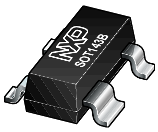



# BFU550

## NPN wideband silicon RF transistor

**Rev. 2.1 — 17 April 2019** **Product data sheet**

# 1 Product profile

## 1.1 General description

NPN silicon RF transistor for high speed, low noise applications in a plastic, 4-pin dual-emitter SOT143B package.

The BFU550 is part of the BFU5 family of transistors, suitable for small signal to medium power applications up to 2 GHz.

## 1.2 Features and benefits

- Low noise, high breakdown RF transistor
- AEC-Q101 qualified
- Minimum noise figure ($NF_{min}$) = 0.7 dB at 900 MHz
- Maximum stable gain 21 dB at 900 MHz
- 11 GHz $f_T$ silicon technology

## 1.3 Applications

- Applications requiring high supply voltages and high breakdown voltages
- Broadband amplifiers up to 2 GHz
- Low noise amplifiers for ISM applications
- ISM band oscillators

## 1.4 Quick reference data

**Table 1. Quick reference data**

*$T_{amb}$ = 25 °C unless otherwise specified*

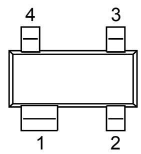
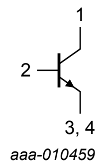
| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{CB}$ | collector-base voltage | open emitter | | - | - | 24 | V |
| $V_{CE}$ | collector-emitter voltage | open base | | - | - | 12 | V |
| | | shorted base | | - | - | 24 | V |
| $V_{EB}$ | emitter-base voltage | open collector | | - | - | 2 | V |
| $I_C$ | collector current | | | - | 15 | 50 | mA |
| $P_{tot}$ | total power dissipation | $T_{sp} \leq 87$ °C | [1] | - | - | 450 | mW |
| $h_{FE}$ | DC current gain | $I_C$ = 15 mA; $V_{CE}$ = 8 V | | 60 | 95 | 200 | |
| $C_c$ | collector capacitance | $V_{CB}$ = 8 V; f = 1 MHz | | - | 0.72 | - | pF |
| $f_T$ | transition frequency | $I_C$ = 25 mA; $V_{CE}$ = 8 V; f = 900 MHz | | - | 11 | - | GHz |

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $G_{p(max)}$ | maximum power gain | $I_C$ = 15 mA; $V_{CE}$ = 8 V; f = 900 MHz | [2] | - | 21 | - | dB |
| $NF_{min}$ | minimum noise figure | $I_C$ = 1 mA; $V_{CE}$ = 8 V; f = 900 MHz; $\Gamma_S = \Gamma_{opt}$ | | - | 0.7 | - | dB |
| $P_{L(1dB)}$ | output power at 1 dB gain compression | $I_C$ = 25 mA; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω; f = 900 MHz | | - | 13.5 | - | dBm |

[1] $T_{sp}$ is the temperature at the solder point of the collector lead.
[2] If K > 1 then $G_{p(max)}$ is the maximum power gain. If K < 1 then $G_{p(max)}$ = MSG.

## 2 Pinning information

**Table 2. Discrete pinning**

| Pin | Description | | Simplified outline | Graphic symbol |
|---|---|---|---|---|
| 1 | collector | |   |   |
| 2 | base | | | |
| 3 | emitter | | | |
| 4 | emitter | | | |

## 3 Ordering information

**Table 3. Ordering information**

| Type number | Package | | |
|---|---|---|---|
| | Name | Description | Version |
| BFU550 | - | plastic surface-mounted package; 4 leads | SOT143B |
| OM7962 | - | Customer evaluation kit for BFU520, BFU530 and BFU550 [1] | - |

[1] The customer evaluation kit contains the following:

- Unpopulated RF amplifier Printed-Circuit Board (PCB)
  - Unpopulated RF amplifier Printed-Circuit Board (PCB) with emitter degeneration
    - Four SMA connectors for fitting unpopulated Printed-Circuit Board (PCB)
      - BFU520, BFU530 and BFU550 samples
        - USB stick with data sheets, application notes, models, S-parameter and noise files

## 4 Marking

**Table 4. Marking**

| Type number | Marking | Description |
|---|---|---|
| BFU550 | *TC | * = t : made in Malaysia |
| | | * = w : made in China |

# 5 Design support

**Table 5. Available design support**

*Download from the BFU550 product information page on http://www.nxp.com.*

| Support item | Available | Remarks |
|---|---|---|
| Device models for Agilent EEsof EDA ADS | yes | Based on Mextram device model. |
| SPICE model | yes | Based on Gummel-Poon device model. |
| S-parameters | yes | |
| Noise parameters | yes | |
| Customer evaluation kit | yes | See Section 3 and Section 10. |
| Solder pattern | yes | |
| Application notes | yes | See Section 10.1 and Section 10.2. |

# 6 Limiting values

**Table 6. Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134).*

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{CB}$ | collector-base voltage | open emitter | - | 30 | V |
| $V_{CE}$ | collector-emitter voltage | open base | - | 16 | V |
| | | shorted base | - | 30 | V |
| $V_{EB}$ | emitter-base voltage | open collector | - | 3 | V |
| $I_C$ | collector current | | - | 80 | mA |
| $T_{stg}$ | storage temperature | | -65 | +150 | °C |
| $V_{ESD}$ | electrostatic discharge voltage | Human Body Model (HBM) According to JEDEC standard 22-A114E | - | ±150 | V |
| | | Charged Device Model (CDM) According to JEDEC standard 22-C101B | - | ±2 | kV |

# 7 Recommended operating conditions

**Table 7. Characteristics**

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CB}$ | collector-base voltage | open emitter | - | - | 24 | V |
| $V_{CE}$ | collector-emitter voltage | open base | - | - | 12 | V |
| | | shorted base | - | - | 24 | V |
| $V_{EB}$ | emitter-base voltage | open collector | - | - | 2 | V |
| $I_C$ | collector current | | - | - | 50 | mA |
| $P_i$ | input power | $Z_S = 50\ \Omega$ | - | - | 10 | dBm |
| $T_j$ | junction temperature | | -40 | - | +150 | °C |

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $P_{tot}$ | total power dissipation | $T_{sp} \leq 87$ °C | [1] | - | - | 450 | mW |

[1] $T_{sp}$ is the temperature at the solder point of the collector lead.

# 8 Thermal characteristics

**Table 8. Thermal characteristics**

| Symbol | Parameter | Conditions | | Typ | Unit |
|---|---|---|---|---|---|
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | [1] | 140 | K/W |

[1] $T_{sp}$ is the temperature at the solder point of the collector lead.

