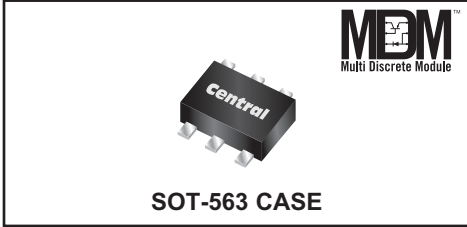


CMLM2205
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
NPN SWITCHING TRANSISTOR AND
LOW V_F SCHOTTKY DIODE



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 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: ($T_A=25^\circ\text{C}$)

Power Dissipation
 Operating and Storage Junction Temperature
 Thermal Resistance

MAXIMUM RATINGS - Q1: ($T_A=25^\circ\text{C}$)

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

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

Peak Repetitive Reverse Voltage
 Continuous Forward Current
 Peak Repetitive Forward Current, $t_p \leq 1.0\text{ms}$
 Peak Forward Surge Current, $t_p = 8.0\text{ms}$

SYMBOL		UNITS
P_D	350	mW
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
θ_{JA}	357	$^\circ\text{C/W}$

SYMBOL		UNITS
V_{CBO}	100	V
V_{CEO}	45	V
V_{EBO}	6.0	V
I_C	600	mA

SYMBOL		UNITS
V_{RRM}	40	V
I_F	500	mA
I_{FRM}	3.5	A
I_{FSM}	10	A

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$			10	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$			10	μA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$			10	nA
I_{EBO}	$V_{EB}=3.0\text{V}$			10	nA
BV_{CBO}	$I_C=10\mu\text{A}$	100	145		V
BV_{CEO}	$I_C=10\text{mA}$	45	53		V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0			V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.09	0.15	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.12	0.50	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6		1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$			2.0	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	100	210		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100	205		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	100	205		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	75	150		
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100		300	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	60	130		

R5 (8-January 2018)

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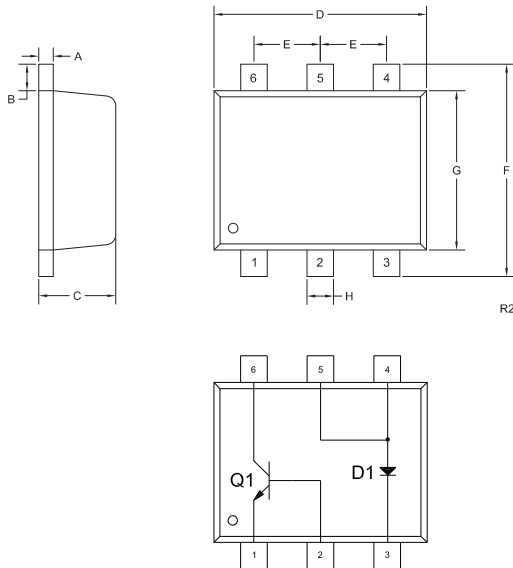
ELECTRICAL CHARACTERISTICS - Q1 - Continued: (T_A=25°C)

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} =0.5V, I _C =150mA, I _{B1} =15mA		10	ns
t _r	V _{CC} =30V, V _{BE} =0.5V, 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: (T_A=25°C)

I _R	V _R =10V		30	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 _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) Emitter Q1
- 2) Base Q1
- 3) Cathode D1
- 4) Anode D1
- 5) Anode D1
- 6) Collector Q1

MARKING CODE: C22

R5 (8-January 2018)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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