

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_A=25°C)

Collector-Base Voltage	V _{CBO}	60	40	V
Collector-Emitter Voltage	V _{CEO}	40	40	V
Emitter-Base Voltage	V _{EBO}	6.0	5.0	V
Continuous Collector Current	I _C		200	mA
Power Dissipation	P _D		350	mW
Operating and Storage Junction Temperature	T _J , T _{stg}		-65 to +150	°C
Thermal Resistance	θ _{JA}		357	°C/W

	SYMBOL	NPN	PNP	UNITS
Collector-Base Voltage	V _{CBO}	60	40	V
Collector-Emitter Voltage	V _{CEO}	40	40	V
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Thermal Resistance	θ _{JA}		357	°C/W

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

SYMBOL	TEST CONDITIONS	NPN		PNP		UNITS
		MIN	MAX	MIN	MAX	
I _{CEV}	V _{CE} =30V, V _{EB} =3.0V	-	50	-	50	nA
BV _{CBO}	I _C =10μA	60	-	40	-	V
BV _{CEO}	I _C =1.0mA	40	-	40	-	V
BV _{EBO}	I _E =10μA	6.0	-	5.0	-	V
V _{CE(SAT)}	I _C =10mA, I _B =1.0mA	-	0.20	-	0.25	V
V _{CE(SAT)}	I _C =50mA, I _B =5.0mA	-	0.30	-	0.40	V
V _{BE(SAT)}	I _C =10mA, I _B =1.0mA	0.65	0.85	0.65	0.85	V
V _{BE(SAT)}	I _C =50mA, I _B =5.0mA	-	0.95	-	0.95	V
h _{FE}	V _{CE} =1.0V, I _C =0.1mA	40	-	60	-	
h _{FE}	V _{CE} =1.0V, I _C =1.0mA	70	-	80	-	
h _{FE}	V _{CE} =1.0V, I _C =10mA	100	300	100	300	
h _{FE}	V _{CE} =1.0V, I _C =50mA	60	-	60	-	
h _{FE}	V _{CE} =1.0V, I _C =100mA	30	-	30	-	
f _T	V _{CE} =20V, I _C =10mA, f=100MHz	300	-	250	-	MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz	-	4.0	-	4.5	pF
C _{ib}	V _{BE} =0.5V, I _C =0, f=1.0MHz	-	8.0	-	10	pF
h _{ie}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	1.0	10	2.0	12	kΩ
h _{re}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	0.5	8.0	0.1	10	x10 ⁻⁴

R3 (12-February 2010)

CMXT3946

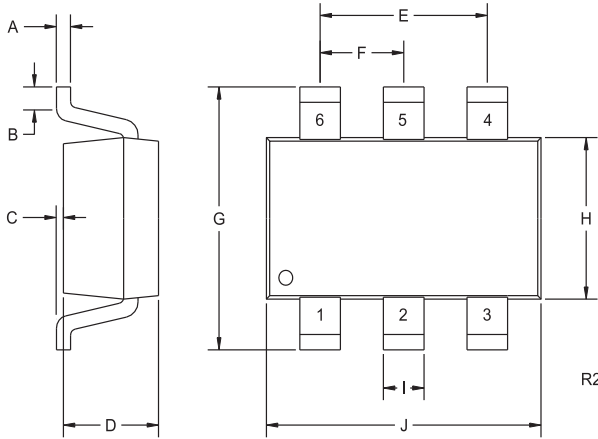
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ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

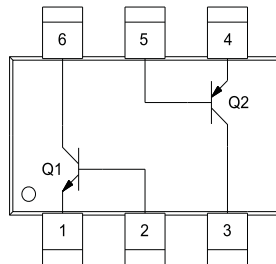
SYMBOL	TEST CONDITIONS	NPN		PNP		UNITS
		MIN	MAX	MIN	MAX	
h_{fe}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	100	400	100	400	
h_{oe}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	1.0	40	3.0	60	μS
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=1.0\text{k}\Omega$, $f=10\text{Hz}$ to 15.7kHz	-	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

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