

MSG43001

SiGe HBT type

For low-noise RF amplifier

■ Features

- Compatible between high breakdown voltage and high cutoff frequency
- Low-noise, high-gain amplification
- Suitable for high-density mounting and downsizing of the equipment for Ultraminiature leadless package
0.6 mm × 1.0 mm (height 0.39 mm)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

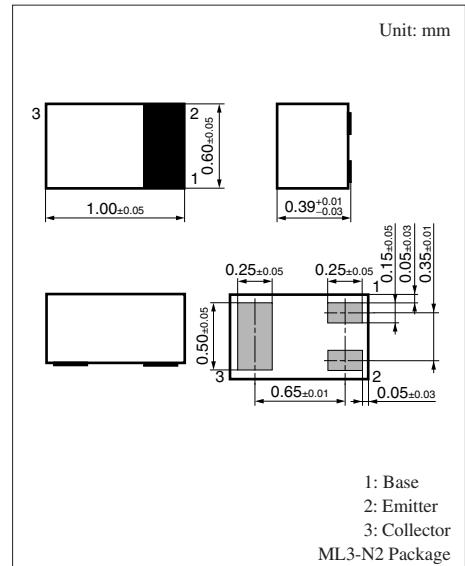
| Parameter | Symbol | Rating | Unit |
|---------------------------------------|------------------|-------------|------|
| Collector-base voltage (Emitter open) | V_{CBO} | 9 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | 6 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 1 | V |
| Collector current | I_{C} | 30 | mA |
| Collector power dissipation* | P_{C} | 100 | mW |
| Junction temperature | T_j | 125 | °C |
| Storage temperature | T_{stg} | -55 to +125 | °C |

Note) *: Copper plate at the collector is 5.0 cm² on substrate at 10 mm × 12 mm × 0.8 mm.

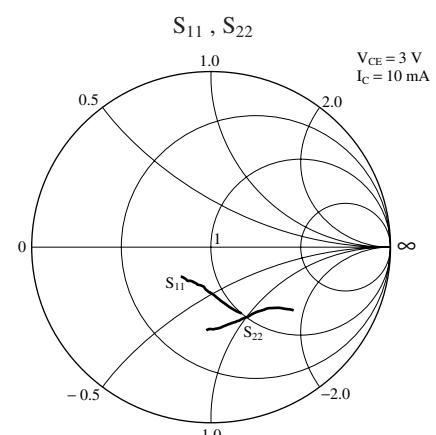
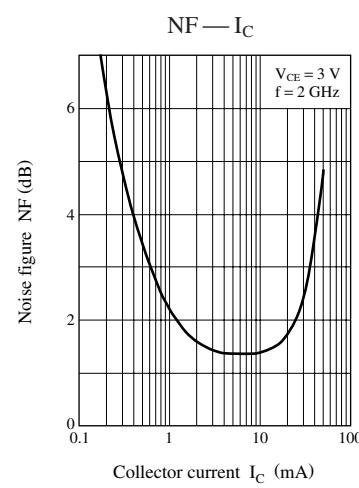
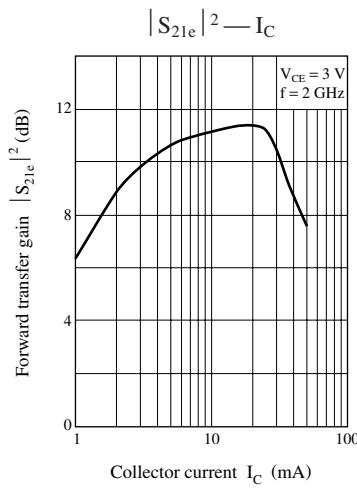
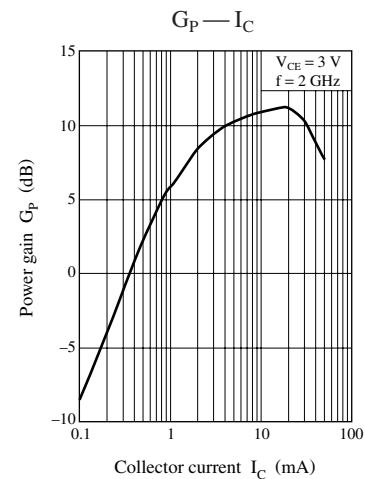
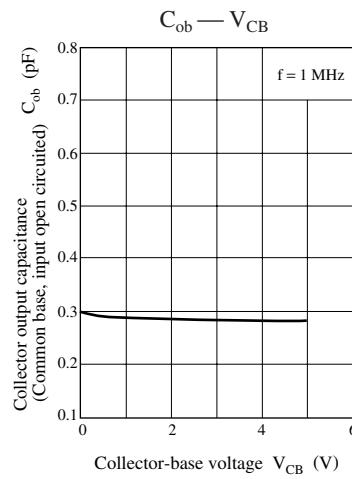
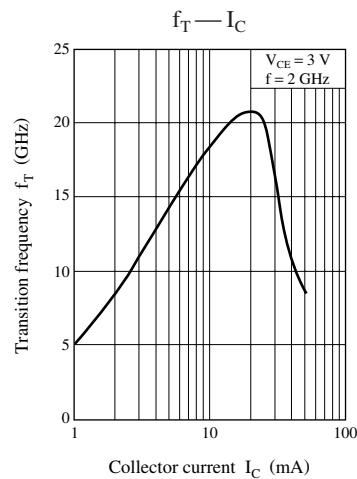
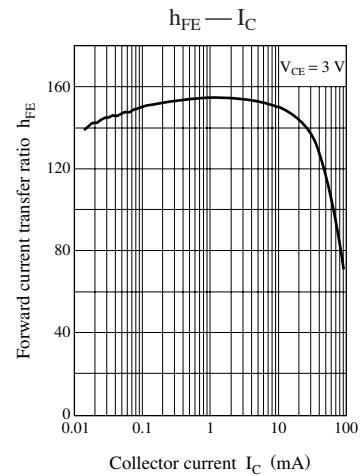
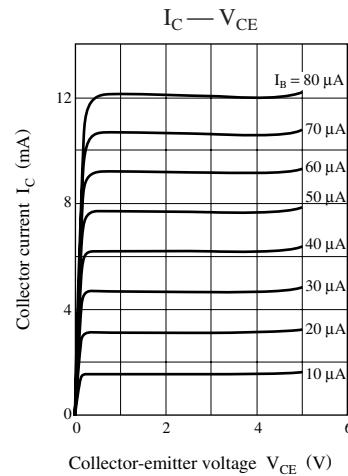
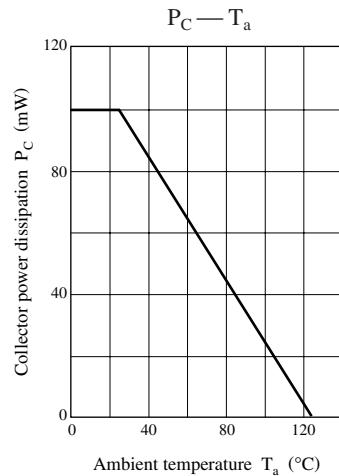
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

