

CMLT2207

SURFACE MOUNT  
PICOmini™  
DUAL, COMPLEMENTARY  
SILICON TRANSISTORS

PICOmini™



SOT-563 CASE

# 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<sub>A</sub>=25°C)

	SYMBOL	NPN (Q1)	PNP (Q2)	UNITS
Collector-Base Voltage	V <sub>CB0</sub>	75	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	60	V
Emitter-Base Voltage	V <sub>EBO</sub>	6.0	5.0	V
Collector Current	I <sub>C</sub>	600		mA
Power Dissipation	P <sub>D</sub>	350		mW
Operating and Storage				
Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150		°C
Thermal Resistance	Θ <sub>JA</sub>	357		°C/W

ELECTRICAL CHARACTERISTICS PER TRANSISTOR: (T<sub>A</sub>=25°C unless otherwise noted)

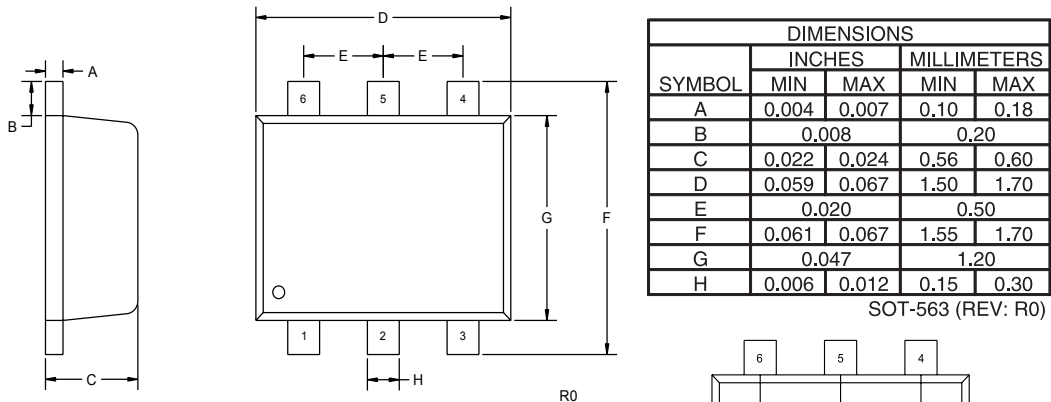
SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> =60V	-	10	-	-	nA
I <sub>CBO</sub>	V <sub>CB</sub> =50V	-	-	-	10	nA
I <sub>CBO</sub>	V <sub>CB</sub> =60V, T <sub>A</sub> =125°C	-	10	-	-	nA
I <sub>CBO</sub>	V <sub>CB</sub> =50V, T <sub>A</sub> =125°C	-	-	-	10	nA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V	-	10	-	-	nA
I <sub>CEV</sub>	V <sub>CE</sub> =60V, V <sub>EB(OFF)</sub> =3.0V	-	10	-	-	nA
I <sub>CEV</sub>	V <sub>CE</sub> =30V, V <sub>EB(OFF)</sub> =500mV	-	-	-	50	nA
BV <sub>CB0</sub>	I <sub>C</sub> =10μA	75	-	60	-	V
BV <sub>CEO</sub>	I <sub>C</sub> =10mA	40	-	60	-	V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA	6.0	-	5.0	-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	-	0.3	-	0.4	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	1.0	-	1.6	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	0.6	1.2	-	1.3	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	2.0	-	2.6	V
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.1mA	35	-	75	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA	50	-	100	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	75	-	100	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	100	300	100	300	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA	50	-	-	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	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	-	-	$k\Omega$
$h_{ie}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	-	-	$k\Omega$
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	-	8.0	-	-	$\times 10^{-4}$
$h_{re}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	-	4.0	-	-	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	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	-	-	$\mu mhos$
$h_{oe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	-	-	$\mu mhos$
$rb'C_C$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$	-	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**



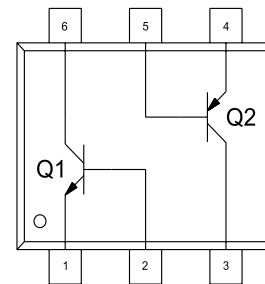
SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.10	0.18
B		0.008		0.20
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E		0.020		0.50
F	0.061	0.067	1.55	1.70
G		0.047		1.20
H	0.006	0.012	0.15	0.30

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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