# Silicon Epitaxial Planar Transistor **2SC5554**

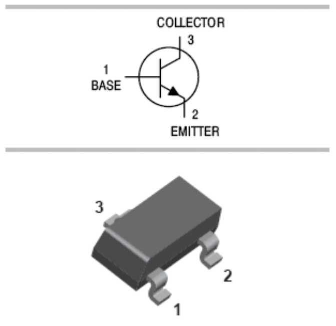
## FEATURES

- Capable low voltage operation

Lead-free

## APPLICATIONS

- Designed for low noise amplifier at VHF UHF and CATV band



**SOT-23**

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| 2SC5554 | YH | SOT-23 |

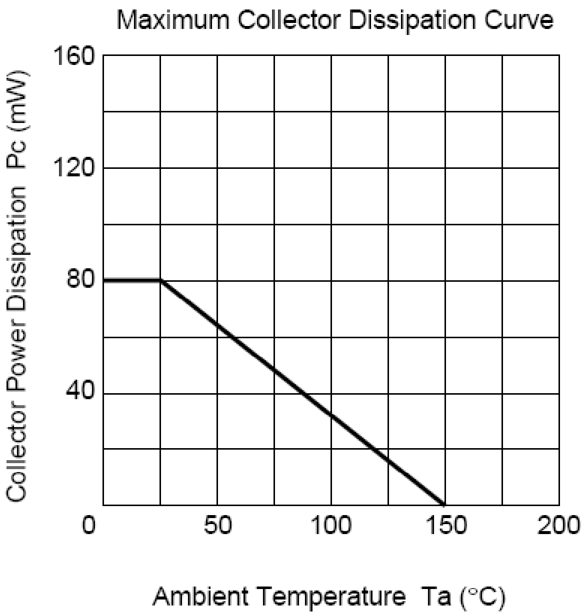
## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

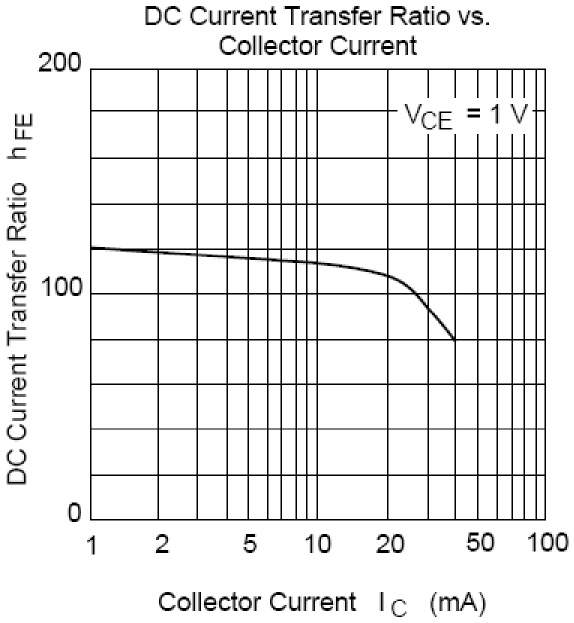
| **Symbol** | **Parameter** | **Value** | **Units** |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 15 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 9 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 1.5 | V |
| $I_C$ | Collector Current -Continuous | 20 | mA |
| $P_C$ | Collector Dissipation | 80 | mW |
| $T_{j,}T_{stg}$ | Junction and Storage Temperature | -55 to +150 | ℃ |

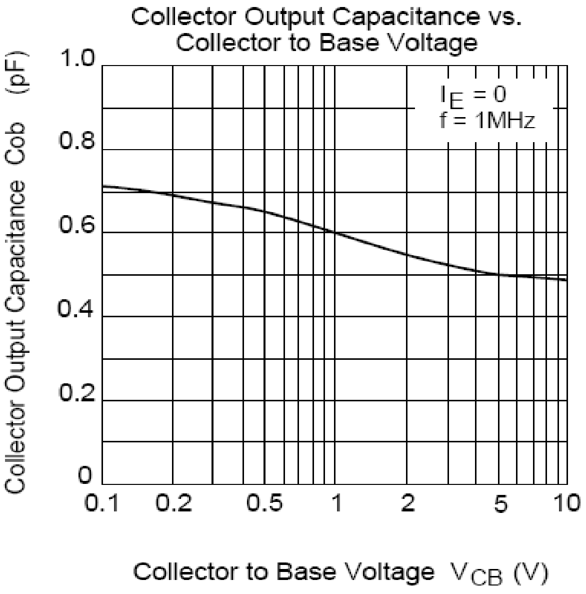
## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

