

# START405

# NPN Silicon RF Transistor

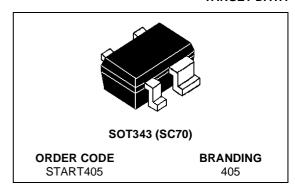
#### **TARGET DATA**

- LOW NOISE FIGURE: NFmin = 1.15dB
   @ 1.8GHz, 2mA, 2V
- COMPRESSION P1dB = 5dBm
  - @ 1.8GHz, 5mA, 2V
- TRANSITION FREQUENCY 42GHz
- LOW CURRENT CONSUMPTION
- ULTRA MINIATURE SOT343 PACKAGE

#### **DESCRIPTION**

The START405 is a member of the START family that provide the state of the art of RF silicon process to the market. Manufacturated in the third generation of ST proprietary bipolar process, it offers the best mix of gain and NF for given breakdown voltage(BVceo).

It offers performance level only archived with GaAs products before.



### **APPLICATIONS**

- LNA FOR GSM/DCS, DECT, PCS, PCN, CDMA, W-CDMA
- GENERAL PURPOSE 500MHz-5GHz

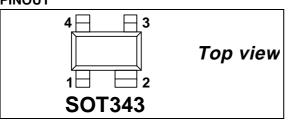
## **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit	
V <sub>ceo</sub>	Collector emitter voltage	4.5	V	
V <sub>cbo</sub>	Collector base voltage	15	V	
V <sub>ebo</sub>	Emitter base voltage	1.5	V	
I <sub>c</sub>	Collector current	10	mA	
I <sub>b</sub>	Base current	1	mA	
P <sub>tot</sub>	Total dissipation, T <sub>s</sub> = TBD	45	mW	
T <sub>stg</sub>	Storage temperature	-65 to 150	°C	
Tj	Max. operating junction temperature	150	°C	

## **ABSOLUTE MAXIMUM RATINGS**

R <sub>thjs</sub>	Thermal Resistance Junction soldering point	MAX	≤TBD	°C/W	1
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#### **PINOUT**



### **PIN CONNECTION**

Pin No.	Description		
1	BASE		
3	COLLECTOR		
2,4	EMITTER		

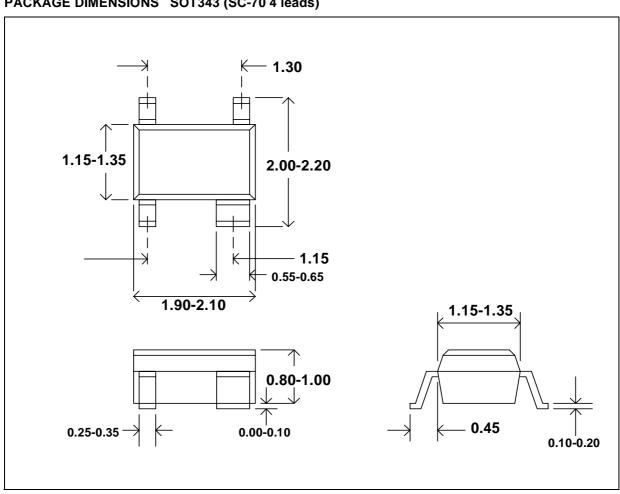
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## **ELECTRICAL CHARACTERISTICS** (T<sub>j</sub>=25 °C,unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I <sub>cbo</sub>	Collector cutoff current	Vcb = 3V, le = 0A			150	nA
l <sub>ebo</sub>	Emitter-base cutoff current	Veb = 1.5V, Ic = 0A			15	μΑ
Hfe	DC current gain	Ic = 5mA, Vce = 4V	50	90		
NFmin	Minimim noise figure	Ic = 2mA, Vce = 2V, f = 1.8GHz		1.15		dB
Ga	NFmin associated gain	Ic = 2mA, Vce = 2V, f = 1.8GHz		19		dB
S21  <sup>2</sup>	Insertion power gain	Ic = 5mA, $Vce = 2V$ , $f = 1.8GHz$		17		dB
Gms <sup>(1)</sup>	Maximum stable gain	Ic = 5mA, $Vce = 2V$ , $f = 1.8GHz$		22		dB
P <sub>-1dB</sub>	1dB compression point	Ic = 5mA,Vce = 2V, f = 1.8GHz		5		dBm
OIP3	Ouput third order intercept point	Ic = 5mA,Vce = 2V, f = 1.8GHz		15		dBm

Note(1): Gms =  $| S_{21} / S_{12} |$ 

## PACKAGE DIMENSIONS SOT343 (SC-70 4 leads)



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