



# 2SC3356

## NPN SILICON TRANSISTOR

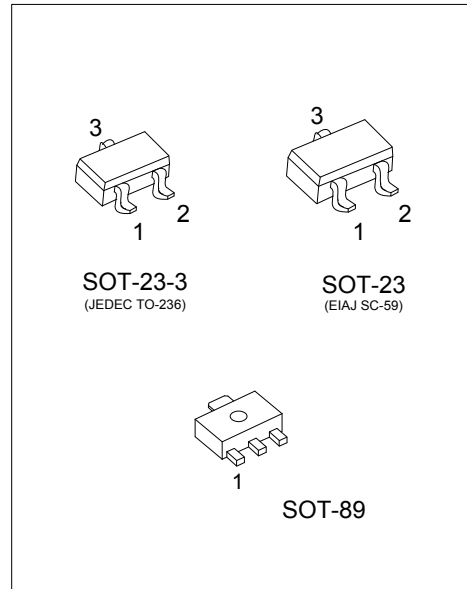
### HIGH FREQUENCY LOW NOISE AMPLIFIER

■ DESCRIPTION

The UTC **2SC3356** is designed for such applications as: DC/DC converters, supply line switching, battery charger, LCD backlighting, peripheral drivers, Driver in low supply voltage applications (e.g. lamps and LEDs) and inductive load driver (e.g. relays, buzzers and motors).

■ FEATURES

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



■ ORDERING INFORMATION

| Ordering Number  |                  | Package  | Pin Description |   |   | Packing   |
|------------------|------------------|----------|-----------------|---|---|-----------|
| Lead Free        | Halogen Free     |          | 1               | 2 | 3 |           |
| 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-AB3-R | 2SC3356G-x-AB3-R | SOT-89   | B               | C | E | Tape Reel |

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

|   |   |
|---|---|
| <p>2SC3356G-x-AE2-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) AE2: SOT-23-3, AE3: SOT-23<br/>(3) x: refer to Classification of h<sub>FE</sub><br/>(4) G: Halogen Free and Lead Free, L: Lead Free</p> |
|---|---|

■ MARKING

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

### ■ 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-23-3 | $P_D$      | 200        | mW   |
|                              | SOT-23   |            |            |      |
|                              | SOT-89   |            | 500        | mW   |
| 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.

