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[Central Semiconductor Corp](#)

[CMLT3904EG TR](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

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:

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

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

- ◆ **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

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

SYMBOL	TEST CONDITIONS	NPN		PNP		UNITS
		MIN	TYP	TYP	MAX	
I_{CEV}	$V_{CE}=30V, V_{EB}=3.0V$	-	-	-	50	nA
◆ BV_{CBO}	$I_C=10\mu A$	60	115	90	-	V
BV_{CEO}	$I_C=1.0mA$	40	60	55	-	V
◆ BV_{EBO}	$I_E=10\mu A$	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 4.0mm²
 (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



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.

MARKING CODES:

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

- ◆ 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	$^{\circ}C$
θ_{JA}	357	$^{\circ}C/W$

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

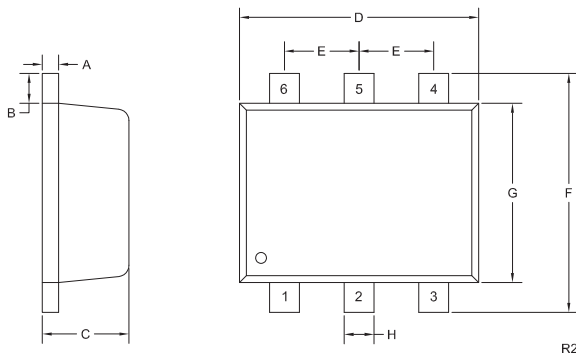
ENHANCED SPECIFICATION
SURFACE MOUNT SILICON
COMPLEMENTARY TRANSISTORS



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

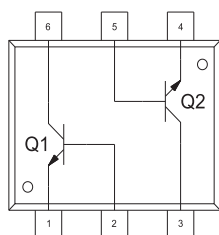
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
f _T	V _{CE} =20V, I _C =10mA, f=100MHz	300		MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz		4.0	pF
C _{ib}	V _{BE} =0.5V, I _C =0, f=1.0MHz		8.0	pF
h _{ie}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	1.0	12	kΩ
h _{re}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	0.1	10	x10 ⁻⁴
h _{fe}	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

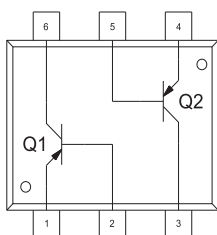


SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.0027	0.007	0.07	0.18
B	0.008		0.20	
C	0.017	0.024	0.45	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.059	0.067	1.50	1.70
G	0.043	0.051	1.10	1.30
H	0.006	0.012	0.15	0.30

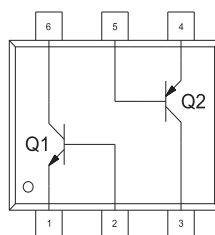
SOT-563 (REV: R2)



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

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

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

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- Custom product packing

DESIGNER SUPPORT/SERVICES

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- 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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