New

Panasonic

*Strike a balance between high breakdown voltage and high cut-off frequency.*

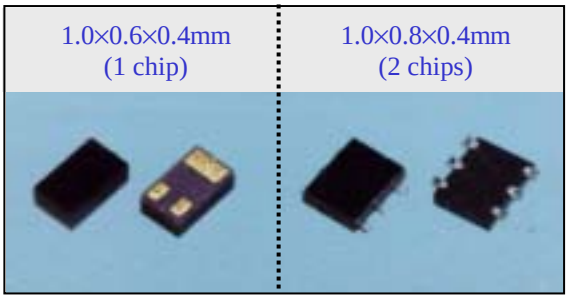
# High breakdown voltage SiGe HBT for general RF use

## ■ Overview

Excellent high-frequency performance and high breakdown voltage have been achieved by using the 0.25µm SiGe HBT. The products are suitable for VCO oscillator/buffer amplifier, TV tuner LNA and other RF applications, where improved electrical properties such as power consumption, noise figures and gain are desired. In addition, the compact body can drastically reduce the size of a handset or instrument.

## ■ Features

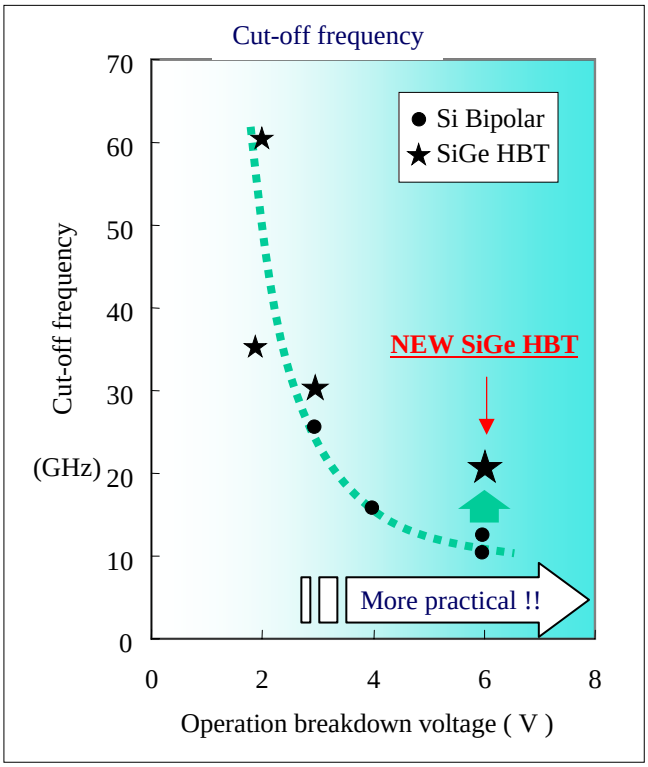
- Cut-off frequency fT = 20 GHz, operation breakdown voltage BVce-on = 6 V, collector output capacitance = half of conventional products.
- Noise figure NF = 0.9 dB, power gain PG =16 dB at frequency of 1 GHz.
- Ultra-small packages of ML3-N2 (1.0×0.6×0.4mm)/ SSSMini6-F1 (1.0×0.8×0.4mm).