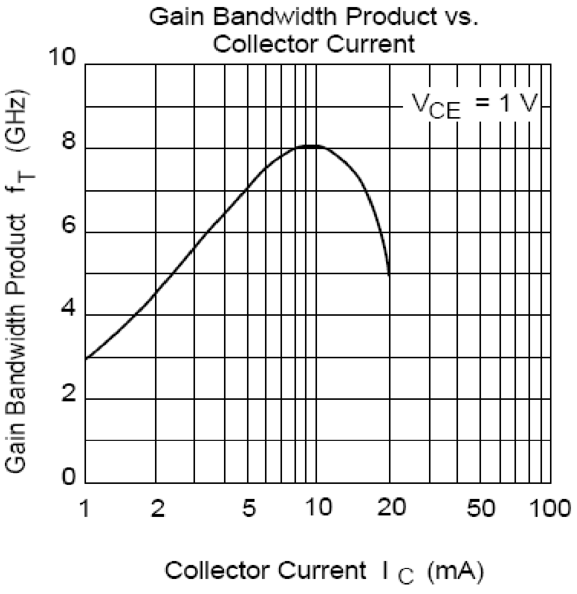
| **Parameter** | **Symbol** | **Test conditions** | **MIN** | **TYP** | **MAX** | **UNIT** |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=10μA,$I_E$=0 | 15 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA,$I_B$=0 | 9 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=10μA,$I_C$=0 | 1.5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=15V,$I_E$=0 | | | 10 | μA |
| Collector cut-off current | $I_{CEO}$ | $V_{CB}$=9V,$R_{BE}=\infty$ | | | 1 | mA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=1.5V,$I_C$=0 | | | 10 | μA |
| DC current gain | $h_{FE}$ | $V_{CE}$=1V,$I_C$=5mA | 50 | 120 | 250 | |
| Transition frequency | $f_T$ | $V_{CE}$=1V, $I_C$= 5mA | 3.5 | 7 | | GHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=1V, $I_E$=0,f=1MHz | | 0.6 | 0.9 | pF |
| Power gain | PG | $V_{CE}$=1V, $I_C$= 5mA,<br>f=900MHz | 9 | 12 | | dB |
| Noise Figure | NF | $V_{CE}$=1V,$I_C$=5mA,<br>f=900MHz | | 1.4 | 3 | dB |

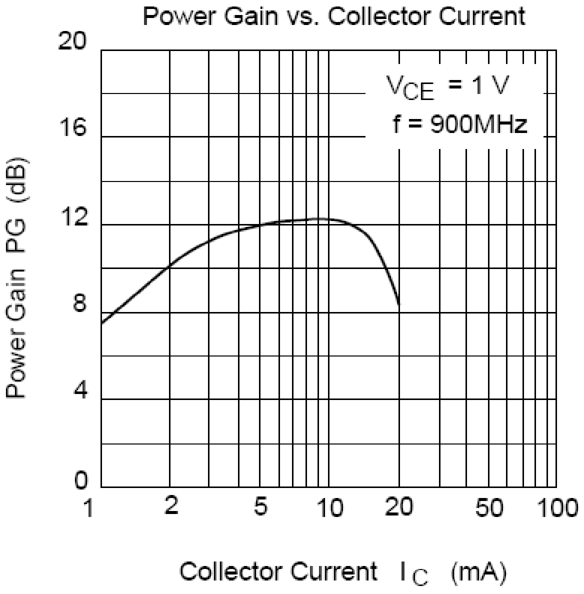
## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

