

2SC5838

Silicon NPN epitaxial planar type

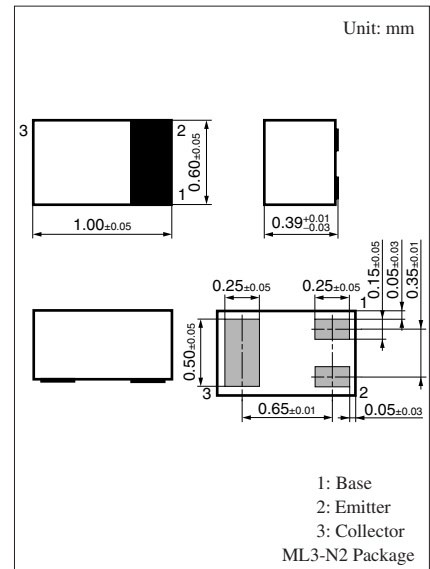
For UHF band low-noise amplification

■ Features

- 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} | 15 | V |
| Collector-emitter voltage (Base open) | V_{CEO} | 10 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 2 | V |
| Collector current | I_{C} | 80 | mA |
| Collector power dissipation | P_{C} | 100 | mW |
| Junction temperature | T_{j} | 125 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

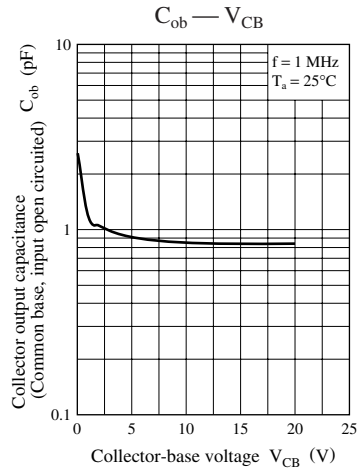
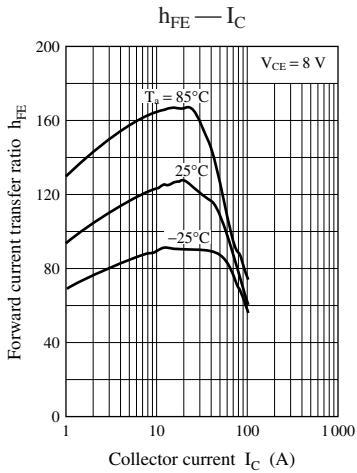
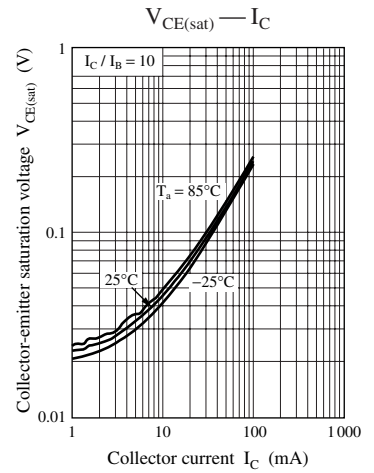
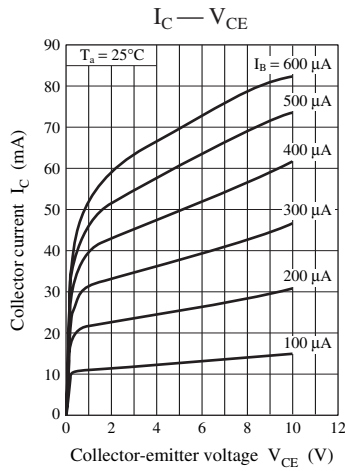
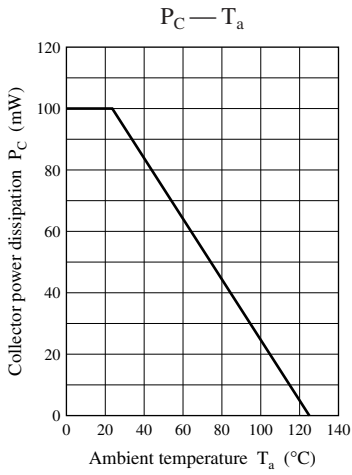


Marking symbol: 1F

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

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|------------------|---|-----|------|-----|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_{\text{C}} = 10 \mu\text{A}$, $I_{\text{E}} = 0$ | 15 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_{\text{C}} = 100 \mu\text{A}$, $I_{\text{B}} = 0$ | 10 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{\text{CB}} = 10 \text{V}$, $I_{\text{E}} = 0$ | | | 1 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{\text{EB}} = 2 \text{V}$, $I_{\text{C}} = 0$ | | | 1 | μA |
| Forward current transfer ratio | h_{FE} | $V_{\text{CE}} = 8 \text{V}$, $I_{\text{C}} = 20 \text{mA}$ | 110 | | 250 | — |
| Forward transfer gain | $ S_{21e} ^2$ | $V_{\text{CE}} = 8 \text{V}$, $I_{\text{C}} = 20 \text{mA}$, $f = 800 \text{MHz}$ | 7.5 | 10.0 | | dB |
| Noise figure | NF | $V_{\text{CE}} = 8 \text{V}$, $I_{\text{C}} = 20 \text{mA}$, $f = 800 \text{MHz}$ | | 1.7 | | dB |
| Maximum unilateral power gain | G_{UM} | $V_{\text{CE}} = 8 \text{V}$, $I_{\text{C}} = 20 \text{mA}$, $f = 800 \text{MHz}$ | | 11.5 | | dB |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{\text{CB}} = 10 \text{V}$, $I_{\text{E}} = 0$, $f = 1 \text{MHz}$ | | 0.9 | 1.2 | pF |
| Transition frequency | f_{T} | $V_{\text{CE}} = 8 \text{V}$, $I_{\text{C}} = 20 \text{mA}$, $f = 800 \text{MHz}$ | 5.0 | 6.0 | | GHz |

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



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