NEC

NPN SILICON HIGH FREQUENCY TRANSISTOR

UPA800TF

FEATURES

- **SMALL PACKAGE STYLE:**
  SOT-363 package measures just 2.0 mm x 1.25 mm
- **LOW HEIGHT PROFILE:**
  Just 0.60 mm high
- **EXCELLENT LOW VOLTAGE, LOW CURRENT PERFORMANCE**

DESCRIPTION

The UPA800TF contains two NE680 NPN high frequency silicon bipolar chips. NEC's new low profile TF package is ideal for all portable wireless applicatons 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.

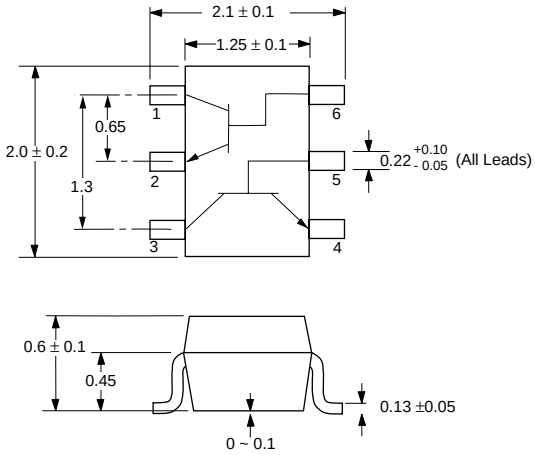
ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{CBO}	Collector to Base Voltage	V	20
V_{CEO}	Collector to Emitter Voltage	V	10
V_{EBO}	Emitter to Base Voltage	V	1.5
I_C	Collector Current	mA	35
P_T	Total Power Dissipation 1 Die 2 Die	 mW mW	 110 200
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.

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE TS06
(Top View)



PIN OUT
1. Collector Transistor 1
2. Emitter Transistor 1
3. Collector Transistor 2
4. Emitter Transistor 2
5. Base Transistor 2
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 (T_A = 25°C)

PART NUMBER PACKAGE OUTLINE			UPA800TF TS06		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**
I_{CBO}	Collector Cutoff Current at V_{CB} = 10 V, I_E = 0	µA			1.0
I_{EBO}	Emitter Cutoff Current at V_{EB} = 1 V, I_C = 0	µA			1.0
h_{FE}	Forward Current Gain[1] at V_{CE} = 3 V, I_C = 5 mA		80	120	200
f_T	Gain Bandwidth at V_{CE} = 3 V, I_C = 5 mA	GHz	5.5	8.0	
Cre	Feedback Capacitance[2] at V_{CB} = 3 V, I_E = 0, f = 1 MHz	pF		0.3	0.7
$\|S_{21E}\|^2$	Insertion Power Gain at V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz	dB	5.5	7.5	
NF	Noise Figure at V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz	dB		1.9	3.2

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 UPA800TF-T1, 3K per reel.