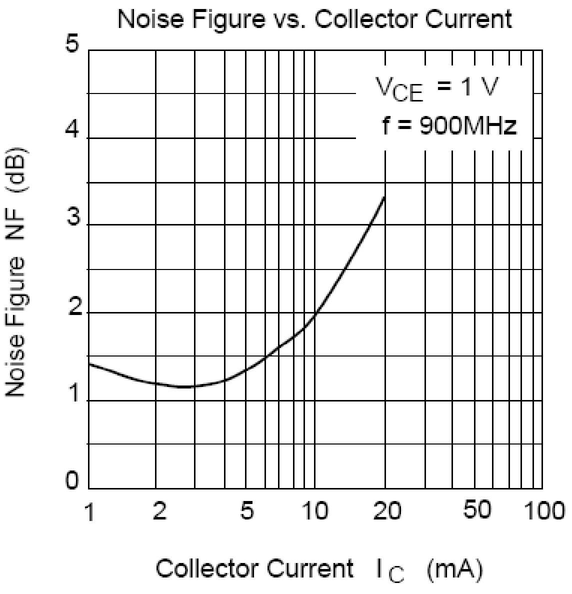





Collector Output Capacitance vs. Collector to Base Voltage
Collector Output Capacitance Cob (pF)
1.0
0.8
0.6
0.4
0.2
0
$I_E$ = 0
f = 1MHz
0.1
0.2
0.5
1
2
5
10
Collector to Base Voltage $V_{CB}$ (V)

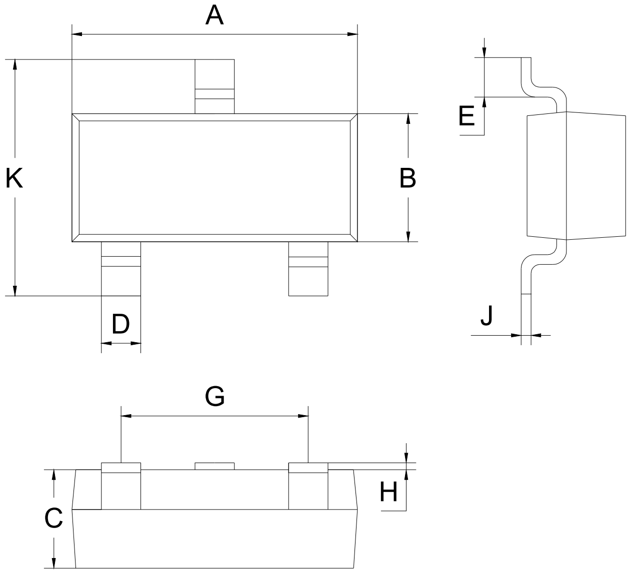

Gain Bandwidth Product vs. Collector Current
Gain Bandwidth Product $f_T$ (GHz)
10
8
6
4
2
0
$V_{CE}$ = 1 V
1
2
5
10
20
50
100
Collector Current $I_C$ (mA)


Power Gain vs. Collector Current
Power Gain PG (dB)
20
16
12
8
4
0
$V_{CE}$ = 1 V
f = 900MHz
1
2
5
10
20
50
100
Collector Current $I_C$ (mA)


Noise Figure vs. Collector Current
Noise Figure NF (dB)
5
4
3
2
1
0
$V_{CE}$ = 1 V
f = 900MHz
1
2
5
10
20
50
100
Collector Current $I_C$ (mA)

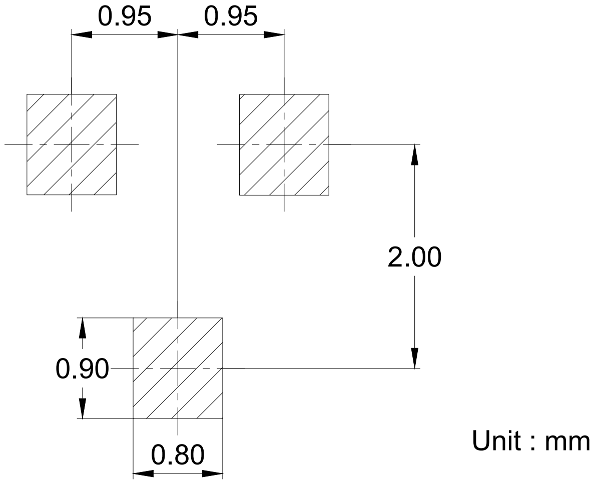
## PACKAGE OUTLINE

Plastic surface mounted package SOT-23



| SOT-23 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 1.0 Typical | |
| D | 0.4 Typical | |
| E | 0.35 | 0.48 |
| G | 1.80 | 2.00 |
| H | 0.02 | 0.1 |
| J | 0.1 Typical | |
| K | 2.20 | 2.60 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT



## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| 2SC5554 | SOT-23 | 3000/Tape&Reel |