



## 2SC3356

## NPN SILICON TRANSISTOR

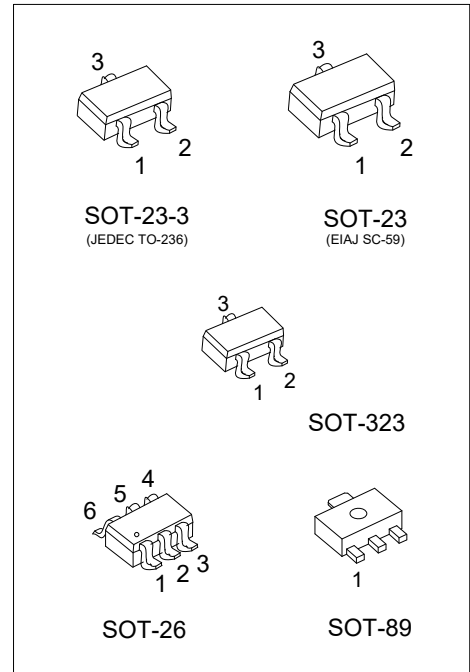
### HIGH FREQUENCY LOW NOISE AMPLIFIER

#### DESCRIPTION

The UTC **2SC3356** is an NPN silicon epitaxial transistor designed for low noise amplifier at VHF, UHF and CATV band. It has large dynamic range and good current characteristic.

#### FEATURES

- \* Low Noise and High Gain
- \* High Power Gain



#### ORDERING INFORMATION

| Ordering Number  |                  | Package  | Pin Assignment |   |   |   |   |   | Packing   |
|------------------|------------------|----------|----------------|---|---|---|---|---|-----------|
| Lead Free        | Halogen Free     |          | 1              | 2 | 3 | 4 | 5 | 6 |           |
| 2SC3356L-x-AB3-R | 2SC3356G-x-AB3-R | SOT-89   | B              | C | E | - | - | - | Tape Reel |
| 2SC3356L-x-AE2-R | 2SC3356G-x-AE2-R | SOT-23-3 | B              | E | C | - | - | - | Tape Reel |
| 2SC3356L-x-AE3-R | 2SC3356G-x-AE3-R | SOT-23   | B              | E | C | - | - | - | Tape Reel |
| 2SC3356L-x-AG6-R | 2SC3356G-x-AG6-R | SOT-26   | C              | C | B | E | C | C | Tape Reel |
| 2SC3356L-x-AL3-R | 2SC3356G-x-AL3-R | SOT-323  | B              | E | C | - | - | - | Tape Reel |

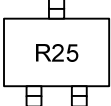
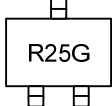
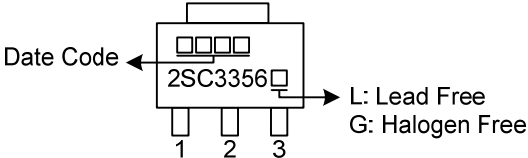
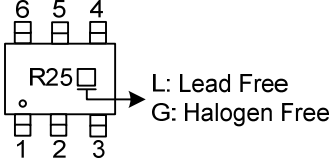
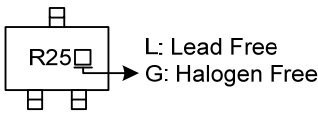
Note: Pin Assignment: B: Base C: Collector E: Emitter

|                                                                                                     |                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>2SC3356G-x-AB3-R</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Rank<br/>(4)Green Package</p> | <p>(1) R: Tape Reel<br/>(2) AB3: SOT-89, AE2: SOT-23-3, AE3: SOT-23<br/>AG6: SOT-26, AL3: SOT-323<br/>(3) x: refer to Classification of <math>h_{FE}</math><br/>(4) G: Halogen Free and Lead Free, L: Lead Free</p> |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

2SC3356

NPN SILICON TRANSISTOR

MARKING

| SOT-23-3 / SOT-23                                                                 |                                                                                     |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2SC3356L                                                                          | 2SC3356G                                                                            |
|  |  |
| SOT-89                                                                            | SOT-26                                                                              |
|  |   |
| SOT-323                                                                           | -                                                                                   |
|  | -                                                                                   |

### ■ ABSOLUTE MAXIMUM RATING

| PARAMETER                    |          | SYMBOL     | RATINGS    | UNIT |
|------------------------------|----------|------------|------------|------|
| Collector to Base Voltage    |          | $BV_{CBO}$ | 20         | V    |
| Collector to Emitter Voltage |          | $BV_{CEO}$ | 12         | V    |
| Emitter to Base Voltage      |          | $BV_{EBO}$ | 3          | V    |
| Collector Current            |          | $I_C$      | 100        | mA   |
| Power Dissipation            | SOT-89   | $P_D$      | 500        | mW   |
|                              | SOT-23-3 |            | 200        | mW   |
|                              | SOT-23   |            |            |      |
|                              | SOT-26   |            |            |      |
|                              | SOT-323  |            |            |      |
| Junction Temperature         |          | $T_J$      | +150       | °C   |
| Storage Temperature          |          | $T_{STG}$  | -65 ~ +150 | °C   |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

