
2SC5023

Silicon NPN Epitaxial

HITACHI

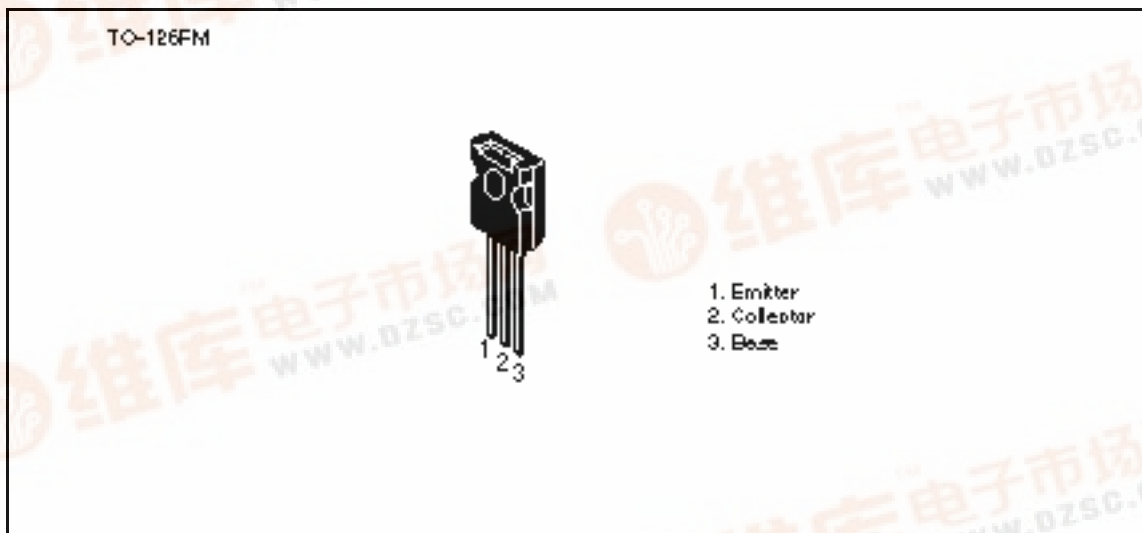
Application

High frequency amplifier

Features

- Excellent high frequency characteristics $f_T = 1000$ MHz typ
- High breakdown voltage and low output capacitance $V_{CEO} = 100$ V, $C_{ob} = 4.5$ pF typ
- Suitable for wide band video amplifier

Outline



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Absolute Maximum Ratings (Ta = 25°C)

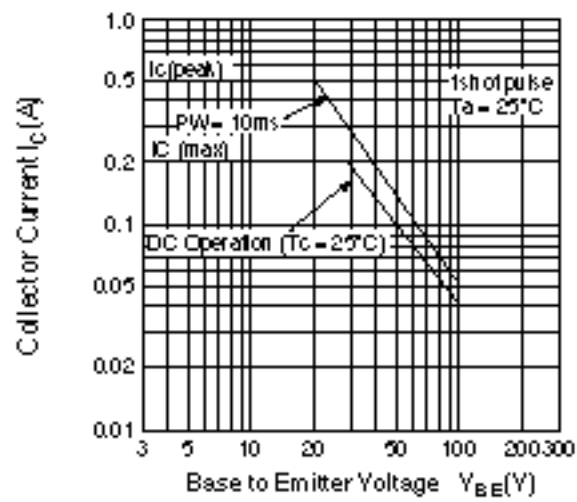
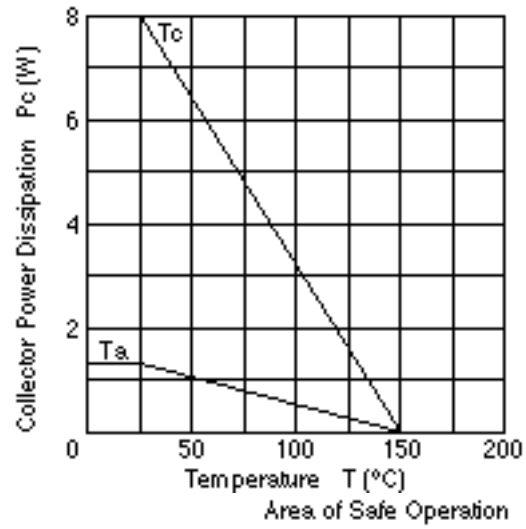
| Item | Symbol | Ratings | Unit |
|------------------------------|---------------|-------------|------|
| Collector to base voltage | V_{CBO} | 100 | V |
| Collector to emitter voltage | V_{CEO} | 100 | V |
| Emitter to base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 0.2 | A |
| Collector peak current | $I_{C(peak)}$ | 0.5 | A |
| Collector power dissipation | P_C | 1.25 | W |
| | P_C^{*1} | 8 | |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55 to +150 | °C |

