBO}	6.0	V
I _C	600	mA

MAXIMUM RATINGS - D1: (T_A=25°C)

Peak Repetitive Reverse Voltage
 Continuous Forward Current
 Peak Repetitive Forward Current, tp≤1.0ms
 Peak Forward Surge Current, tp=8.0ms

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°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		

R2 (18-January 2010)

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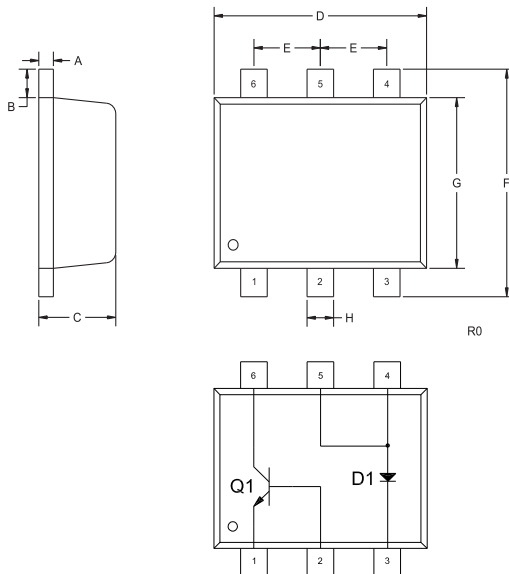
ELECTRICAL CHARACTERISTICS - Q1 - Continued: ($T_A=25^\circ\text{C}$)

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

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

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_T	$V_R=1.0\text{V}$, $f=1.0\text{MHz}$		50	pF

SOT-563 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	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

R2 (18-January 2010)