

CMLT2207

SURFACE MOUNT
PICOMini™
DUAL, COMPLEMENTARY
SILICON TRANSISTORS



Central™

Semiconductor Corp.

DESCRIPTION:

The Central Semiconductor CMLT2207 consists of one 2N2222A NPN silicon transistor and one individual isolated complementary 2N2907A PNP silicon transistor, manufactured by the epitaxial planar process and epoxy molded in an SOT-563 surface mount package. This PICOMini™ device has been designed for small signal general purpose amplifier and switching applications.

MARKING CODE: L70

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

	<u>SYMBOL</u>	<u>NPN (Q1)</u>	<u>PNP (Q2)</u>	<u>UNITS</u>
Collector-Base Voltage	V_{CBO}	75	60	V
Collector-Emitter Voltage	V_{CEO}	40	60	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	V
Collector Current	I_C	600		mA
Power Dissipation	P_D	350		mW
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Thermal Resistance	Θ_{JA}	357		$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>NPN (Q1)</u>		<u>PNP (Q2)</u>		<u>UNITS</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
I_{CBO}	$V_{CB}=60\text{V}$	-	10	-	-	nA
I_{CBO}	$V_{CB}=50\text{V}$	-	-	-	10	nA
I_{CBO}	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$	-	10	-	-	nA
I_{CBO}	$V_{CB}=50\text{V}, T_A=125^\circ\text{C}$	-	-	-	10	nA
I_{EBO}	$V_{EB}=3.0\text{V}$	-	10	-	-	nA
I_{CEV}	$V_{CE}=60\text{V}, V_{EB(OFF)}=3.0\text{V}$	-	10	-	-	nA
I_{CEV}	$V_{CE}=30\text{V}, V_{EB(OFF)}=500\text{mV}$	-	-	-	50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	75	-	60	-	V
BV_{CEO}	$I_C=10\text{mA}$	40	-	60	-	V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0	-	5.0	-	V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.3	-	0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	1.0	-	1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	-	1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	2.0	-	2.6	V
h_{FE}	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35	-	75	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50	-	100	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75	-	100	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	100	300	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	50	-	-	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40	-	50	-	

R1 (13-November 2002)

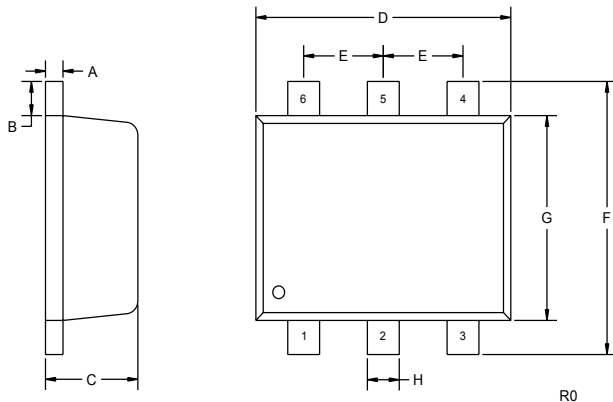
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SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	300	-	-	-	MHz
f_T	$V_{CE}=20V, I_C=50mA, f=100MHz$	-	-	200	-	MHz
C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$	-	8.0	-	8.0	pF
C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$	-	25	-	-	pF
C_{ib}	$V_{EB}=2.0V, I_C=0, f=1.0MHz$	-	-	-	30	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	-	-	k Ω
h_{ie}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	-	-	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	-	8.0	-	-	x10 ⁻⁴
h_{re}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	-	4.0	-	-	x10 ⁻⁴
h_{fe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	-	-	
h_{fe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	-	-	
h_{oe}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	-	-	μ hos
h_{oe}	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	-	-	μ hos
$rb'C_C$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$	-	150	-	-	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$	-	4.0	-	-	dB
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	-	10	ns
t_r	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$	-	25	-	40	ns
t_{off}	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	100	ns
t_s	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	225	-	-	ns
t_s	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	80	ns
t_f	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	60	-	-	ns
t_f	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	30	ns

SOT-563 CASE - MECHANICAL OUTLINE



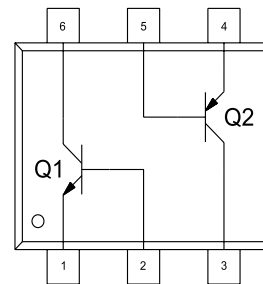
SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.10	0.18
B		0.008		0.20
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E		0.020		0.50
F	0.061	0.067	1.55	1.70
G		0.047		1.20
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R0)

LEAD CODE:

- 1) EMITTER Q1
- 2) BASE Q1
- 3) COLLECTOR Q2
- 4) EMITTER Q2
- 5) BASE Q2
- 6) COLLECTOR Q1

MARKING CODE: L70



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