$T_{sp}$ has the following relation to the ambient temperature $T_{amb}$:

$T_{sp} = T_{amb} + P \times R_{th(sp-a)}$

With P being the power dissipation and $R_{th(sp-a)}$ being the thermal resistance between the solder point and ambient. $R_{th(sp-a)}$ is determined by the heat transfer properties in the application.

The heat transfer properties are set by the application board materials, the board layout and the environment e.g. housing.

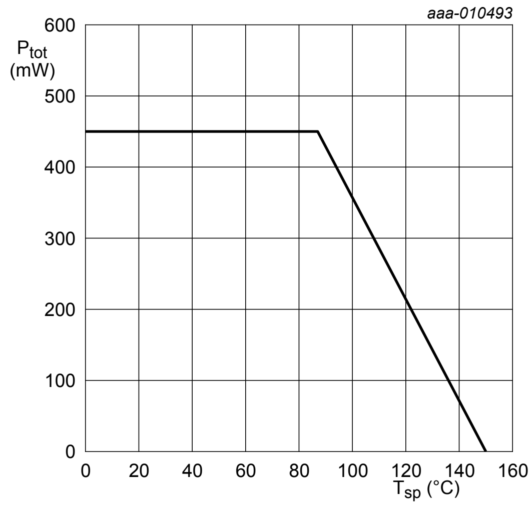



**Figure 1. Power derating curve**

# 9 Characteristics

**Table 9. Characteristics**

*$T_{amb}$ = 25 °C unless otherwise specified*

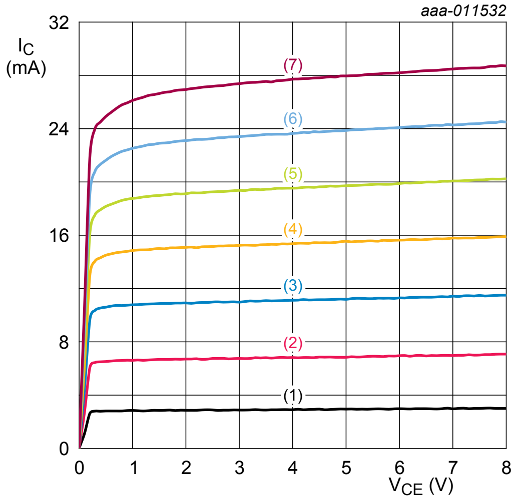
| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | collector-base breakdown voltage | $I_C$ = 100 nA; $I_E$ = 0 mA | | 24 | - | - | V |
| $V_{(BR)CEO}$ | collector-emitter breakdown voltage | $I_C$ = 150 nA; $I_B$ = 0 mA | | 12 | - | - | V |
| $I_C$ | collector current | | | - | 15 | 50 | mA |
| $I_{CBO}$ | collector-base cut-off current | $I_E$ = 0 mA; $V_{CB}$ = 8 V | | - | <1 | - | nA |

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $h_{FE}$ | DC current gain | $I_C$ = 15 mA; $V_{CE}$ = 8 V | | 60 | 95 | 200 | |
| $C_e$ | emitter capacitance | $V_{EB}$ = 0.5 V; f = 1 MHz | | - | 1.11 | - | pF |
| $C_{re}$ | feedback capacitance | $V_{CE}$ = 8 V; f = 1 MHz | | - | 0.41 | - | pF |
| $C_c$ | collector capacitance | $V_{CB}$ = 8 V; f = 1 MHz | | - | 0.72 | - | pF |
| $f_T$ | transition frequency | $I_C$ = 25 mA; $V_{CE}$ = 8 V; f = 900 MHz | | - | 11 | - | GHz |
| $G_{p(max)}$ | maximum power gain | f = 433 MHz; $V_{CE}$ = 8 V | [1] | | | | |
| | | $I_C$ = 1 mA | | - | 15 | - | dB |
| | | $I_C$ = 15 mA | | - | 25.5 | - | dB |
| | | $I_C$ = 25 mA | | - | 26.5 | - | dB |
| | | f = 900 MHz; $V_{CE}$ = 8 V | [1] | | | | |
| | | $I_C$ = 1 mA | | - | 12.5 | - | dB |
| | | $I_C$ = 15 mA | | - | 21 | - | dB |
| | | $I_C$ = 25 mA | | - | 21.5 | - | dB |
| | | f = 1800 MHz; $V_{CE}$ = 8 V | [1] | | | | |
| | | $I_C$ = 1 mA | | - | 10 | - | dB |
| | | $I_C$ = 15 mA | | - | 15 | - | dB |
| | | $I_C$ = 25 mA | | - | 15 | - | dB |
| $\|s_{21}\|^2$ | insertion power gain | f = 433 MHz; $V_{CE}$ = 8 V | | | | | |
| | | $I_C$ = 1 mA | | - | 10 | - | dB |
| | | $I_C$ = 15 mA | | - | 23 | - | dB |
| | | $I_C$ = 25 mA | | - | 23.5 | - | dB |
| | | f = 900 MHz; $V_{CE}$ = 8 V | | | | | |
| | | $I_C$ = 1 mA | | - | 8 | - | dB |
| | | $I_C$ = 15 mA | | - | 17.5 | - | dB |
| | | $I_C$ = 25 mA | | - | 18 | - | dB |
| | | f = 1800 MHz; $V_{CE}$ = 8 V | | | | | |
| | | $I_C$ = 1 mA | | - | 4.5 | - | dB |
| | | $I_C$ = 15 mA | | - | 11.5 | - | dB |
| | | $I_C$ = 25 mA | | - | 12 | - | dB |
| $NF_{min}$ | minimum noise figure | f = 433 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 0.55 | - | dB |
| | | $I_C$ = 15 mA | | - | 0.9 | - | dB |
| | | $I_C$ = 25 mA | | - | 1.1 | - | dB |
| | | f = 900 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 0.7 | - | dB |
| | | $I_C$ = 15 mA | | - | 0.95 | - | dB |
| | | $I_C$ = 25 mA | | - | 1.2 | - | dB |

