CMLT3904E CMLT3904EG* NPN
CMLT3906E CMLT3906EG* PNP
CMLT3946E CMLT3946EG* NPN/PNP

ENHANCED SPECIFICATION
SURFACE MOUNT SILICON COMPLEMENTARY TRANSISTORS

ENHANCED E SPECIFICATION

SOT-563 CASE

* Device is ***Halogen Free*** by design

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

These CENTRAL SEMICONDUCTOR devices are combinations of dual, enhanced specification transistors in a space saving SOT-563 package, designed for small signal general purpose amplifier and switching applications.

MARKING CODES:

CMLT3904E:	**L04**
CMLT3906E:	**L06**
CMLT3946E:	**L46**
CMLT3904EG*:	**C4G**
CMLT3906EG*:	**C6G**
CMLT3946EG*:	**46G**

ENHANCED SPECIFICATIONS:

- BV_{CBO} from 40V MIN to 60V MIN (PNP)
- BV_{EBO} from 5.0V MIN to 6.0V MIN (PNP)
- h_{FE} from 60 MIN to 70 MIN (NPN/PNP)
- $V_{CE(SAT)}$ from 0.3V MAX to 0.2V MAX (NPN) from 0.4V MAX to 0.2V MAX (PNP)

MAXIMUM RATINGS: (T_A=25°C)

	SYMBOL		UNITS
♦ **Collector-Base Voltage**	**V_{CBO}**	**60**	**V**
Collector-Emitter Voltage	V_{CEO}	40	V
♦ **Emitter-Base Voltage**	**V_{EBO}**	**6.0**	**V**
Continuous Collector Current	I_C	200	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

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

		NPN		PNP		
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**TYP**	**MAX**	**UNITS**
I_{CEV}	V_{CE}=30V, V_{EB}=3.0V	-	-	-	50	nA
♦ **BV_{CBO}**	**I_C=10μA**	**60**	**115**	**90**	**-**	**V**
BV_{CEO}	I_C=1.0mA	40	60	55	-	V
♦ **BV_{EBO}**	**I_E=10μA**	**6.0**	**7.5**	**7.9**	**-**	**V**
♦ **$V_{CE(SAT)}$**	**I_C=10mA, I_B=1.0mA**	**-**	**0.057**	**0.050**	**0.100**	**V**
♦ **$V_{CE(SAT)}$**	**I_C=50mA, I_B=5.0mA**	**-**	**0.100**	**0.100**	**0.200**	**V**
$V_{BE(SAT)}$	I_C=10mA, I_B=1.0mA	0.65	0.75	0.75	0.85	V
$V_{BE(SAT)}$	I_C=50mA, I_B=5.0mA	-	0.85	0.85	0.95	V
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=0.1mA**	**90**	**240**	**130**	**-**	
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=1.0mA**	**100**	**235**	**150**	**-**	
h_{FE}	V_{CE}=1.0V, I_C=10mA	100	215	150	300	
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=50mA**	**70**	**110**	**120**	**-**	
h_{FE}	V_{CE}=1.0V, I_C=100mA	30	50	55	-	

♦ Enhanced Specification

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

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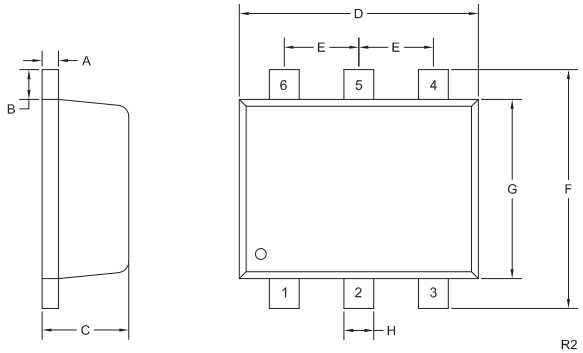
ENHANCED SPECIFICATION
SURFACE MOUNT SILICON COMPLEMENTARY TRANSISTORS

ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: (T_A=25°C)

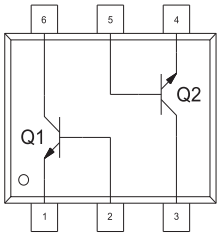
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f_T	V_{CE}=20V, I_C=10mA, f=100MHz	300		MHz
C_{ob}	V_{CB}=5.0V, I_E=0, f=1.0MHz		4.0	pF
C_{ib}	V_{BE}=0.5V, I_C=0, f=1.0MHz		8.0	pF
h_{ie}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	1.0	12	kΩ
h_{re}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	0.1	10	$x10^{-4}$
h_{fe}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	100	400	
h_{oe}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	1.0	60	μS
NF	V_{CE}=5.0V, I_C=100μA, R_S =1.0kΩ			
	f=10Hz to 15.7kHz		4.0	dB
t_d	V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA		35	ns
t_r	V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA		35	ns
t_s	V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		200	ns
t_f	V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA		50	ns

SOT-563 CASE - MECHANICAL OUTLINE

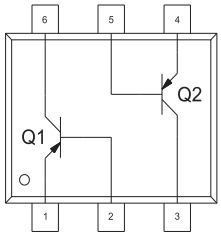


DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.0027	0.007	0.07	0.18
B	0.008		0.20	
C	0.017	0.024	0.45	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.059	0.067	1.50	1.70
G	0.043	0.051	1.10	1.30
H	0.006	0.012	0.15	0.30

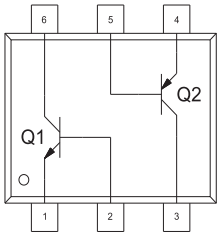
SOT-563 (REV: R2)



CMLT3904E
CMLT3904EG*



CMLT3906E
CMLT3906EG*



CMLT3946E
CMLT3946EG*

LEAD CODE:
1) Emitter Q1
2) Base Q1
3) Collector Q2
4) Emitter Q2
5) Base Q2
6) Collector Q1

***** Device is ***Halogen Free*** by design

R6 (29-June 2015)

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ENHANCED SPECIFICATION
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SERVICES

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development / Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

R6 (29-June 2015)