

CMLT2207G

**SURFACE MOUNT SILICON  
DUAL, COMPLEMENTARY  
TRANSISTOR**



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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLT2207G consists of one isolated 2N2222A NPN transistor and one complementary isolated 2N2907A PNP transistor, manufactured by the epitaxial planar process and epoxy molded in an SOT-563 surface mount package. This device has been designed for small signal general purpose amplifier and switching applications.



**SOT-563 CASE**

**MARKING CODE: L7G**

• Device is **Halogen Free** by design

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

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
Continuous 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	$\theta_{JA}$	357		$^\circ\text{C}/\text{W}$

	<b>SYMBOL</b>	<b>NPN (Q1)</b>	<b>PNP (Q2)</b>	<b>UNITS</b>
Collector-Base Voltage	$V_{CBO}$	75	60	V
Collector-Emitter Voltage	$V_{CEO}$	40	60	V
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Thermal Resistance	$\theta_{JA}$	357		$^\circ\text{C}/\text{W}$

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

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>NPN (Q1)</b>		<b>PNP (Q2)</b>		<b>UNITS</b>
		<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	
$I_{CBO}$	$V_{CB}=60\text{V}$	-	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
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB(OFF)}=3.0\text{V}$	-	10	-	-	nA
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB(OFF)}=500\text{mV}$	-	-	-	50	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$	-	10	-	-	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	-	

R5 (29-June 2015)

CMLT2207G

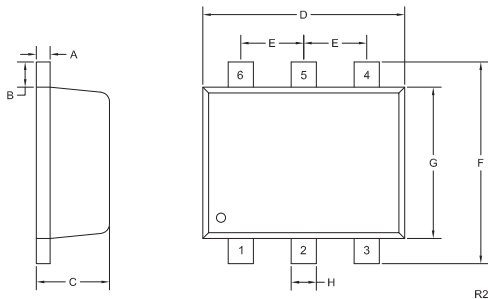
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**ELECTRICAL CHARACTERISTICS - Continued:**

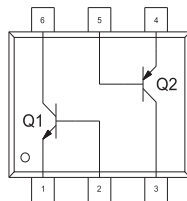
SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
$f_T$	$V_{CE}=20V, I_C=20mA, f=100MHz$	300	-	-	-	MHz
$f_T$	$V_{CE}=20V, I_C=50mA, f=100MHz$	-	-	200	-	MHz
$C_{ob}$	$V_{CB}=10V, I_E=0, f=1.0MHz$	-	8.0	-	8.0	pF
$C_{ib}$	$V_{EB}=0.5V, I_C=0, f=1.0MHz$	-	25	-	-	pF
$C_{ib}$	$V_{EB}=2.0V, I_C=0, f=1.0MHz$	-	-	-	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	-	-	x10 <sup>-4</sup>
$h_{re}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	-	4.0	-	-	x10 <sup>-4</sup>
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	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	-	-	$\mu S$
$h_{oe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	-	-	$\mu S$
$rb'C_C$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$	-	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	0.0027	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) Collector Q2
- 4) Emitter Q2
- 5) Base Q2
- 6) Collector Q1

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#### **SERVICES**

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
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- Custom Device Development/ Multi Discrete Modules (MDM™)
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