

**CMLM0605**  
**MULTI DISCRETE MODULE™**  
SURFACE MOUNT  
**LOW V<sub>CE</sub> (SAT) SILICON PNP TRANSISTOR**  
**AND**  
**LOW V<sub>F</sub> SILICON SCHOTTKY DIODE**



# Central™

## Semiconductor Corp.

### DESCRIPTION:

The Central Semiconductor CMLM0605 is a single PNP Transistor and Schottky Diode packaged in a space saving SOT-563 case is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

- Complementary Device: **CMLM0405**
- Combination Low V<sub>CE</sub> (SAT) Transistor and Low V<sub>F</sub> Schottky Diode.

### MARKING CODES: C65

#### MAXIMUM RATINGS (SOT-563 Package): (T<sub>A</sub>=25°C)

Power Dissipation  
Operating and Storage  
Junction Temperature  
Thermal Resistance

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

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

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

SYMBOL		UNITS
V <sub>CBO</sub>	60	V
V <sub>CEO</sub>	40	V
V <sub>EBO</sub>	6.0	V
I <sub>C</sub>	200	mA

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

Peak Repetitive Reverse Voltage  
Continuous Forward Current  
Peak Repetitive Forward Current, tp ≤ 1ms  
Forward Surge Current, tp=8ms

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>CEV</sub>	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V	-	-	50	nA
BV <sub>CBO</sub>	I <sub>C</sub> =10μA	60	96	-	V
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	40	63	-	V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA	6.0	8.0	-	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	-	0.050	0.100	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-	0.100	0.200	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	0.65	0.75	0.85	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-	0.85	0.95	V
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =0.1mA	90	130	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =1.0mA	100	140	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =10mA	100	150	300	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =50mA	70	130	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =100mA	30	90	-	
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300	-	-	MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz	-	-	4.0	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz	-	-	8.0	pF
h <sub>ie</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	-	-	12	kΩ
h <sub>re</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	-	-	10	X10 <sup>-4</sup>

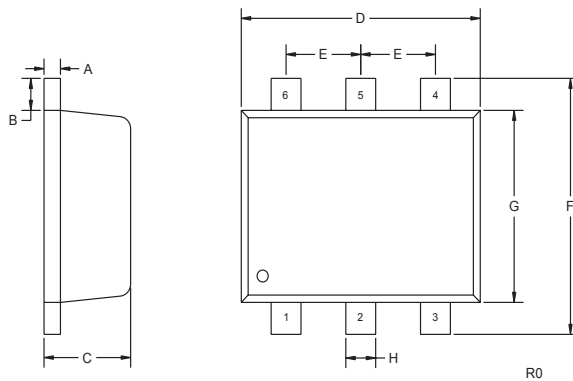
**ELECTRICAL CHARACTERISTICS Q1 (continued)**

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	
$h_{oe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0K\Omega,$ $f=10Hz$ to $15.7kHz$		4.0	dB
$t_d$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		35	ns
$t_r$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		35	ns
$t_s$	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200	ns
$t_f$	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50	ns

**ELECTRICAL CHARACTERISTICS D1 ( $T_A=25^\circ C$ )**

$I_R$	$V_R=10V$		20	$\mu A$
$I_R$	$V_R=30V$		100	$\mu A$
$BV_R$	$I_R=500\mu A$	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
$C_T$	$V_R=1.0V, f=1.0MHz$		50	pF

**SOT-563 - 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)

**MARKING CODE: C65**

**LEAD CODE:**

- 1) EMITTER Q1
- 2) BASE Q1
- 3) CATHODE D1
- 4) ANODE D1
- 5) ANODE D1
- 6) COLLECTOR Q1

R1 (22-February 2005)