

Features

- High Power Gain
- Low Noise Figure
- High Cut-off Frequency
- RF Wideband Amplifiers and Oscillators.
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

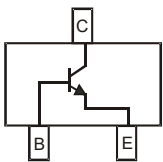
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 833°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|---------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 20 | V |
| Collector-Emitter Voltage | V_{CEO} | 12 | V |
| Emitter-Base Voltage | V_{EBO} | 3 | V |
| Collector Current | I_C | 100 | mA |
| Power Dissipation | P_D | 150 | mW |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

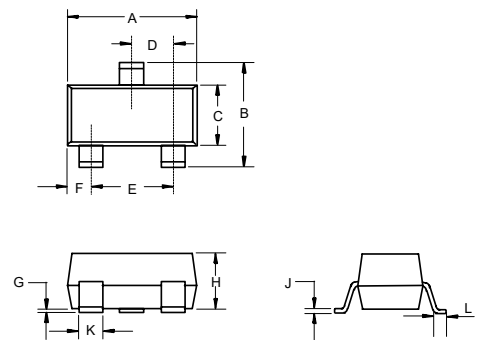
Internal Structure



Marking: R25

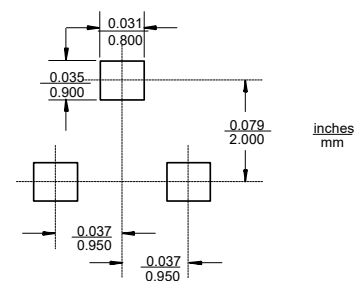
NPN RF Transistor

SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.110 | 0.120 | 2.80 | 3.04 | |
| B | 0.083 | 0.104 | 2.10 | 2.64 | |
| C | 0.047 | 0.055 | 1.20 | 1.40 | |
| D | 0.034 | 0.041 | 0.85 | 1.05 | |
| E | 0.067 | 0.083 | 1.70 | 2.10 | |
| F | 0.018 | 0.024 | 0.45 | 0.60 | |
| G | 0.0004 | 0.006 | 0.01 | 0.15 | |
| H | 0.035 | 0.043 | 0.90 | 1.10 | |
| J | 0.003 | 0.007 | 0.08 | 0.18 | |
| K | 0.014 | 0.020 | 0.35 | 0.51 | |
| L | 0.007 | 0.020 | 0.20 | 0.50 | |

Suggested Solder Pad Layout



Electrical Characteristics @ $T_A=25^{\circ}\text{C}$ Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|-------------------------------|-----------|-----|------|-----|---------------|---|
| Collector-Base Cutoff Current | I_{CBO} | | | 1 | μA | $V_{CB}=20\text{V}, I_E=0$ |
| Emitter-Base Cutoff Current | I_{EBO} | | | 1 | μA | $V_{EB}=3\text{V}, I_C=0$ |
| DC Current Gain* | h_{FE} | 130 | | 300 | | $V_{CE}=10\text{V}, I_C=20\text{mA}$ |
| Transition Frequency | f_T | | 7 | | GHz | $V_{CE}=10\text{V}, I_C=20\text{mA}$ |
| Power Gain | G_p | | 12.5 | | dB | $V_{CE}=10\text{V}, I_C=20\text{mA}, f=1\text{GHz}$ |
| Noise Figure | N_F | | 1.1 | 2.0 | dB | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=1\text{GHz}$ |

*Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Curve Characteristics

Fig. 1 - Power Derating Curve

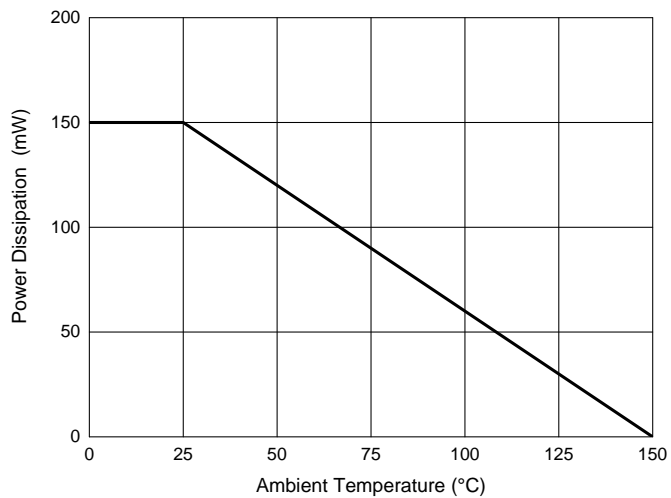


Fig. 2 - C_{re} - V_{CBO}

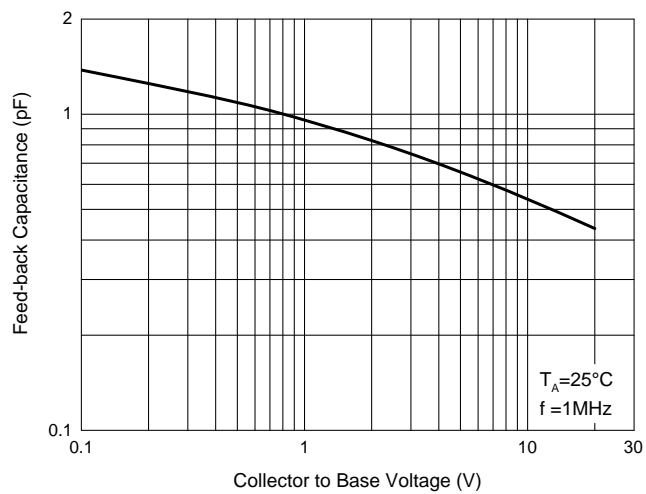


Fig. 3 - N_F - I_C

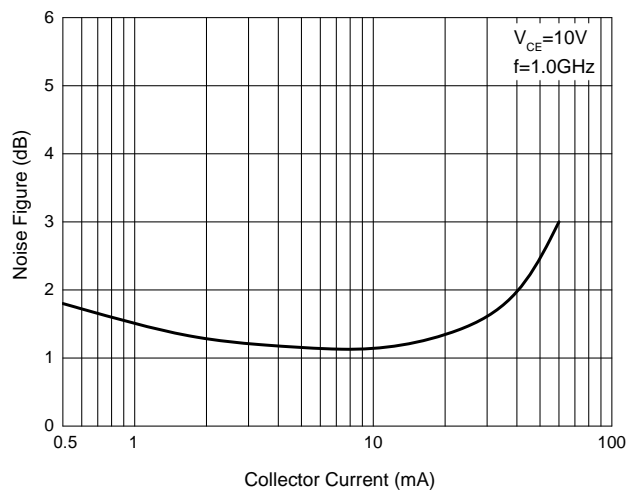


Fig. 4 - N_F - V_{CE}