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| | | f = 1800 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 1 | - | dB |
| | | $I_C$ = 15 mA | | - | 1.1 | - | dB |
| | | $I_C$ = 25 mA | | - | 1.3 | - | dB |
| $G_{ass}$ | associated gain | f = 433 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 22.5 | - | dB |
| | | $I_C$ = 15 mA | | - | 24.5 | - | dB |
| | | $I_C$ = 25 mA | | - | 25 | - | dB |
| | | f = 900 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 15 | - | dB |
| | | $I_C$ = 15 mA | | - | 19 | - | dB |
| | | $I_C$ = 25 mA | | - | 19 | - | dB |
| | | f = 1800 MHz; $V_{CE}$ = 8 V; $\Gamma_S = \Gamma_{opt}$ | | | | | |
| | | $I_C$ = 1 mA | | - | 9.5 | - | dB |
| | | $I_C$ = 15 mA | | - | 13 | - | dB |
| | | $I_C$ = 25 mA | | - | 13.5 | - | dB |
| $P_{L(1dB)}$ | output power at 1 dB gain compression | f = 433 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 9.5 | - | dBm |
| | | $I_C$ = 25 mA | | - | 13.5 | - | dBm |
| | | f = 900 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 10 | - | dBm |
| | | $I_C$ = 25 mA | | - | 13.5 | - | dBm |
| | | f = 1800 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 10 | - | dBm |
| | | $I_C$ = 25 mA | | - | 13 | - | dBm |
| $IP3_o$ | output third-order intercept point | $f_1$ = 433 MHz; $f_2$ = 434 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 19 | - | dBm |
| | | $I_C$ = 25 mA | | - | 23 | - | dBm |
| | | $f_1$ = 900 MHz; $f_2$ = 901 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 20 | - | dBm |
| | | $I_C$ = 25 mA | | - | 23 | - | dBm |
| | | $f_1$ = 1800 MHz; $f_2$ = 1801 MHz; $V_{CE}$ = 8 V; $Z_S = Z_L$ = 50 Ω | | | | | |
| | | $I_C$ = 15 mA | | - | 19.5 | - | dBm |
| | | $I_C$ = 25 mA | | - | 23 | - | dBm |

[1] If K > 1 then $G_{p(max)}$ is the maximum power gain. If K < 1 then $G_{p(max)}$ = MSG.

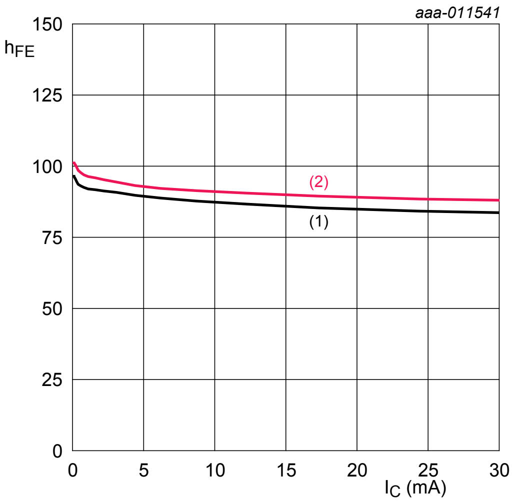
## 9.1 Graphs




$T_{amb}$ = 25 °C.

1. $I_B$ = 25 μA
2. $I_B$ = 75 μA
3. $I_B$ = 125 μA
4. $I_B$ = 175 μA
5. $I_B$ = 225 μA
6. $I_B$ = 275 μA
7. $I_B$ = 325 μA

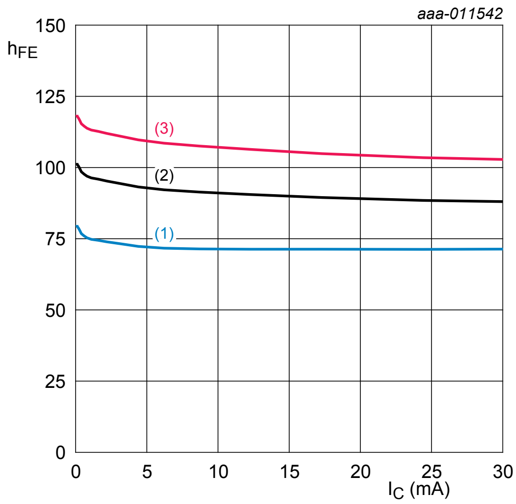
**Figure 2. Collector current as a function of collector-emitter voltage; typical values**




$T_{amb}$ = 25 °C.

1. $V_{CE}$ = 3.0 V
2. $V_{CE}$ = 8.0 V

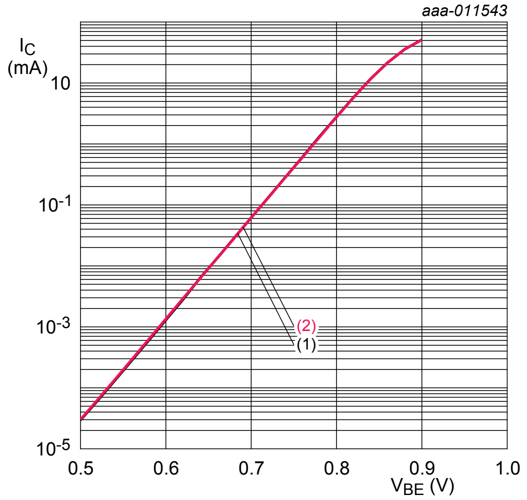
**Figure 3. DC current gain as function of collector current; typical values**




$V_{CE}$ = 8 V.

1. $T_{amb}$ = -40 °C
2. $T_{amb}$ = +25 °C
3. $T_{amb}$ = +125 °C

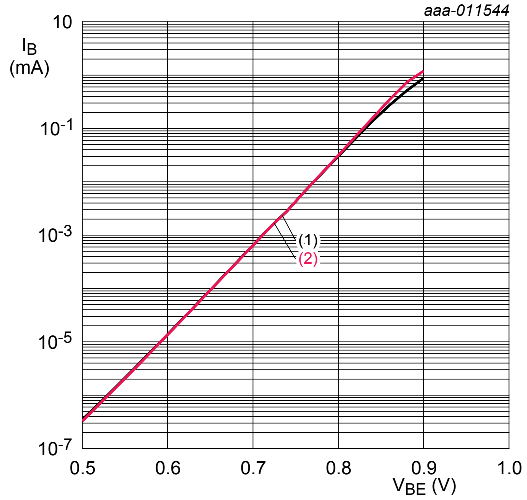
**Figure 4. DC current gain as function of collector current; typical values**




$T_{amb}$ = 25 °C.

