

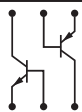
CMLT4413

**SURFACE MOUNT
COMPLEMENTARY NPN/PNP
SILICON TRANSISTOR**



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PICOmini™



SOT-563 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLT4413 consists of one isolated 2N4401 NPN silicon transistor and one complementary isolated 2N4403 PNP silicon transistor, manufactured by the epitaxial planar process and epoxy molded in an SOT-563 surface mount package. This PICOmini™ device is designed for small signal general purpose amplifier and switching applications.

MARKING CODE: PC3

• Device is **Halogen Free** by design

MAXIMUM RATINGS: (T_A=25°C)

Collector-Base Voltage	V _{CBO}	60	40	V
Collector-Emitter Voltage	V _{CEO}	40	40	V
Emitter-Base Voltage	V _{EBO}	6.0	5.0	V
Continuous Collector Current	I _C	600		mA
Power Dissipation (Note 1)	P _D	350		mW
Power Dissipation (Note 2)	P _D	300		mW
Power Dissipation (Note 3)	P _D	150		mW
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150		°C
Thermal Resistance	θ _{JA}	357		°C/W

SYMBOL	NPN (Q1)	PNP (Q2)	UNITS
V _{CBO}	60	40	V
V _{CEO}	40	40	V
V _{EBO}	6.0	5.0	V
I _C	600		mA
P _D	350		mW
P _D	300		mW
P _D	150		mW
T _J , T _{stg}	-65 to +150		°C
θ _{JA}	357		°C/W

ELECTRICAL CHARACTERISTICS PER TRANSISTOR: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
I _{CEV}	V _{CE} =35V, V _{EB} =0.4V	-	0.1	-	0.1	µA
I _{BEV}	V _{CE} =35V, V _{EB} =0.4V	-	0.1	-	0.1	µA
BV _{CBO}	I _C =100µA	60	-	40	-	V
BV _{CEO}	I _C =1.0mA	40	-	40	-	V
BV _{EBO}	I _E =100µA	6.0	-	5.0	-	V
V _{CE(SAT)}	I _C =150mA, I _B =15mA	-	0.40	-	0.40	V
V _{CE(SAT)}	I _C =500mA, I _B =50mA	-	0.75	-	0.75	V
V _{BE(SAT)}	I _C =150mA, I _B =15mA	0.75	0.95	0.75	0.95	V
V _{BE(SAT)}	I _C =500mA, I _B =50mA	-	1.2	-	1.3	V
h _{FE}	V _{CE} =1.0V, I _C =0.1mA	20	-	30	-	
h _{FE}	V _{CE} =1.0V, I _C =1.0mA	40	-	60	-	
h _{FE}	V _{CE} =1.0V, I _C =10mA	80	-	100	-	
h _{FE}	V _{CE} =1.0V, I _C =150mA	100	300	-	-	
h _{FE}	V _{CE} =2.0V, I _C =150mA	-	-	100	300	
h _{FE}	V _{CE} =2.0V, I _C =500mA	40	-	20	-	
f _T	V _{CE} =10V, I _C =20mA, f=100MHz	250	-	200	-	MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz	-	6.5	-	8.5	pF
C _{ib}	V _{BE} =0.5V, I _C =0, f=1.0MHz	-	30	-	30	pF

- Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm²
 (2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm²
 (3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm²

R1 (20-January 2010)

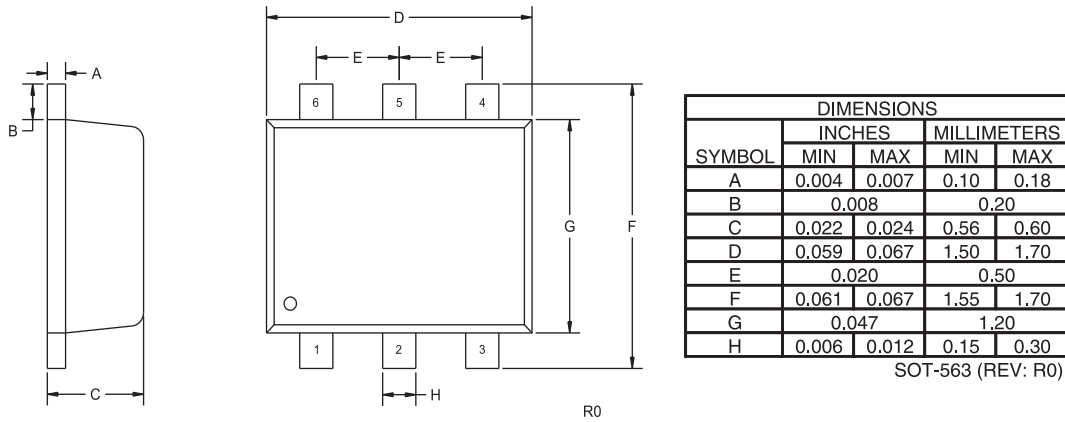
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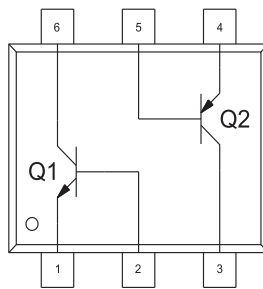
ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: ($T_A=25^\circ\text{C}$)

SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
h_{ie}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	1.0	15	1.5	15	$k\Omega$
h_{re}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	0.1	8.0	0.1	8.0	$\times 10^{-4}$
h_{fe}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	40	500	60	500	
h_{oe}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	1.0	30	1.0	100	μS
t_d	$V_{CC}=30\text{V}, V_{BE}=2.0\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$	-	15	-	15	ns
t_r	$V_{CC}=30\text{V}, V_{BE}=2.0\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$	-	20	-	20	ns
t_s	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$	-	225	-	225	ns
t_f	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$	-	30	-	30	ns

SOT-563 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



LEAD CODE:

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

MARKING CODE: PC3

R1 (20-January 2010)