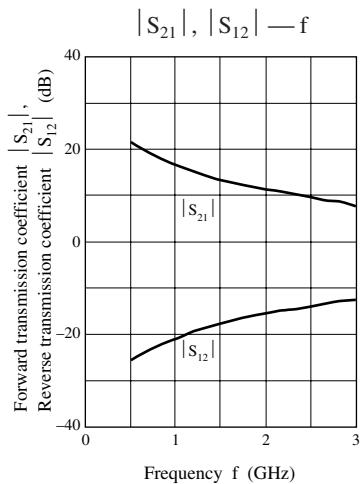
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|------------------|--|-----|------|-----|------|
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{\text{CB}} = 9 \text{ V}, I_{\text{E}} = 0$ | | | 1 | μA |
| Collector-emitter cutoff current (Base open) | I_{CEO} | $V_{\text{CE}} = 6 \text{ V}, I_{\text{B}} = 0$ | | | 1 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{\text{EB}} = 1 \text{ V}, I_{\text{C}} = 0$ | | | 1 | μA |
| Forward current transfer ratio | h_{FE} | $V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 3 \text{ mA}$ | 100 | | 220 | — |
| Transition frequency | f_T | $V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 10 \text{ mA}, f = 2 \text{ GHz}$ | | 19 | | GHz |
| Forward transfer gain | $ S_{21e} ^2$ | $V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 10 \text{ mA}, f = 2 \text{ GHz}$ | 9.0 | 11.0 | | dB |
| Noise figure | NF | $V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 3 \text{ mA}, f = 2 \text{ GHz}$ | | 1.4 | 2.0 | dB |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{\text{CB}} = 3 \text{ V}, I_{\text{E}} = 0, f = 1 \text{ MHz}$ | | 0.3 | 0.6 | pF |

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.



Marking Symbol: 3N





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