

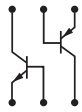
CMXT3946

**SURFACE MOUNT  
DUAL COMPLEMENTARY  
SILICON TRANSISTORS**



www.centrasemi.com

**SUPERmini™**



**SOT-26 CASE**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMXT3946 type is a dual complementary silicon transistor manufactured by the epitaxial planar process, epoxy molded in a SUPERmini™ surface mount package, and designed for small signal general purpose and switching applications.

**MARKING CODE: X46**

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL	NPN	PNP	UNITS
V <sub>CB0</sub>	60	40	V
V <sub>CEO</sub>	40	40	V
V <sub>EBO</sub>	6.0	5.0	V
I <sub>C</sub>		200	mA
P <sub>D</sub>		350	mW
T <sub>J</sub> , T <sub>stg</sub>		-65 to +150	°C
θ <sub>JA</sub>		357	°C/W

**ELECTRICAL CHARACTERISTICS PER TRANSISTOR:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	NPN		PNP		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CEV</sub>	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V	-	50	-	50	nA
BV <sub>CB0</sub>	I <sub>C</sub> =10μA	60	-	40	-	V
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	40	-	40	-	V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA	6.0	-	5.0	-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	-	0.20	-	0.25	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-	0.30	-	0.40	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	0.65	0.85	0.65	0.85	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-	0.95	-	0.95	V
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =0.1mA	40	-	60	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =1.0mA	70	-	80	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =10mA	100	300	100	300	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =50mA	60	-	60	-	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =100mA	30	-	30	-	
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300	-	250	-	MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz	-	4.0	-	4.5	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz	-	8.0	-	10	pF
h <sub>ie</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	1.0	10	2.0	12	kΩ
h <sub>re</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	0.5	8.0	0.1	10	x10 <sup>-4</sup>

R3 (12-February 2010)

CMXT3946

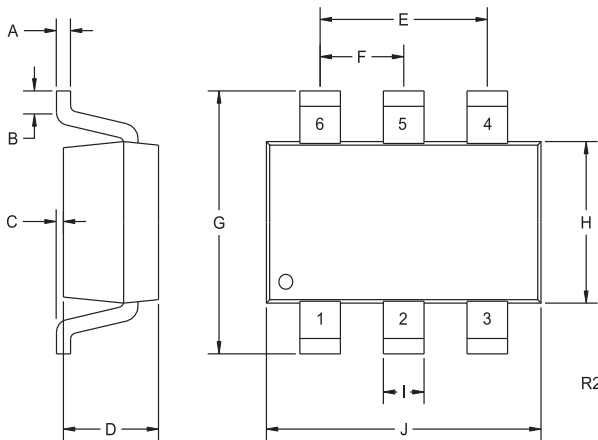
**SURFACE MOUNT  
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**ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

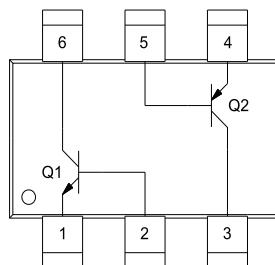
SYMBOL	TEST CONDITIONS	NPN		PNP		UNITS
		MIN	MAX	MIN	MAX	
$h_{fe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	100	400	100	400	
$h_{oe}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	1.0	40	3.0	60	$\mu\text{S}$
NF	$V_{CE}=5.0\text{V}$ , $I_C=100\mu\text{A}$ , $R_S=1.0\text{k}\Omega$ , $f=10\text{Hz}$ to $15.7\text{kHz}$	-	5.0	-	4.0	dB
$t_d$	$V_{CC}=3.0\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$	-	35	-	35	ns
$t_r$	$V_{CC}=3.0\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$	-	35	-	35	ns
$t_s$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=1.0\text{mA}$	-	200	-	225	ns
$t_f$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=1.0\text{mA}$	-	50	-	75	ns

**SOT-26 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.11	0.19
B	0.016	-	0.40	-
C	-	0.004	-	0.10
D	0.039	0.047	1.00	1.20
E	0.074	0.075	1.88	1.92
F	0.037	0.038	0.93	0.97
G	0.102	0.118	2.60	3.00
H	0.059	0.067	1.50	1.70
I	-	0.016	-	0.41
J	0.110	0.118	2.80	3.00

SOT-26 (REV: R2)



**LEAD CODE:**

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

**MARKING CODE: X46**

R3 (12-February 2010)

## 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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