1. $V_{CE}$ = 3.0 V
2. $V_{CE}$ = 8.0 V

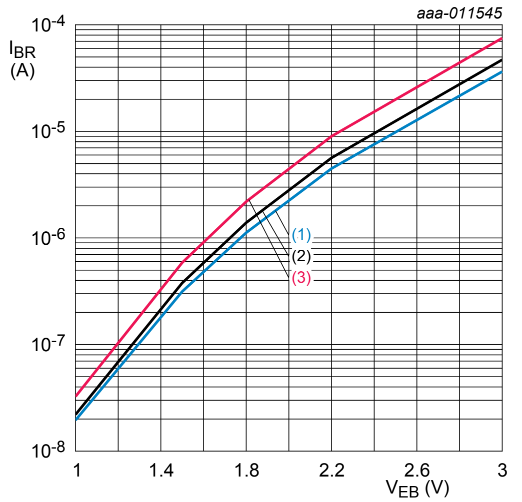
**Figure 5. Collector current as a function of base-emitter voltage; typical values**




$T_{amb}$ = 25 °C.

1. $V_{CE}$ = 3.0 V
2. $V_{CE}$ = 8.0 V

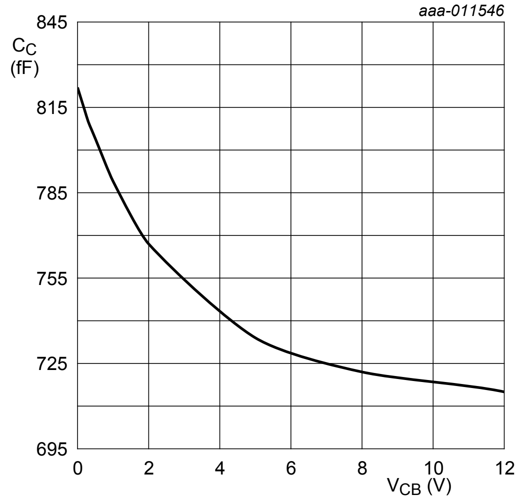
**Figure 6. Base current as a function of base-emitter voltage; typical values**




$V_{CE}$ = 3 V.

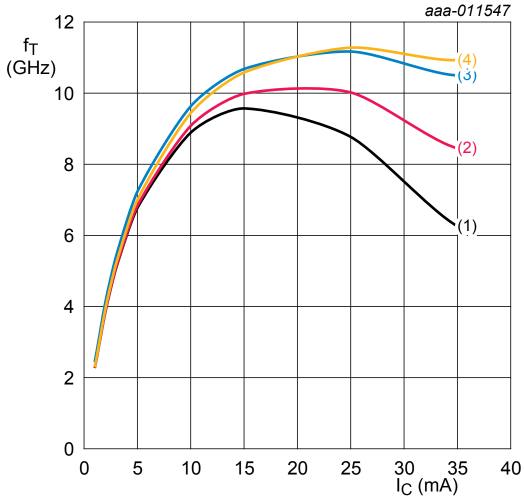
1. $T_{amb}$ = -40 °C
2. $T_{amb}$ = +25 °C
3. $T_{amb}$ = +125 °C

**Figure 7. Reverse base current as a function of emitter-base voltage; typical values**




$I_C$ = 0 mA; f = 1 MHz; $T_{amb}$ = 25 °C.

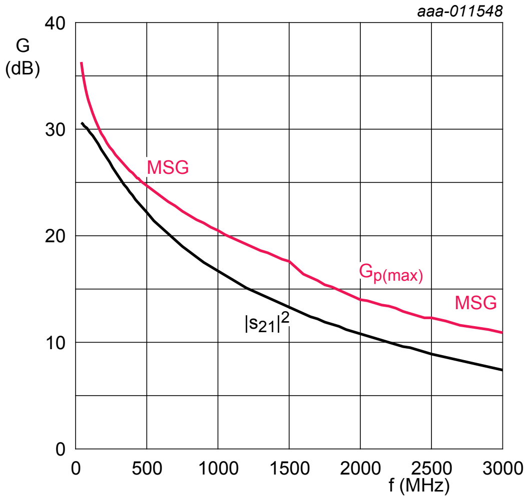
**Figure 8. Collector capacitance as a function of collector-base voltage; typical values**




$T_{amb}$ = 25 °C.

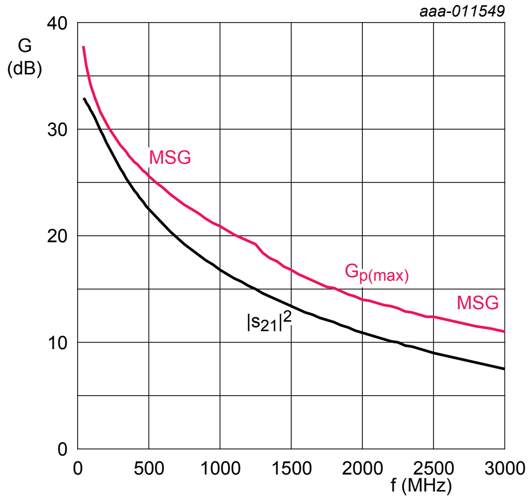
1. $V_{CE}$ = 3.3 V
2. $V_{CE}$ = 5.0 V
3. $V_{CE}$ = 8.0 V
4. $V_{CE}$ = 12.0 V

**Figure 9. Transition frequency as a function of collector current; typical values**



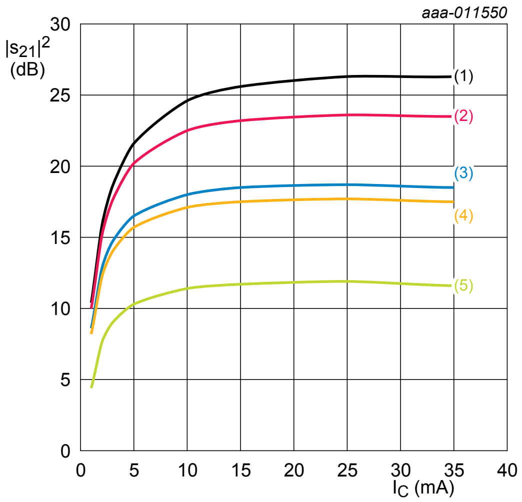

$I_C$ = 15 mA; $V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

**Figure 10. Gain as a function of frequency; typical values**




$I_C$ = 25 mA; $V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

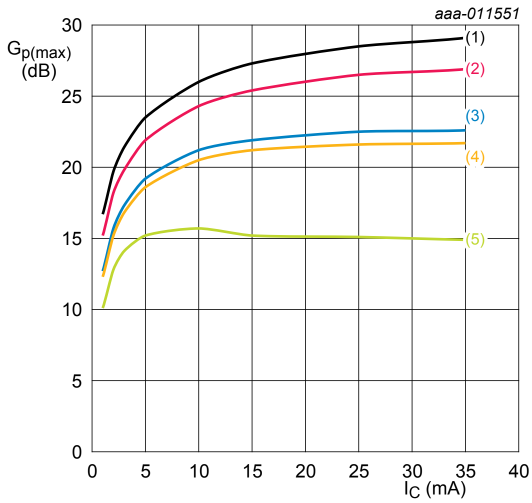
**Figure 11. Gain as a function of frequency; typical values**