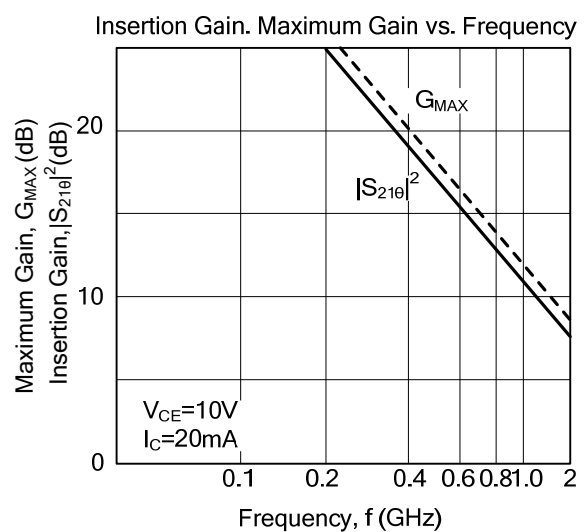
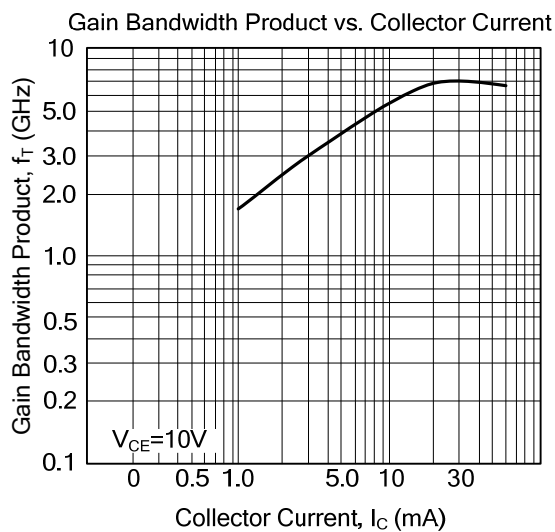
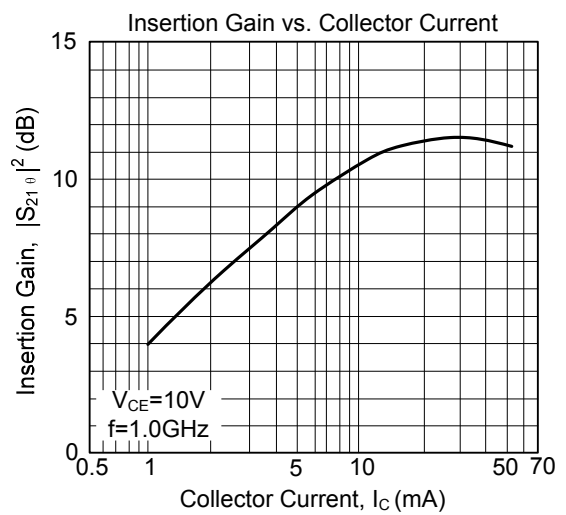
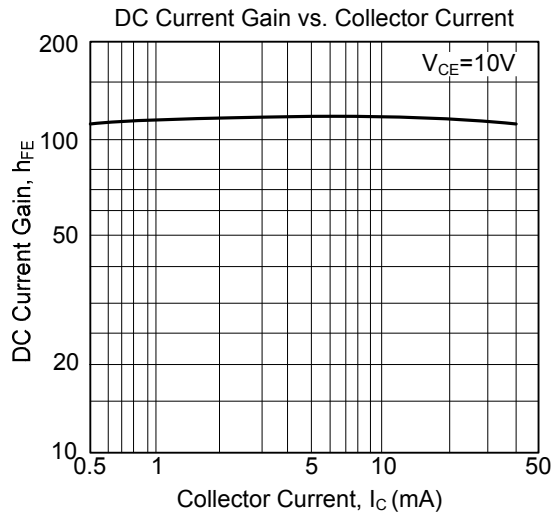
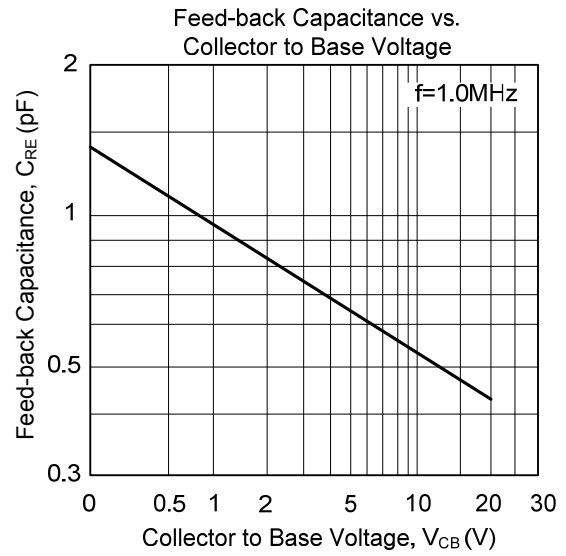
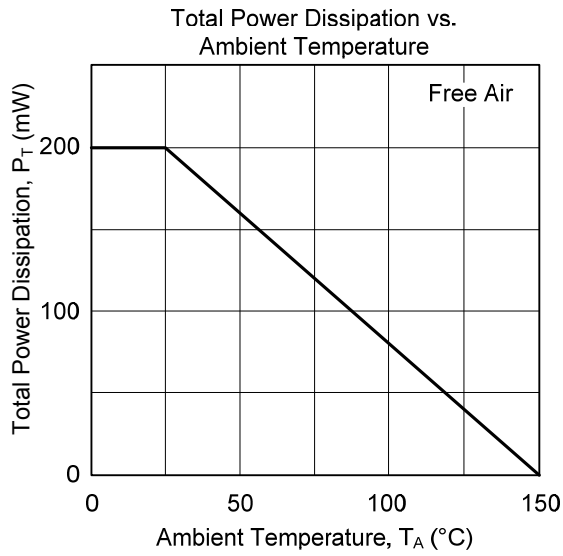
### ■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ , unless otherwise specified)

| 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            |

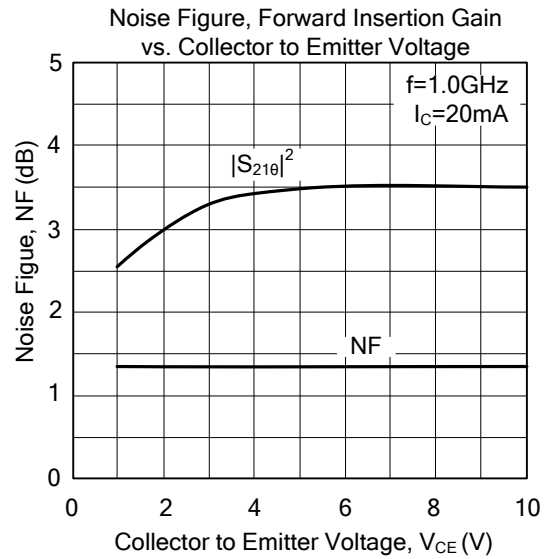
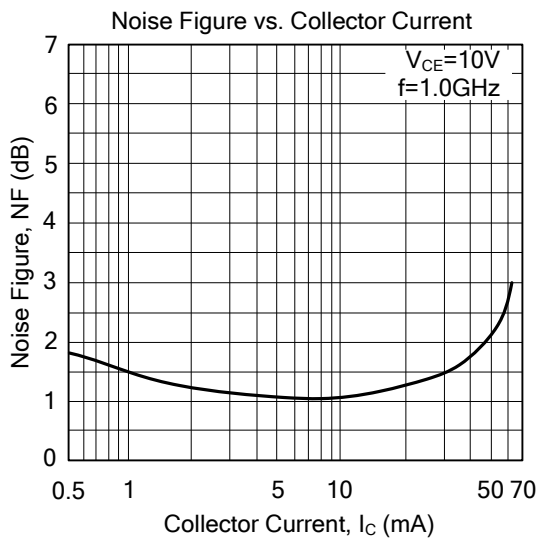
### ■ CLASSIFICATION OF $h_{FE}$

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

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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