

CMLT2222AG

SURFACE MOUNT SILICON  
DUAL NPN TRANSISTOR



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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLT2222AG consists of two (2) isolated 2222A NPN silicon transistors, manufactured by the epitaxial planar process and epoxy molded in an SOT-563 surface mount package. These devices have been designed for small signal general purpose and switching applications.



SOT-563 CASE

**MARKING CODE: 2CG**

• Device is **Halogen Free** by design

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

Collector-Base Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Power Dissipation (Note 1)  
Power Dissipation (Note 2)  
Power Dissipation (Note 3)  
Operating and Storage Junction Temperature  
Thermal Resistance

SYMBOL		UNITS
$V_{CBO}$	75	V
$V_{CEO}$	40	V
$V_{EBO}$	6.0	V
$I_C$	600	mA
$P_D$	350	mW
$P_D$	300	mW
$P_D$	150	mW
$T_J, T_{stg}$	-65 to +150	$^{\circ}\text{C}$
$\theta_{JA}$	357	$^{\circ}\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=60\text{V}$		10	nA
$I_{CBO}$	$V_{CB}=60\text{V}, T_A=125^{\circ}\text{C}$		10	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		10	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$		10	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	75		V
$BV_{CEO}$	$I_C=10\text{mA}$	40		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
$h_{FE}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	50		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40		

Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm<sup>2</sup>  
(2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm<sup>2</sup>  
(3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm<sup>2</sup>

R4 (12-February 2014)

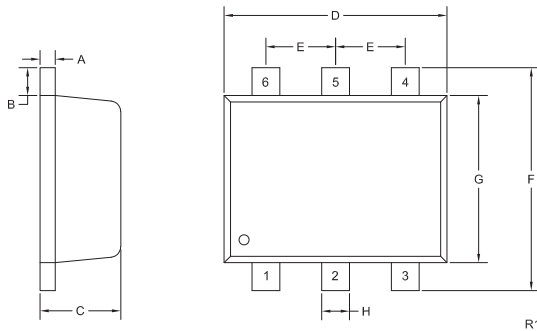
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**ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$f_T$	$V_{CE}=20\text{V}$ , $I_C=20\text{mA}$ , $f=100\text{MHz}$	300		MHz
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$		8.0	pF
$C_{ib}$	$V_{EB}=0.5\text{V}$ , $I_C=0$ , $f=1.0\text{MHz}$		25	pF
$h_{ie}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	2.0	8.0	$k\Omega$
$h_{ie}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$	0.25	1.25	$k\Omega$
$h_{re}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$		8.0	$\times 10^{-4}$
$h_{re}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$		4.0	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	50	300	
$h_{fe}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$	75	375	
$h_{oe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	5.0	35	$\mu\text{S}$
$h_{oe}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$	25	200	$\mu\text{S}$
$rb'C_C$	$V_{CB}=10\text{V}$ , $I_E=20\text{mA}$ , $f=31.8\text{MHz}$		150	ps
NF	$V_{CE}=10\text{V}$ , $I_C=100\text{mA}$ , $R_S=1.0k\Omega$ , $f=1.0\text{kHz}$		4.0	dB
$t_d$	$V_{CC}=30\text{V}$ , $V_{BE}=0.5$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$		10	ns
$t_r$	$V_{CC}=30\text{V}$ , $V_{BE}=0.5$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$		25	ns
$t_s$	$V_{CC}=30\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$		225	ns
$t_f$	$V_{CC}=30\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$		60	ns

**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	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	0.061	0.067	1.55	1.70
G	0.045	0.049	1.15	1.25
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R1)

**LEAD CODE:**

- 1) Emitter Q1
- 2) Base Q1
- 3) Collector Q2
- 4) Emitter Q2
- 5) Base Q2
- 6) Collector Q1

**MARKING CODE: 2CG**

R4 (12-February 2014)