

**NPN SILICON HIGH
FREQUENCY TRANSISTOR**

UPA814TC

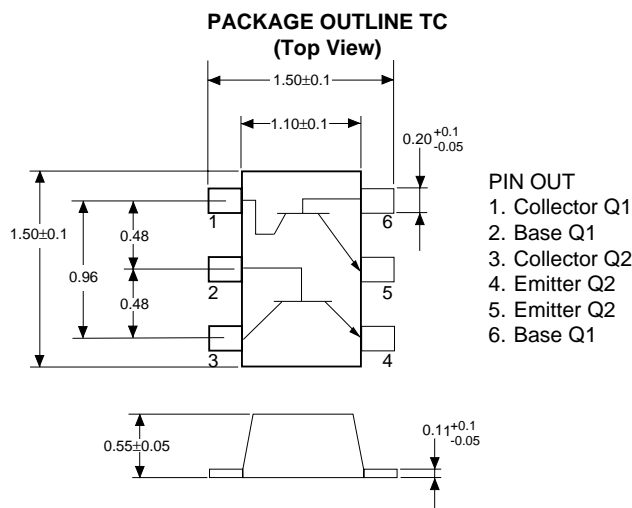
FEATURES

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

DESCRIPTION

The UPA814TC contains two NE688 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.

OUTLINE DIMENSIONS (Units in mm)



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

ABSOLUTE MAXIMUM RATINGS¹ (TA = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CB0}	Collector to Base Voltage	V	9
V _{CE0}	Collector to Emitter Voltage	V	6
V _{EB0}	Emitter to Base Voltage	V	2
I _C	Collector Current	mA	100
P _T	Total Power Dissipation 1 Die 2 Die	mW mW	TBD TBD
T _J	Junction Temperature	°C	150
T _{STG}	Storage Temperature	°C	-65 to +150

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

ELECTRICAL CHARACTERISTICS (TA = 25°C)

PART NUMBER PACKAGE OUTLINE			UPA814TC TC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I _{CBO}	Collector Cutoff Current at V _{CB} = 5V, I _E = 0	μA			0.1
I _{EBO}	Emitter Cutoff Current at V _{EB} = 1V, I _C = 0	μA			0.1
h _{FE} ¹	Forward Current Gain at V _{CE} = 1V, I _C = 3 mA		80	110	160
f _T	Gain Bandwidth at V _{CE} = 3V, I _C = 20 mA, f = 2 GHz	GHz		9.0	
C _{re} ²	Feedback Capacitance at V _{CB} = 1V, I _E = 0, f = 1 MHz	pF		0.75	0.85
S _{21E} ²	Insertion Power Gain at V _{CE} = 3V, I _C = 20 mA, f = 2 GHz	dB		6.5	
NF	Noise Figure at V _{CE} = 3V, I _C = 7 mA, f = 2 GHz	dB		1.5	

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 UPA814TC-T1, 3K per reel.