Note: 1. Value at $T_C = 25^\circ\text{C}$.

Electrical Characteristics (Ta = 25°C)

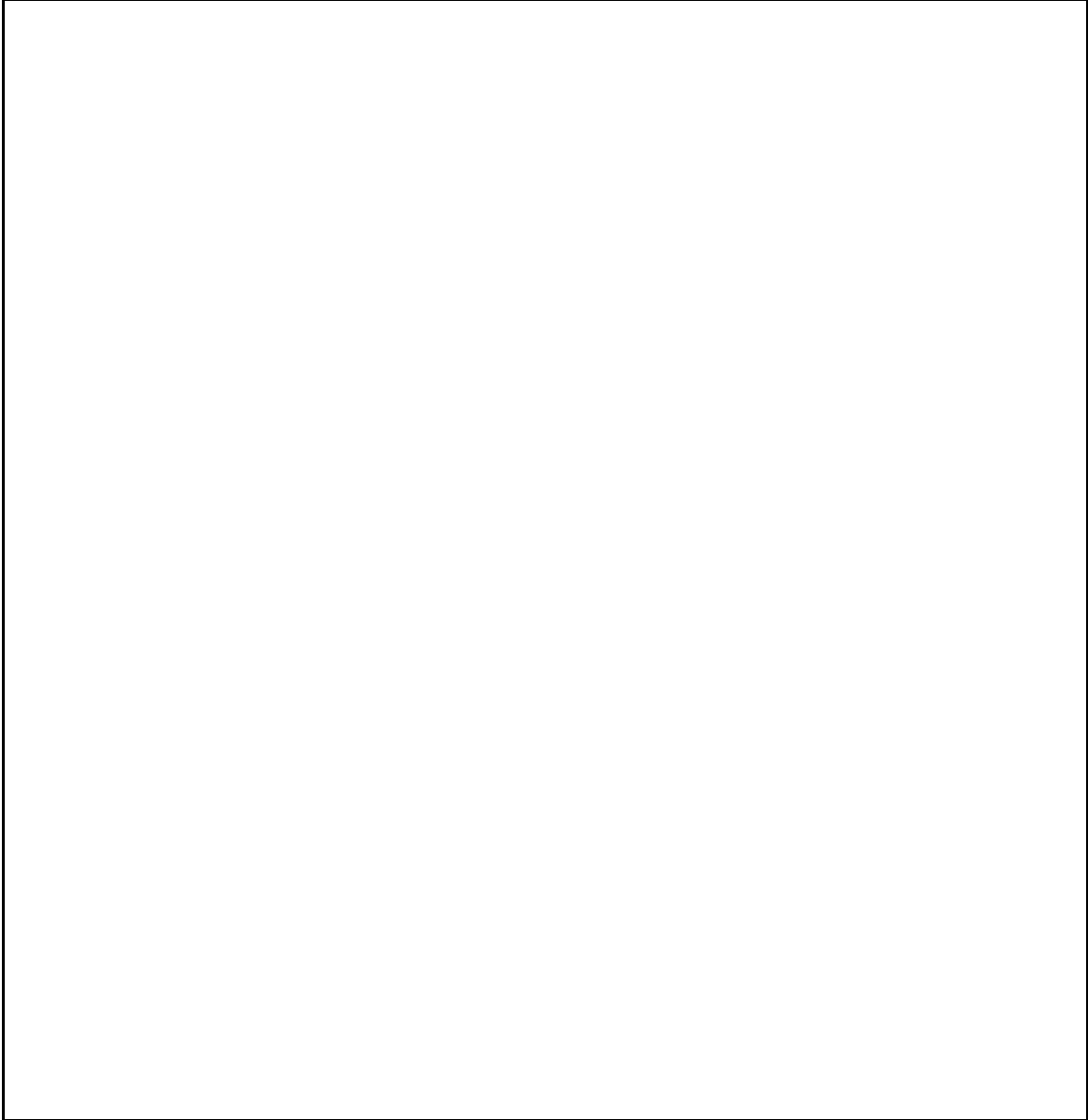
| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|-------------------|-----|------|-----|---------------|---|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | 100 | — | — | V | $I_C = 10 \mu\text{A}$, $I_E = 0$ |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 100 | — | — | V | $I_C = 1 \text{ mA}$, $R_{BE} =$ |
| Collector cutoff current | I_{CBO} | — | — | 1.0 | μA | $V_{CB} = 80 \text{ V}$, $I_E = 0$ |
| Emitter cutoff current | I_{EBO} | — | — | 10 | μA | $V_{EB} = 3 \text{ V}$, $I_C = 0$ |
| DC current transfer ratio | 2SC5023B h_{FE} | 60 | — | 120 | | $V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$ |
| | 2SC5023C h_{FE} | 100 | — | 200 | | |
| Base to emitter voltage | V_{BE} | — | — | 1.0 | V | $V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$ |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | — | — | 1.0 | V | $I_C = 100 \text{ mA}$, $I_B = 10 \text{ mA}$ |
| Gain bandwidth product | f_T | 800 | 1000 | — | MHz | $V_{CE} = 20 \text{ V}$, $I_C = 100 \text{ mA}$ |
| Collector output capacitance | C_{ob} | — | 4.5 | 6.0 | pF | $V_{CB} = 30 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$ |

