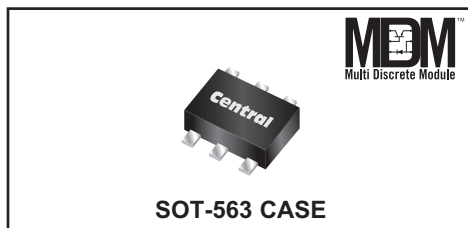


CMLM0705
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
PNP SWITCHING TRANSISTOR AND
LOW V_F SCHOTTKY DIODE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0705 is a Multi Discrete Module™ consisting of a single PNP transistor and a 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 PNP Transistor and Low V_F Schottky Diode.
- Complementary Device: **CMLM2205**

MARKING CODE: C75

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}	90	V
V_{CEO}	60	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}	$V_{CB}=50\text{V}$			10	nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=125^\circ\text{C}$			10	μA
I_{CEV}	$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$			50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	90	115		V
BV_{CEO}	$I_C=10\text{mA}$	60			V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0			V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.113	0.2	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.280	0.7	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$			1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$			2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	100	205		
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100			
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	100			
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100		300	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	75	110		

R3 (1-July 2015)

CMLM0705
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
PNP SWITCHING TRANSISTOR AND
LOW V_F SCHOTTKY DIODE



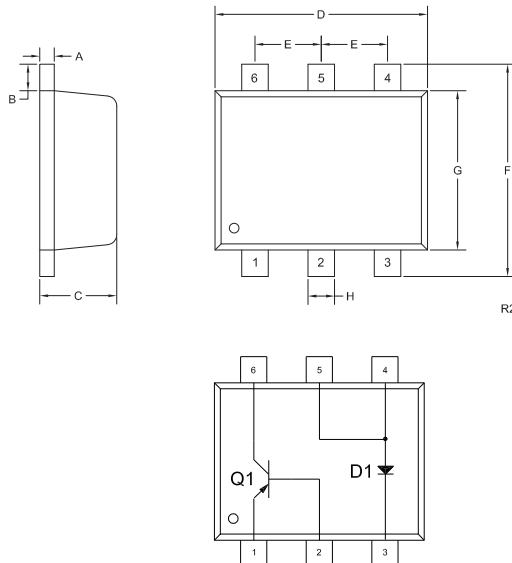
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	$V_{CE}=20V$, $I_C=50mA$, $f=100MHz$	200		MHz
C_{ob}	$V_{CB}=10V$, $I_E=0$, $f=1.0MHz$		8.0	pF
C_{ib}	$V_{BE}=2.0V$, $I_C=0$, $f=1.0MHz$		30	pF
t_{on}	$V_{CC}=30V$, $V_{BE}=0.5V$, $I_C=150mA$, $I_{B1}=15mA$		45	ns
t_d	$V_{CC}=30V$, $V_{BE}=0.5V$, $I_C=150mA$, $I_{B1}=15mA$		10	ns
t_r	$V_{CC}=30V$, $V_{BE}=0.5V$, $I_C=150mA$, $I_{B1}=15mA$		40	ns
t_{off}	$V_{CC}=6.0V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		100	ns
t_s	$V_{CC}=6.0V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		80	ns
t_f	$V_{CC}=6.0V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		30	ns

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_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: C75

R3 (1-July 2015)

CMLM0705
MULTI DISCRETE MODULE™
SURFACE MOUNT SILICON
PNP SWITCHING TRANSISTOR AND
LOW V_F SCHOTTKY DIODE



SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development/ Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

LIMITATIONS AND DAMAGES DISCLAIMER: In no event shall Central be liable for any collateral, indirect, punitive, incidental, consequential, or exemplary damages in connection with or arising out of a purchase order or contract or the use of products provided hereunder, regardless of whether Central has been advised of the possibility of such damages. Excluded damages shall include, but not be restricted to: cost of removal or reinstallation, rework, ancillary costs to the procurement of substitute products, loss of profits, loss of savings, loss of use, loss of data, or business interruption. No claim, suit, or action shall be brought against Central more than two (2) years after the related cause of action has occurred.

In no event shall Central's aggregate liability from any warranty, indemnity, or other obligation arising out of or in connection with a purchase order or contract, or any use of any Central product provided hereunder, exceed the total amount paid to Central for the specific products sold under a purchase order or contract with respect to which losses or damages are claimed. The existence of more than one (1) claim against the specific products sold to Buyer under a purchase order or contract shall not enlarge or extend this limit.

Buyer understands and agrees that the foregoing liability limitations are essential elements of a purchase order or contract and that in the absence of such limitations, the material and economic terms of the purchase order or contract would be substantially different.

R3 (1-July 2015)