



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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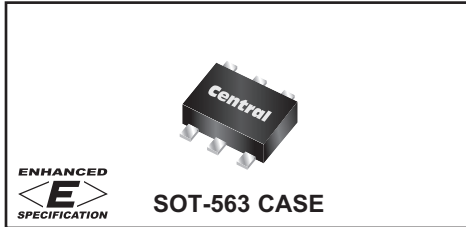
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CMLT3904E CMLT3904EG\* NPN  
 CMLT3906E CMLT3906EG\* PNP  
 CMLT3946E CMLT3946EG\* NPN/PNP

**ENHANCED SPECIFICATION  
 SURFACE MOUNT SILICON  
 COMPLEMENTARY TRANSISTORS**



\* Device is *Halogen Free* by design

**ENHANCED SPECIFICATIONS:**

- ◆  $BV_{CBO}$  from 40V MIN to 60V MIN (PNP)
- ◆  $BV_{EBO}$  from 5.0V MIN to 6.0V MIN (PNP)

**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



www.centrasemi.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.

<b>MARKING CODES:</b>	<b>CMLT3904E:</b>	<b>L04</b>
	<b>CMLT3906E:</b>	<b>L06</b>
	<b>CMLT3946E:</b>	<b>L46</b>
	<b>CMLT3904EG*:</b>	<b>C4G</b>
	<b>CMLT3906EG*:</b>	<b>C6G</b>
	<b>CMLT3946EG*:</b>	<b>46G</b>

- ◆  $h_{FE}$  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)

SYMBOL		UNITS
$V_{CBO}$	60	V
$V_{CEO}$	40	V
$V_{EBO}$	6.0	V
$I_C$	200	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	$^\circ\text{C/W}$

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

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

◆ Enhanced Specification

- 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>

R7 (16-December 2015)

CMLT3904E CMLT3904EG\* NPN  
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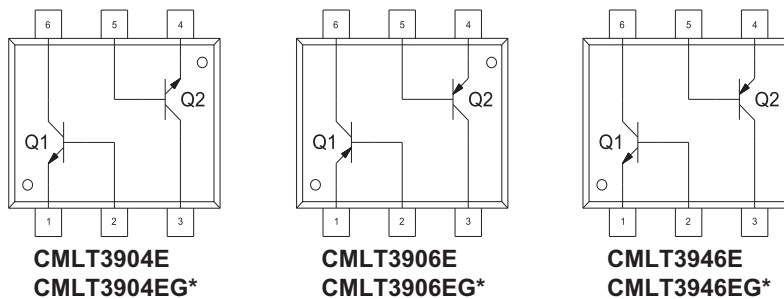
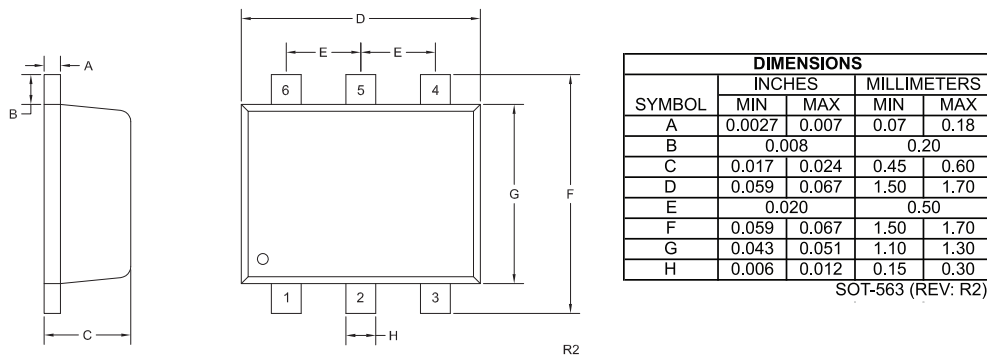


**ENHANCED SPECIFICATION  
 SURFACE MOUNT SILICON  
 COMPLEMENTARY TRANSISTORS**

**ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: (T<sub>A</sub>=25°C)**

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300		MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz		4.0	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz		8.0	pF
h <sub>ie</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	1.0	12	kΩ
h <sub>re</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	0.1	10	x10 <sup>-4</sup>
h <sub>fe</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	100	400	
h <sub>oe</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	1.0	60	μS
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100μA, R <sub>S</sub> =1.0kΩ f=10Hz to 15.7kHz		4.0	dB
t <sub>d</sub>	V <sub>CC</sub> =3.0V, V <sub>BE</sub> =0.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =1.0mA		35	ns
t <sub>r</sub>	V <sub>CC</sub> =3.0V, V <sub>BE</sub> =0.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =1.0mA		35	ns
t <sub>s</sub>	V <sub>CC</sub> =3.0V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA		200	ns
t <sub>f</sub>	V <sub>CC</sub> =3.0V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA		50	ns

**SOT-563 CASE - MECHANICAL OUTLINE**



**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



## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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