$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

1. f = 300 MHz
2. f = 433 MHz
3. f = 800 MHz
4. f = 900 MHz
5. f = 1800 MHz

**Figure 12. Insertion power gain as a function of collector current; typical values**

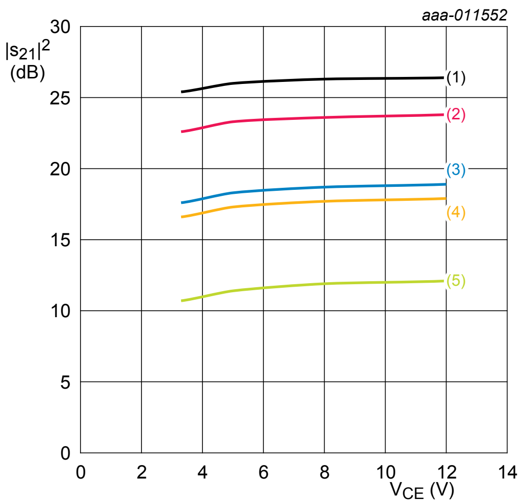



$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

If K >1 then $G_{p(max)}$ = maximum power gain. If K < 1 then $G_{p(max)}$ = MSG.

1. f = 300 MHz
2. f = 433 MHz
3. f = 800 MHz
4. f = 900 MHz
5. f = 1800 MHz

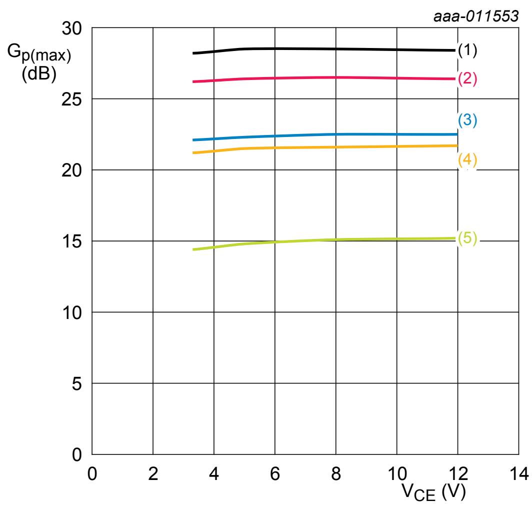
**Figure 13. Maximum power gain as a function of collector current; typical values**




$I_C$ = 25 mA; $T_{amb}$ = 25 °C.

1. f = 300 MHz
2. f = 433 MHz
3. f = 800 MHz
4. f = 900 MHz
5. f = 1800 MHz

**Figure 14. Insertion power gain as a function of collector-emitter voltage; typical values**

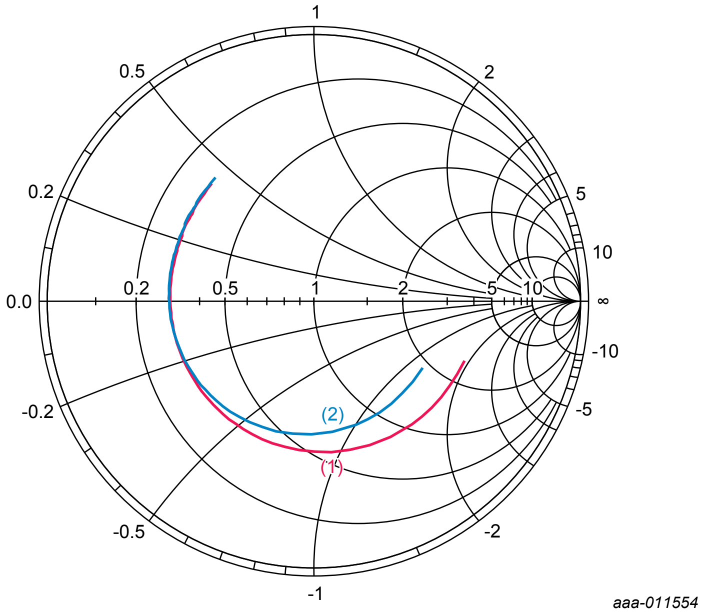



$I_C$ = 25 mA; $T_{amb}$ = 25 °C.

If K >1 then $G_{p(max)}$ = maximum power gain. If K < 1 then $G_{p(max)}$ = MSG.

1. f = 300 MHz
2. f = 433 MHz
3. f = 800 MHz
4. f = 900 MHz
5. f = 1800 MHz

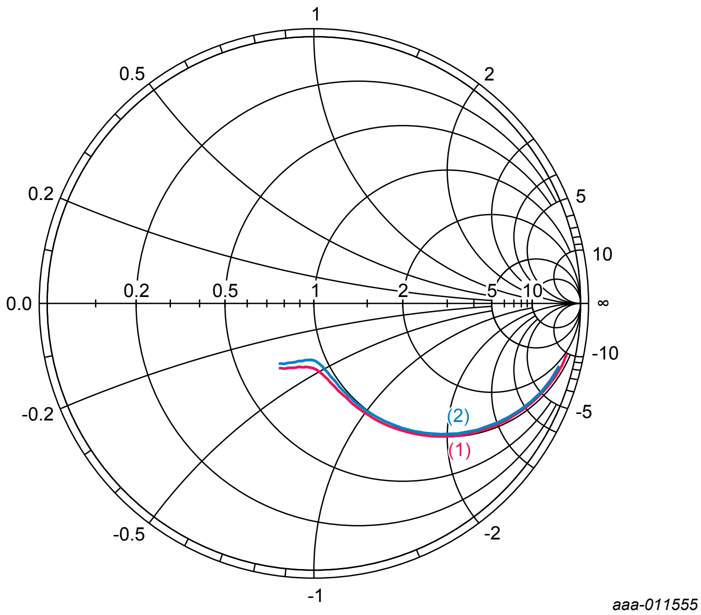
**Figure 15. Maximum power gain as a function of collector-emitter voltage; typical values**




$V_{CE}$ = 8 V; 40 MHz ≤ f ≤ 3 GHz.