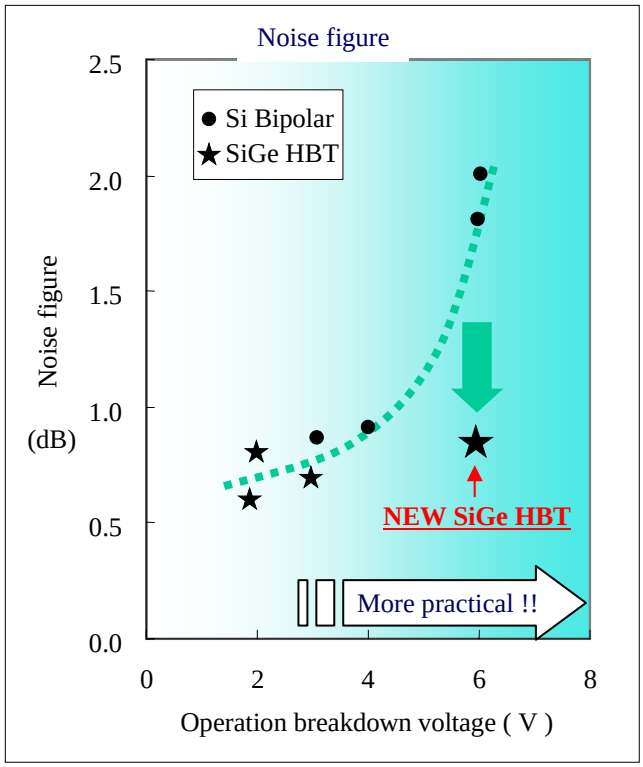



## ■ Applications

- VCO for cellular phones, PHS, wireless LANs, etc.
- LNA for cellular phones, tuners, etc.

**--- Operation breakdown voltage vs cut-off frequency/noise figure ---**



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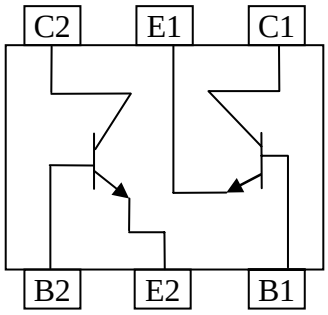
## ■ SiGe HBT Lineup

| Item \ Part No. | MSG33001 | MSG33002 | MSG33003 | MSG33004 | MSG43001 |
|---|---|---|---|---|---|
| Packages | SSSMini3-F1 | | | | ML3-N2 |
| fT | 20 GHz | 20 GHz | 20 GHz | 20 GHz | 20 GHz |
| BVce-on | 6.0 V | 6.0 V | 6.0 V | 6.0 V | 6.0 V |
| Cob | 0.27 pF | 0.37 pF | 0.47 pF | 0.59 pF | 0.27 pF |
| NF* | 1.3 dB | 1.3 dB | 1.4 dB | 1.7 dB | 1.3 dB |
| PG* | 11.0 dB | 10.5 dB | 9.5 dB | 9.0 dB | 11.0 dB |

*Noise figure and power gain are measured at 2 GHz/3 V.

| Item \ Part No. | MSG36A51 |
|---|---|
| Packages | SSSMini6-F1 |
| fT | 20 GHz |
| BVce-on | 6.0 V |
| Cob | 0.27 pF/0.59 pF |
| NF* | 1.3 dB/1.7 dB |
| PG* | 11.0 dB/9.0 dB |

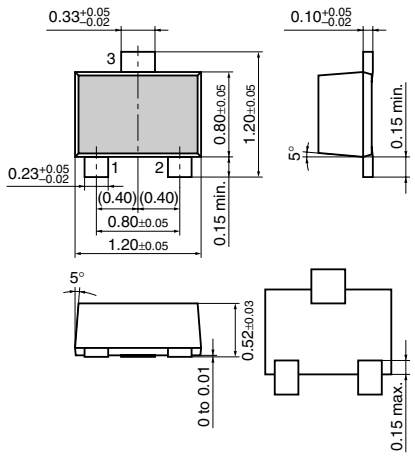
Wiring diagram




*Noise figure and power gain are measured at 2 GHz/3 V.

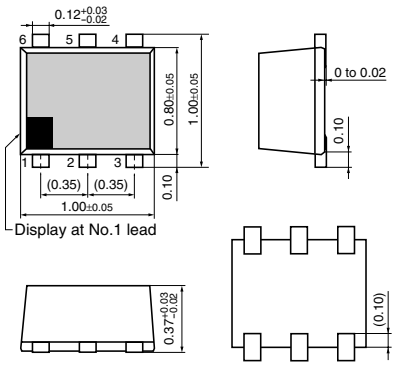
## ■ Package Information

Unit: mm



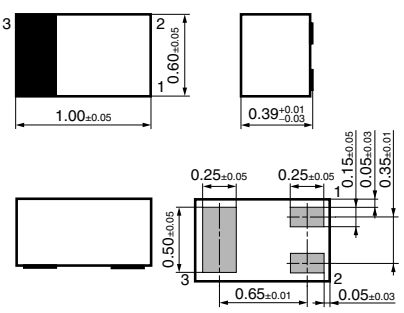

SSSMini3-F1

Unit: mm




SSSMini6-F1

Unit: mm




ML3-N2