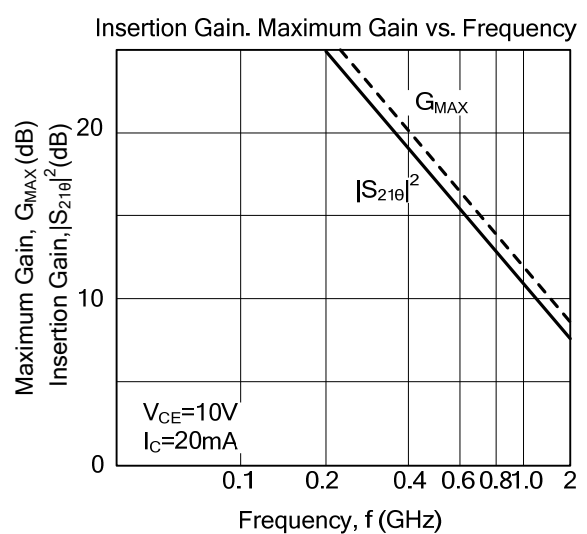
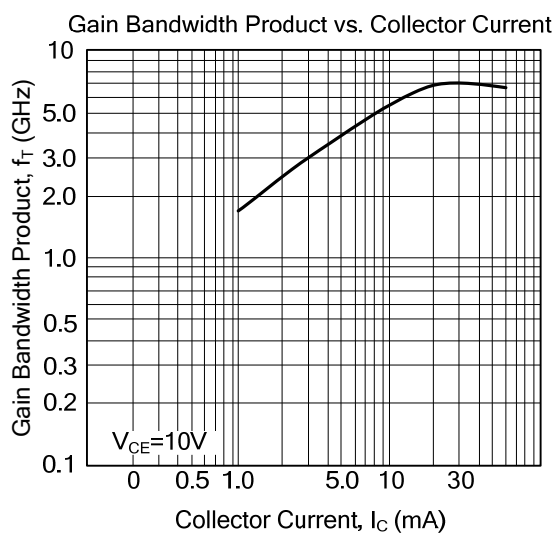
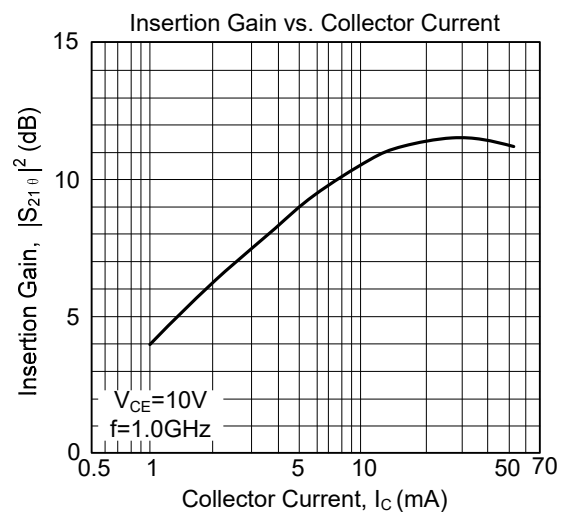
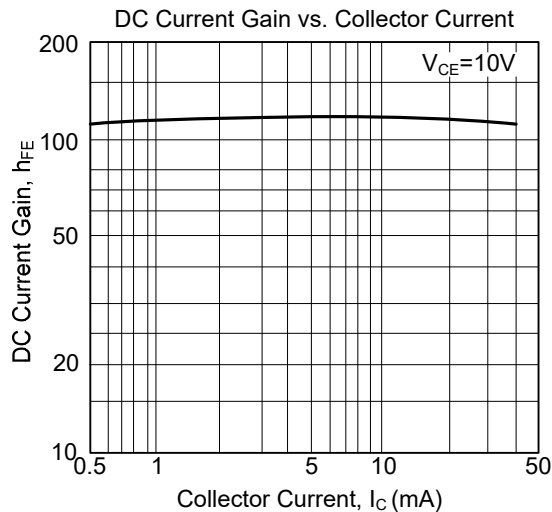
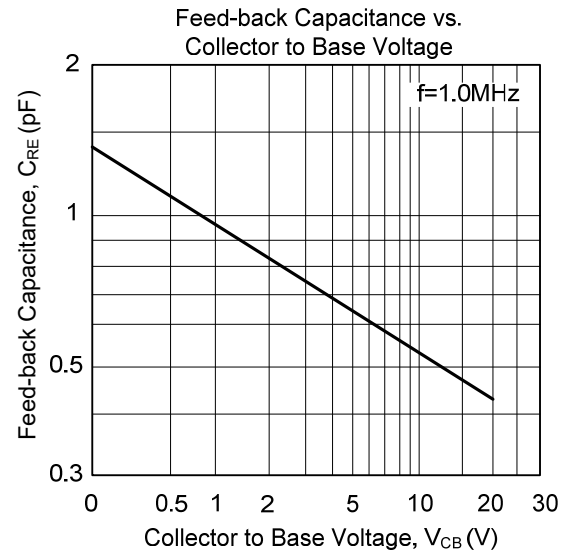
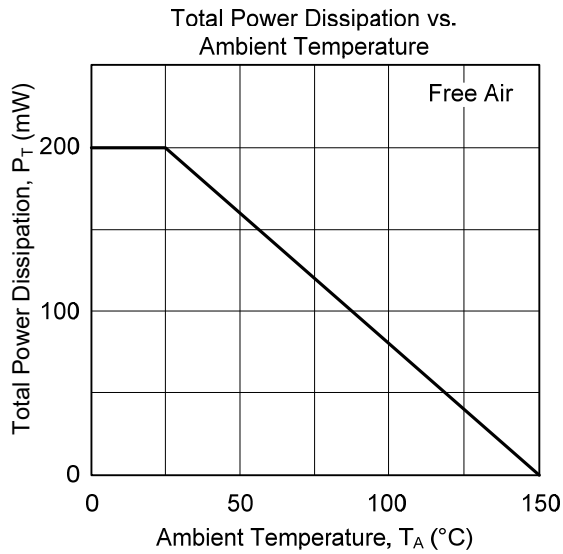
### ■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                              | SYMBOL     | TEST CONDITIONS                                            | MIN | TYP | MAX | UNIT          |
|----------------------------------------|------------|------------------------------------------------------------|-----|-----|-----|---------------|
| Collector to Base Breakdown Voltage    | $BV_{CBO}$ | $I_C=10\mu\text{A}$ , $I_E=0$                              | 20  |     |     | V             |
| Collector to Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C=1\text{mA}$ , $R_{BE}=\infty$                         | 12  |     |     | V             |
| Emitter to Base Breakdown Voltage      | $BV_{EBO}$ | $I_E=10\mu\text{A}$ , $I_C=0$                              | 3   |     |     | V             |
| Collector-Base Cut-Off Current         | $I_{CBO}$  | $V_{CB}=10\text{V}$ , $I_E=0$                              |     |     | 1.0 | $\mu\text{A}$ |
| Emitter-Base Cut-Off Current           | $I_{EBO}$  | $V_{EB}=1\text{V}$ , $I_C=0$                               |     |     | 1.0 | $\mu\text{A}$ |
| DC Current Gain                        | $h_{FE}$   | $V_{CE}=10\text{V}$ , $I_C=20\text{mA}$                    | 50  |     | 300 |               |
| Gain Bandwidth Product                 | $f_T$      | $V_{CE}=10\text{V}$ , $I_C=20\text{mA}$                    |     | 7   |     | GHz           |
| Feed-Back Capacitance                  | $C_{re}$   | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$          |     |     | 1.0 | pF            |
| Noise Figure                           | NF         | $V_{CE}=10\text{V}$ , $I_C=7\text{mA}$ , $f=1.0\text{GHz}$ |     |     | 2.0 | dB            |