1. $I_C$ = 15 mA
2. $I_C$ = 25 mA

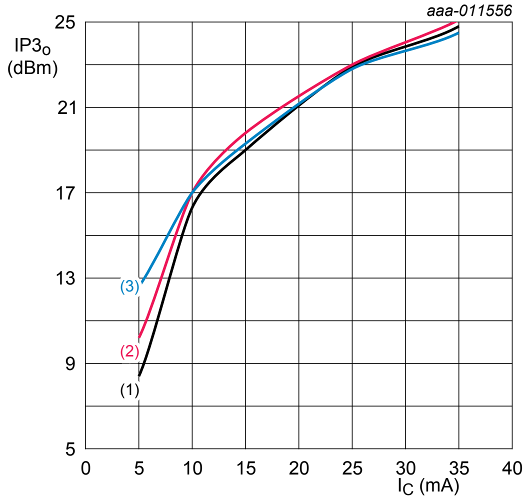
**Figure 16. Input reflection coefficient ($s_{11}$); typical values**




$V_{CE}$ = 8 V; 40 MHz ≤ f ≤ 3 GHz.

1. $I_C$ = 15 mA
2. $I_C$ = 25 mA

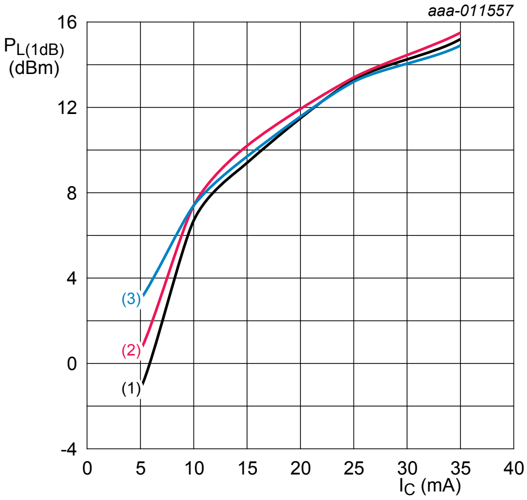
**Figure 17. Output reflection coefficient ($s_{22}$); typical values**




$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

1. $f_1$ = 433 MHz; $f_2$ = 434 MHz
2. $f_1$ = 900 MHz; $f_2$ = 901 MHz
3. $f_1$ = 1800 MHz; $f_2$ = 1801 MHz

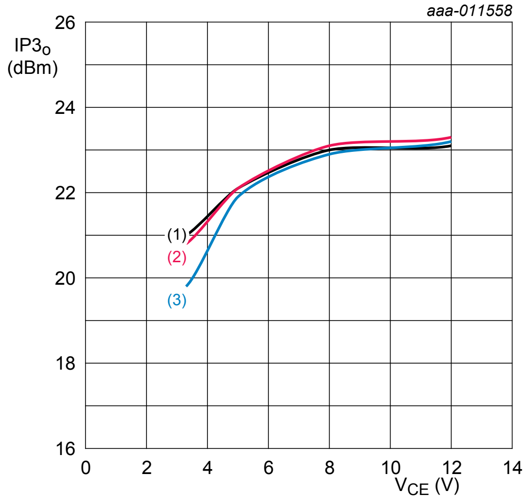
**Figure 18. Output third-order intercept point as a function of collector current; typical values**




$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C.

1. f = 433 MHz
2. f = 900 MHz
3. f = 1800 MHz

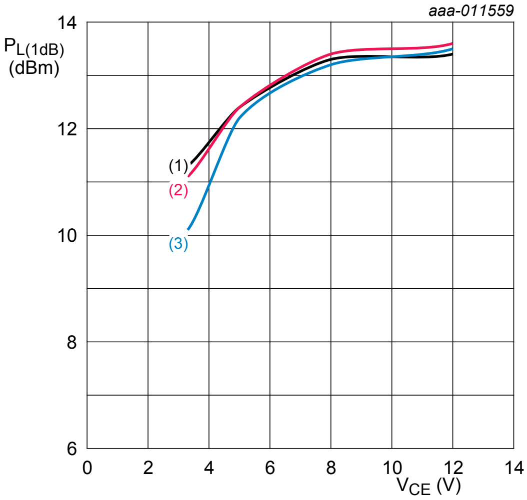
**Figure 19. Output power at 1 dB gain compression as a function of collector current; typical values**




$I_C$ = 25 mA; $T_{amb}$ = 25 °C.

1. $f_1$ = 433 MHz; $f_2$ = 434 MHz
2. $f_1$ = 900 MHz; $f_2$ = 901 MHz
3. $f_1$ = 1800 MHz; $f_2$ = 1801 MHz

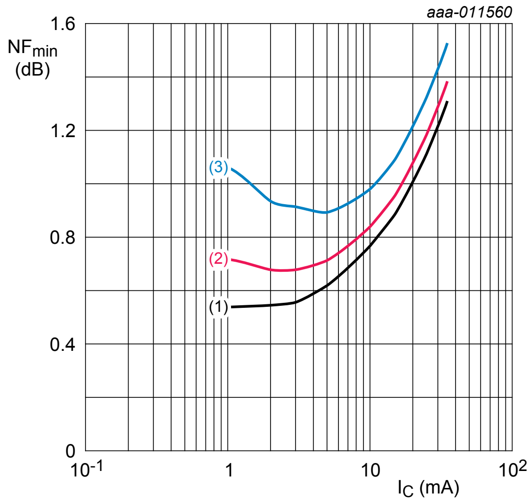
**Figure 20. Output third-order intercept point as a function of collector-emitter voltage; typical values**




$I_C$ = 25 mA; $T_{amb}$ = 25 °C.

1. f = 433 MHz
2. f = 900 MHz
3. f = 1800 MHz

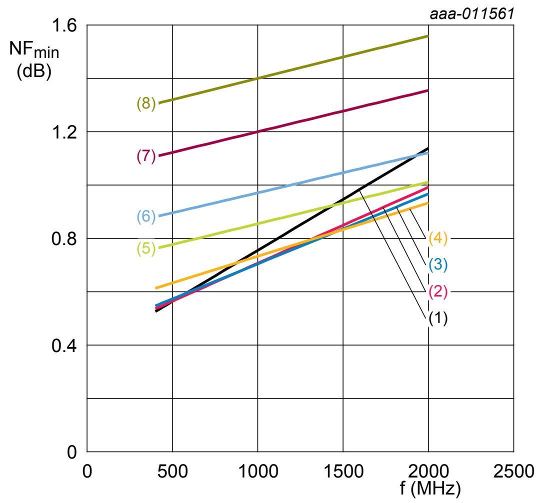
**Figure 21. Output power at 1 dB gain compression as a function of collector-emitter voltage; typical values**




$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C; $\Gamma_S = \Gamma_{opt}$.

