

2N3810
2N3810A

**SILICON
DUAL PNP TRANSISTORS**



TO-78 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3810 and 2N3810A are dual silicon PNP transistors manufactured by the epitaxial planar process utilizing two individual chips mounted in a hermetically sealed metal case designed for differential amplifier applications.

MARKING: FULL PART NUMBER

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

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation (One Die)
Power Dissipation (Both Dice)
Operating and Storage Junction Temperature

SYMBOL

V_{CB0} 60
 V_{CEO} 60
 V_{EBO} 5.0
 I_C 50
 P_D 500
 P_D 600
 T_J, T_{stg} -65 to +200

UNITS

V
V
V
mA
mW
mW
 $^{\circ}\text{C}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=50\text{V}$		10	nA
I_{EBO}	$V_{EB}=4.0\text{V}$		20	nA
BV_{CB0}	$I_C=10\mu\text{A}$	60		V
BV_{CEO}	$I_C=10\text{mA}$	60		V
BV_{EBO}	$I_E=10\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=100\mu\text{A}, I_B=10\mu\text{A}$		0.20	V
$V_{CE(SAT)}$	$I_C=1.0\text{mA}, I_B=100\mu\text{A}$		0.25	V
$V_{BE(SAT)}$	$I_C=100\mu\text{A}, I_B=10\mu\text{A}$		0.70	V
$V_{BE(SAT)}$	$I_C=1.0\text{mA}, I_B=100\mu\text{A}$		0.80	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$		0.70	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	100		
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	150	450	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}$	150	450	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	150	450	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	125		
f_T	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}, f=30\text{MHz}$	30		MHz
f_T	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=100\text{MHz}$	100	500	MHz
C_{ob}	$V_{CB}=5.0\text{V}, I_E=0, f=100\text{kHz}$		4.0	pF
C_{ib}	$V_{BE}=0.5\text{V}, I_C=0, f=100\text{kHz}$		8.0	pF
h_{ie}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	3.0	30	Ω
h_{re}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$		25	$\times 10^{-4}$
h_{fe}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	150	600	
h_{oe}	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	5.0	60	μS
NF	$V_{CE}=10\text{V}, I_C=100\mu\text{A}, R_G=3.0\text{k}\Omega, f=100\text{Hz}, \text{BW}=20\text{Hz}$		7.0	dB

R1 (4-June 2013)

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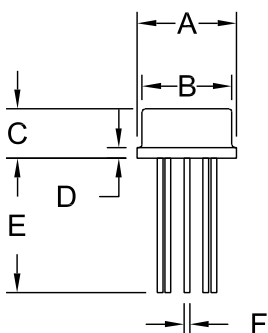


MATCHING CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
h_{FE1}/h_{FE2} (Note 1)	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$ (2N3810)	0.90	1.0	
h_{FE1}/h_{FE2} (Note 1)	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$ (2N3810A)	0.95	1.0	
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}$, $I_C=10\mu\text{A}$ to 10mA		5.0	mV
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$ (2N3810)		3.0	mV
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$ (2N3810A)		1.5	mV

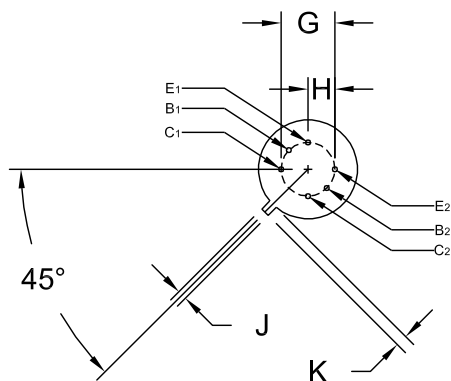
Notes: (1) The lowest reading is taken as h_{FE1} .

TO-78 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.305	0.335	7.75	8.51
C	0.150	0.185	3.81	4.70
D	-	0.040	-	1.02
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G	0.200		5.08	
H	0.100		2.54	
J	0.028	0.034	0.71	0.86
K	0.029	0.045	0.74	1.14

TO-78 (REV: R1)



R1

MARKING: FULL PART NUMBER

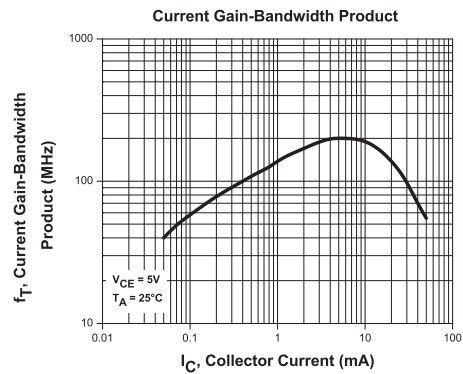
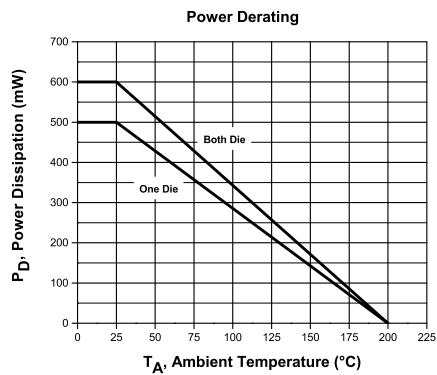
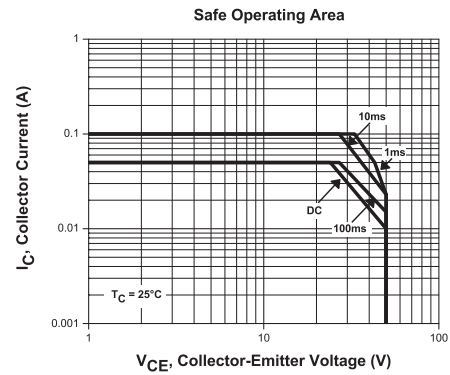
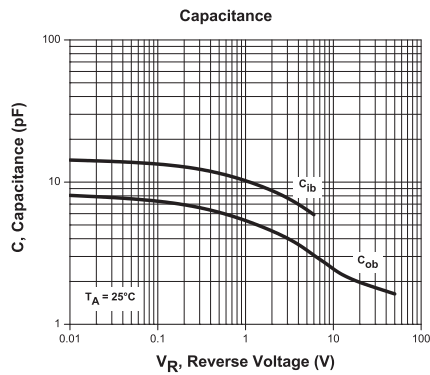
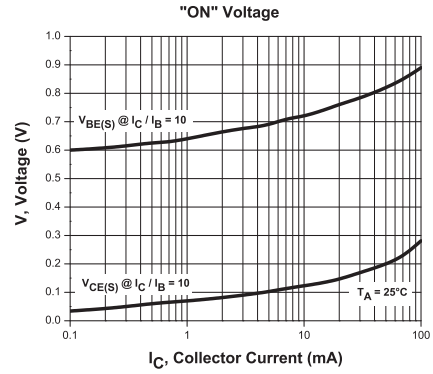
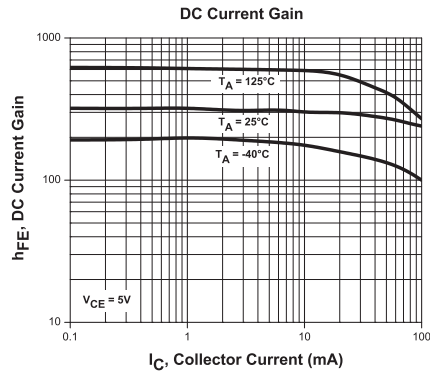
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TYPICAL ELECTRICAL CHARACTERISTICS



R1 (4-June 2013)