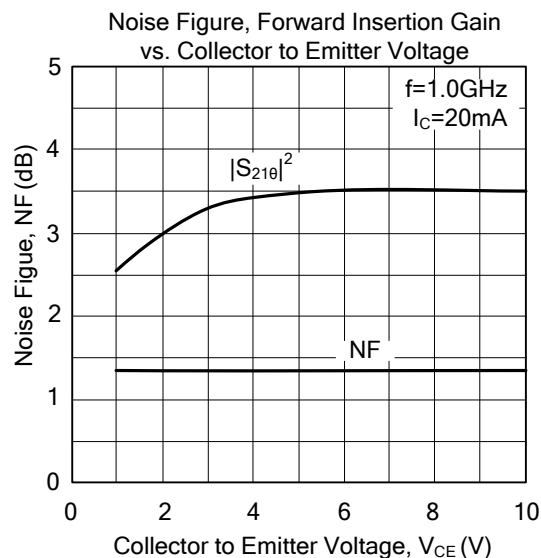
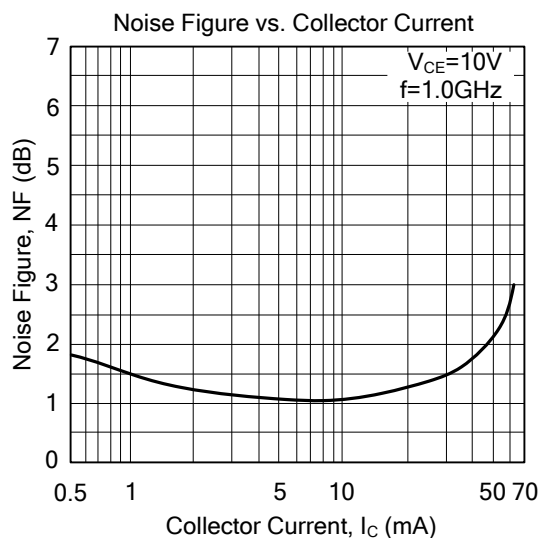
### ■ CLASSIFICATION OF $h_{FE}$

| RANK  | A        | B         |
|-------|----------|-----------|
| RANGE | 50 - 170 | 160 - 300 |

# TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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