Maximum Collector Power Dissipation Curve

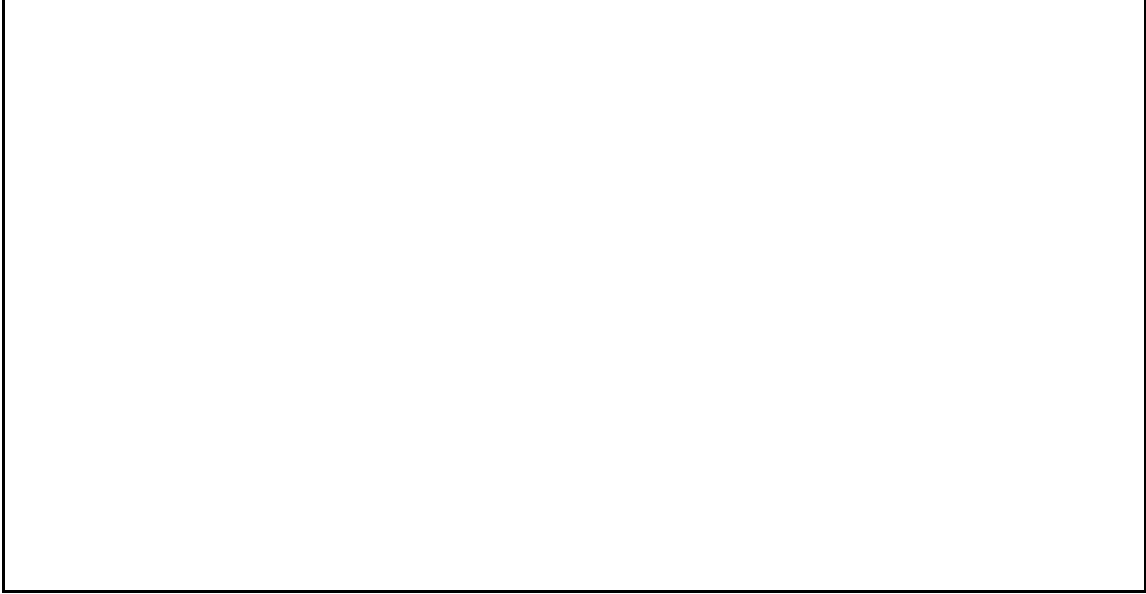


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