

# NPN SILICON HIGH FREQUENCY TRANSISTOR

## **UPA810TF**

#### **FEATURES**

- SMALL PACKAGE OUTLINE: SOT-363 package measures just 2 mm x 1.25 mm
- LOW HEIGHT PROFILE: Just 0.60 mm hight
- HIGH COLLECTOR CURRENT: IC MAX = 100 mA

#### **DESCRIPTION**

The UPA810TF contains two NE856 NPN high frequency silicon bipolar chips. NEC's new low profile TF package is ideal for all portable wireless applications where reducing component height is a prime consideration. Each transistor chip is independently mounted and easily configured for two stage cascade LNAs and other similar applications.

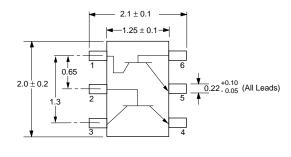
## **ABSOLUTE MAXIMUM RATINGS<sup>1</sup>** (TA = 25°C)

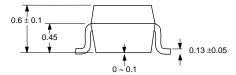
SYMBOLS	PARAMETERS	UNITS	RATINGS
Vсво	Collector to Base Voltage	V	20
VCEO	Collector to Emitter Voltage	V	12
VEBO	Emitter to Base Voltage	V	3
Ic	Collector Current	mA	100
Рт	Total Power Dissipation 1 Die 2 Die	mW mW	110 200
TJ	Junction Temperature	°C	150
Тѕтс	Storage Temperature	°C	-65 to +150

Note: 1.Operation in excess of any one of these parameters may result in permanent damage.

#### **OUTLINE DIMENSIONS** (Units in mm)

#### PACKAGE OUTLINE TS06 (Top View)





#### PIN OUT

- 1. Collector Transistor 1
- 2. Base Transistor 2
- 3. Collector Transistor 2
- 4. Emitter Transistor 2
- 5. Emitter Transistor 1
- 6. Base Transistor 1

#### Note:

Pin 1 is the lower left most pin as the package lettering is oriented and read left to right.

## **ELECTRICAL CHARACTERISTICS** (TA = 25°C)

PART NUMBER PACKAGE OUTLINE			UPA810T \$06		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
Ісво	Collector Cutoff Current at VcB = 10 V, IE = 0	μА			1.0
ІЕВО	Emitter Cutoff Current at VEB = 1 V, Ic = 0	μА			1.0
hfe	Forward Current Gain <sup>1</sup> at VcE = 3 V, Ic = 7 mA		70	120	250
fτ	Gain Bandwidth at VcE = 3 V, Ic = 7 mA	GHz	3.0	4.5	
Cre	Feedback Capacitance <sup>2</sup> at VcB = 3 V, IE = 0, f = 1 MHz	pF		0.7	1.5
S21E  <sup>2</sup>	Insertion Power Gain at VcE = 3 V, Ic =7 mA, f = 1 GHz	dB	7	9	
NF	Noise Figure at VcE = 3 V, Ic = 7 mA, f = 1 GHz	dB		1.2	2.5
hFE1/hFE2	hFE Ratio: hFE1 = Smaller Value of Q1, or Q2 hFE2 = Larger Value of Q1 or Q2		0.85		

Notes: 1. Pulsed measurement, pulse width  $\leq$  350  $\mu$ s, duty cycle  $\leq$  2 %.

2. The emitter terminal should be connected to the ground terminal of the 3 terminal capacitance bridge. For Tape and Reel version use part number UPA810TF-T1, 3K per reel.

# California Eastern Laboratories