

**NPN SILICON HIGH
FREQUENCY TRANSISTOR**

UPA810TC

FEATURES

- **SMALL PACKAGE OUTLINE:**
1.5 mm x 1.1 mm, 33% smaller than conventional SOT-363 package
- **LOW HEIGHT PROFILE:**
Just 0.55 mm high
- **FLAT LEAD STYLE:**
Reduced lead inductance improves electrical performance
- **HIGH COLLECTOR CURRENT:**
IC MAX = 100 mA

DESCRIPTION

The UPA810TC contains two NE856 NPN high frequency silicon bipolar chips. NEC's new ultra small TC package is ideal for all portable wireless applications where reducing board space is a prime consideration. Each transistor chip is independently mounted and easily configured for two stage cascade LNAs and other applications.

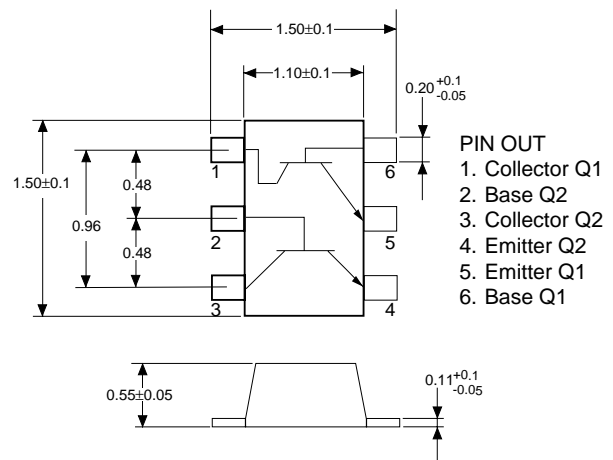
ABSOLUTE MAXIMUM RATINGS¹ (TA = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
Vcbo	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
PT	Total Power Dissipation		
	1 Die	mW	TBD
	2 Die	mW	TBD
TJ	Junction Temperature	°C	150
Tstg	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 TC
(Top View)**



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			UPA810TC TC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
Icbo	Collector Cutoff Current at VCB = 10 V, IE = 0	µA			1.0
Iebo	Emitter Cutoff Current at VEB = 1 V, Ic = 0	µA			1.0
hFE ¹	Forward Current Gain at VCE = 3 V, Ic = 7 mA		70	120	250
fr	Gain Bandwidth at VCE = 3 V, Ic = 7 mA	GHz	3.0	4.5	
Cre ²	Feedback Capacitance at VCB = 3 V, IE = 0, f = 1 MHz	pF		0.7	1.5
S21E ²	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

Notes: 1. Pulsed measurement, pulse width ≤ 350 µs, duty cycle ≤ 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 UPA810TC-T1, 3K per reel.