

PRELIMINARY

FEATURES

- **SMALL PACKAGE STYLE:**
2 NE680 Die in a 2 mm x 1.25 mm package
- **LOW NOISE FIGURE:**
NF = 1.9 dB TYP at 2 GHz
- **HIGH GAIN:**
 $|S_{21E}|^2 = 7.5$ dB TYP at 2 GHz
- **EXCELLENT LOW VOLTAGE, LOW CURRENT PERFORMANCE**

DESCRIPTION

The UPA800T is two NPN high frequency silicon epitaxial transistor encapsulated in an ultra small 6 pin SMT package. Each transistor is independently mounted and easily configured for either dual transistor or cascode operation. The high ft, low voltage bias and small size make this device ideally suited for pager and other hand-held wireless applications.

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CB0}	Collector to Base Voltage	V	20
V _{CE0}	Collector to Emitter Voltage	V	10
V _{EB0}	Emitter to Base Voltage	V	1.5
I _c	Collector Current	mA	35
T _J	Junction Temperature	°C	150
T _{STG}	Storage Temperature	°C	-65 to +150

Notes:

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

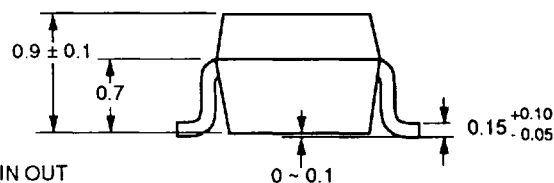
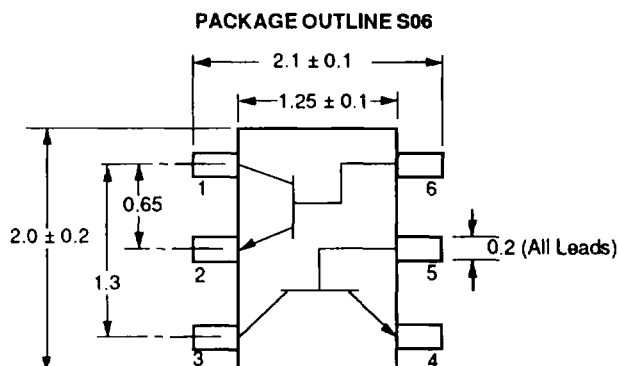
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER PACKAGE OUTLINE			UPA800T S06		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
I _{CB0}	Collector Cutoff Current at V _{CB} = 10 V, I _E = 0	μA			1.0
I _{EB0}	Emitter Cutoff Current at V _{EB} = 1 V, I _C = 0	μA			1.0
h _{FE} ¹	Forward Current Gain 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	
C _{re} ²	Feedback Capacitance 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 UPA800T-T1, 3K per reel.

OUTLINE DIMENSIONS (Units in mm)



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 3 is identified with a circle on the bottom of the package.