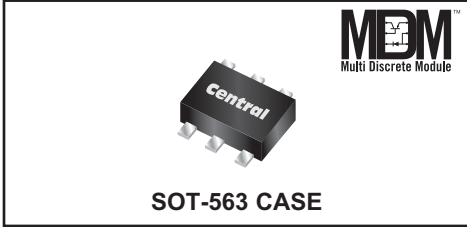


**CMLM2205**  
**MULTI DISCRETE MODULE™**  
**SURFACE MOUNT SILICON**  
**NPN SWITCHING TRANSISTOR AND**  
**LOW V<sub>F</sub> SCHOTTKY DIODE**



[www.centrasemi.com](http://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<sub>F</sub> Schottky Diode.
- Complementary Device: **CMLM0705**

**MARKING CODE: C22**

**MAXIMUM RATINGS - CASE: (T<sub>A</sub>=25°C)**

Power Dissipation  
 Operating and Storage Junction Temperature  
 Thermal Resistance

**MAXIMUM RATINGS - Q1: (T<sub>A</sub>=25°C)**

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

**MAXIMUM RATINGS - D1: (T<sub>A</sub>=25°C)**

Peak Repetitive Reverse Voltage  
 Continuous Forward Current  
 Peak Repetitive Forward Current, t<sub>p</sub>≤1.0ms  
 Peak Forward Surge Current, t<sub>p</sub>=8.0ms

SYMBOL		UNITS
P <sub>D</sub>	350	mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
θ <sub>JA</sub>	357	°C/W

SYMBOL		UNITS
V <sub>CBO</sub>	100	V
V <sub>CEO</sub>	45	V
V <sub>EBO</sub>	6.0	V
I <sub>C</sub>	600	mA

SYMBOL		UNITS
V <sub>RRM</sub>	40	V
I <sub>F</sub>	500	mA
I <sub>FRM</sub>	3.5	A
I <sub>FSM</sub>	10	A

**ELECTRICAL CHARACTERISTICS - Q1: (T<sub>A</sub>=25°C unless otherwise noted)**

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I <sub>CBO</sub>	V <sub>CB</sub> =60V			10	nA
I <sub>CBO</sub>	V <sub>CB</sub> =60V, T <sub>A</sub> =125°C			10	μA
I <sub>CEV</sub>	V <sub>CE</sub> =60V, V <sub>EB</sub> =3.0V			10	nA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V			10	nA
BV <sub>CBO</sub>	I <sub>C</sub> =10μA	100	145		V
BV <sub>CEO</sub>	I <sub>C</sub> =10mA	45	53		V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA	6.0			V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA		0.09	0.15	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		0.12	0.50	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	0.6		1.2	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			2.0	V
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.1mA	100	210		
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA	100	205		
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	100	205		
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA	75	150		
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	100		300	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	60	130		

R5 (8-January 2018)

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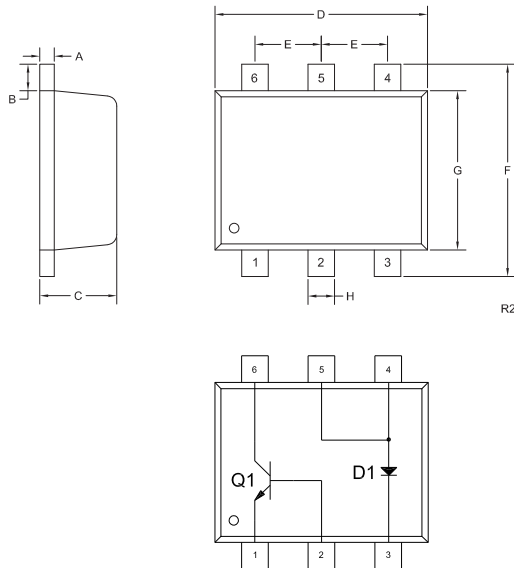
**ELECTRICAL CHARACTERISTICS - Q1 - Continued:** (T<sub>A</sub>=25°C)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz	300		MHz
C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1.0MHz		8.0	pF
C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz		25	pF
NF	V <sub>CE</sub> =10V, I <sub>C</sub> =100mA, R <sub>S</sub> =1.0kΩ, f=1.0kHz		4.0	dB
t <sub>d</sub>	V <sub>CC</sub> =30V, V <sub>BE</sub> =0.5V, I <sub>C</sub> =150mA, I <sub>B1</sub> =15mA		10	ns
t <sub>r</sub>	V <sub>CC</sub> =30V, V <sub>BE</sub> =0.5V, I <sub>C</sub> =150mA, I <sub>B1</sub> =15mA		25	ns
t <sub>s</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA, I <sub>B1</sub> =I <sub>B2</sub> =15mA		225	ns
t <sub>f</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA, I <sub>B1</sub> =I <sub>B2</sub> =15mA		60	ns

**ELECTRICAL CHARACTERISTICS - D1:** (T<sub>A</sub>=25°C)

I <sub>R</sub>	V <sub>R</sub> =10V		30	μA
I <sub>R</sub>	V <sub>R</sub> =30V		100	μA
BV <sub>R</sub>	I <sub>R</sub> =500μA	40		V
V <sub>F</sub>	I <sub>F</sub> =100μA		0.13	V
V <sub>F</sub>	I <sub>F</sub> =1.0mA		0.21	V
V <sub>F</sub>	I <sub>F</sub> =10mA		0.27	V
V <sub>F</sub>	I <sub>F</sub> =100mA		0.35	V
V <sub>F</sub>	I <sub>F</sub> =500mA		0.47	V
C <sub>J</sub>	V <sub>R</sub> =1.0V, f=1.0MHz		50	pF

**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS		MILLIMETERS	
	INCHES		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



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### 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

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### DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2<sup>nd</sup> 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

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### 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).

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### CONTACT US

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[www.centrasemi.com](http://www.centrasemi.com)

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