1. f = 433 MHz
2. f = 900 MHz
3. f = 1800 MHz

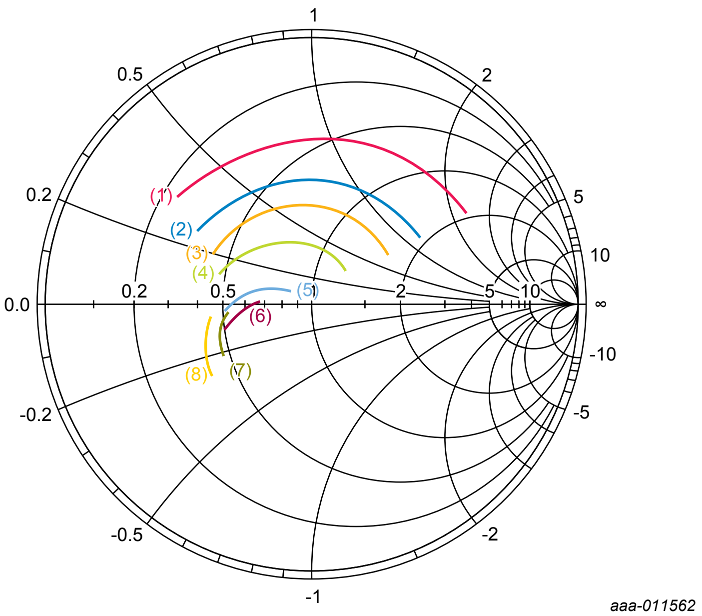
**Figure 22. Minimum noise figure as a function of collector current; typical values**




$V_{CE}$ = 8 V; $T_{amb}$ = 25 °C; $\Gamma_S = \Gamma_{opt}$.

1. $I_C$ = 1 mA
2. $I_C$ = 2 mA
3. $I_C$ = 3 mA
4. $I_C$ = 5 mA
5. $I_C$ = 10 mA
6. $I_C$ = 15 mA
7. $I_C$ = 25 mA
8. $I_C$ = 35 mA

**Figure 23. Minimum noise figure as a function of frequency; typical values**




$V_{CE}$ = 8 V; 400 MHz ≤ f ≤ 2 GHz.

1. $I_C$ = 1 mA
2. $I_C$ = 2 mA
3. $I_C$ = 3 mA
4. $I_C$ = 5 mA
5. $I_C$ = 10 mA
6. $I_C$ = 15 mA
7. $I_C$ = 25 mA
8. $I_C$ = 35 mA

**Figure 24. Optimum reflection coefficient ($\Gamma_{opt}$); typical values**

# 10 Application information

More information about the following application example can be found in the application notes. See Section 5 "Design support".

The following application example can be implemented using the evaluation kit. See Section 3 "Ordering information" for the order type number.

The following application example can be simulated using the simulation package. See Section 5 "Design support".

## 10.1 Application example: 433 ISM band LNA

433 ISM band LNA, optimized for low noise.

More detailed information of the application example can be found in the application note: *AN11431.*

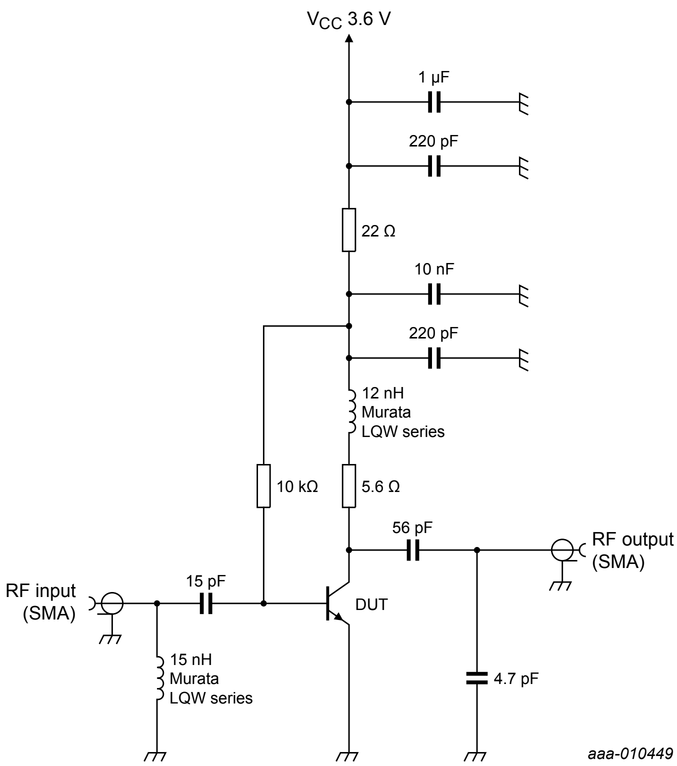



**Figure 25. Schematic 433 MHz ISM band LNA**

Remark: fine tuning of components maybe required depending on PCB parasitics.

**Table 10. Application performance data at 433 MHz**

*$I_{CC}$ = 20 mA; $V_{CC}$ = 3.6 V*

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $\|s_{21}\|^2$ | insertion power gain | | - | 21 | - | dB |
| NF | noise figure | | - | 1.3 | - | dB |
| $IP3_o$ | output third-order intercept point | $f_1$ = 433.1 MHz; $f_2$ = 433.2 MHz; $P_i$ = -30 dBm per carrier | - | 19 | - | dBm |

## 10.2 Application example: 866 ISM band LNA

866 ISM band LNA, optimized for low noise.

More detailed information of the application example can be found in the application note: *AN11432.*

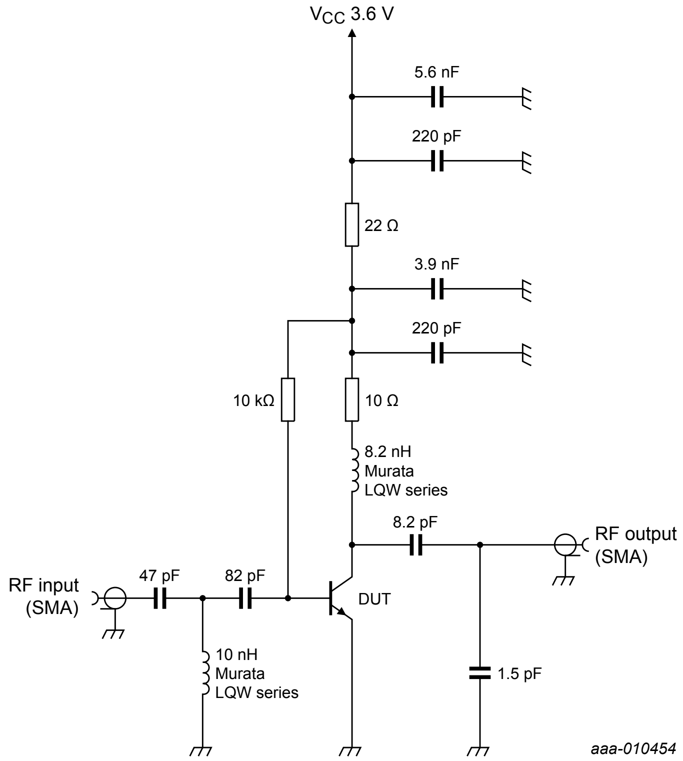



**Figure 26. Schematic 866 MHz ISM band LNA**

Remark: fine tuning of components maybe required depending on PCB parasitics.

