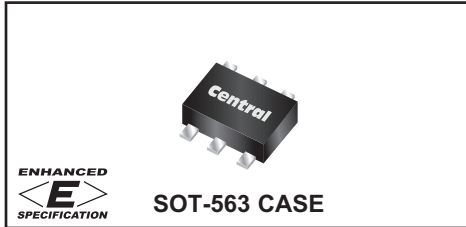


CMLT3904E CMLT3904EG\* NPN  
 CMLT3906E CMLT3906EG\* PNP  
 CMLT3946E CMLT3946EG\* NPN/PNP

**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



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**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>

R6 (29-June 2015)

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

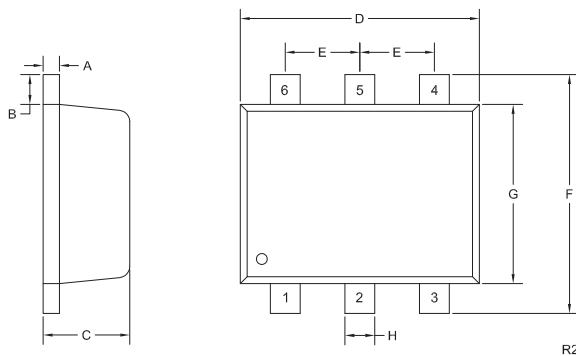


**ENHANCED SPECIFICATION  
 SURFACE MOUNT SILICON  
 COMPLEMENTARY TRANSISTORS**

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

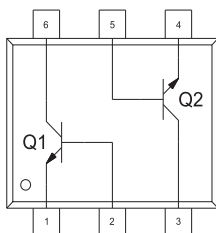
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300		MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz		4.0	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz		8.0	pF
h <sub>ie</sub>	V <sub>CE</sub> =10V, 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**

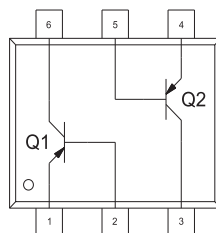


SYMBOL	DIMENSIONS		DIMENSIONS	
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.0027	0.007	0.07	0.18
B	0.008		0.20	
C	0.017	0.024	0.45	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.059	0.067	1.50	1.70
G	0.043	0.051	1.10	1.30
H	0.006	0.012	0.15	0.30

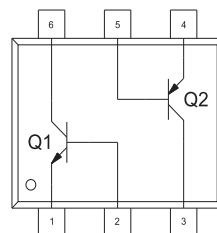
SOT-563 (REV: R2)



**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

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

**ENHANCED SPECIFICATION  
SURFACE MOUNT SILICON  
COMPLEMENTARY TRANSISTORS**



#### **SERVICES**

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- 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

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R6 (29-June 2015)



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**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

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