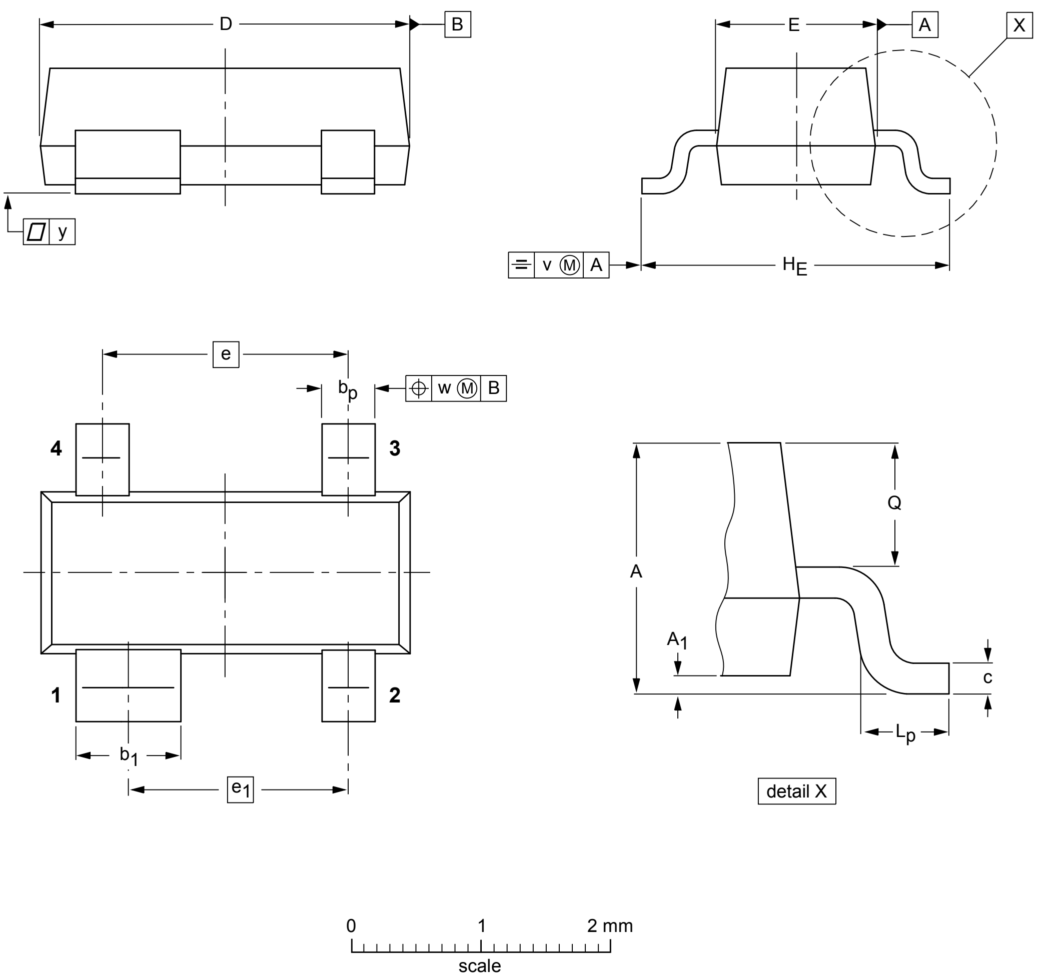
**Table 11. Application performance data at 866 MHz**

*$I_{CC}$ = 20 mA; $V_{CC}$ = 3.6 V*

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $\|s_{21}\|^2$ | insertion power gain | | | - | 15 | - | dB |
| NF | noise figure | | | - | 1.4 | - | dB |
| $IP3_o$ | output third-order intercept point | $f_1$ = 866.1 MHz; $f_2$ = 866.2 MHz; $P_i$ = -30 dBm per carrier | | - | 19 | - | dBm |

## 11 Package outline

**Plastic surface-mounted package; 4 leads** **SOT143B**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ max | $b_p$ | $b_1$ | c | D | E | e | $e_1$ | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.1 | 0.48<br>0.38 | 0.88<br>0.78 | 0.15<br>0.09 | 3.0<br>2.8 | 1.4<br>1.2 | 1.9 | 1.7 | 2.5<br>2.1 | 0.45<br>0.15 | 0.55<br>0.45 | 0.2 | 0.1 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT143B | | | | | | ~~04-11-16~~<br>06-03-16 |

Figure 27. Package outline SOT143B

## 12 Handling information

**CAUTION**

This device is sensitive to ElectroStatic Discharge (ESD). Observe precautions for handling electrostatic sensitive devices.

Such precautions are described in the *ANSI/ESD S20.20, IEC/ST 61340-5, JESD625-A* or equivalent standards.

## 13 Abbreviations

**Table 12. Abbreviations**

| Acronym | Description |
|---|---|
| AEC | automotive electronics council |
| ISM | industrial, scientific, and medical |
| LNA | low-noise amplifier |
| MSG | maximum stable gain |
| NPN | negative-positive-negative |
| SMA | SubMiniature version A |

## 14 Revision history

**Table 13. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| BFU550 v.2.1 | 20190417 | Product data sheet | - | BFU550 v.2 |
| modification | • Extended the description on the changes in Schematic 866 MHz ISM band LNA: Biasing on the schematic is adapted according to the EVB to do the RF/DC. Connection of 10 K resistor moved to the other side of the 82 pF capacitor | | | |
| BFU550 v.2 | 20190408 | Product data sheet | - | BFU550 v.1 |
| modification | • Adapted Schematic 866 MHz ISM band LNA. | | | |
| BFU550 v.1 | 20140305 | Product data sheet | - | - |

# 15 Legal information

## 15.1 Data sheet status

| Document status[1][2] | Product status[3] | Definition |
|---|---|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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## Contents





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**Document identifier: BFU550**