

Absolute Maximum Ratings ($@T_A = +25^{\circ}C$, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--------------------------------|------------------|-------|------|
| Collector-Base Voltage | V_{CBO} | -30 | V |
| Collector-Emitter Voltage | V _{CEO} | -30 | V |
| Emitter-Base Voltage | V_{EBO} | -10 | V |
| Collector Current - Continuous | lc | -500 | mA |

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | | Symbol | Value | Unit |
|---|----------|-----------------|-------------|------|
| Power Dissipation | (Note 5) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient | (Note 5) | $R_{\theta JA}$ | 417 | °C/W |
| Operating and Storage Temperature Range | | $T_{J,}T_{STG}$ | -55 to +150 | °C |

ESD Ratings (Note 6)

| Characteristic | Symbol | Value | Unit | JEDEC Class |
|--|---------|-------|------|-------------|
| Electrostatic Discharge - Human Body Model | ESD HBM | 4,000 | V | 3A |
| Electrostatic Discharge - Machine Model | ESD MM | 400 | V | С |

Notes:

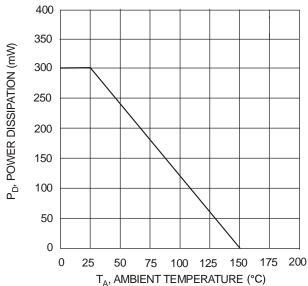


Fig. 1, Max Power Dissipation vs. Ambient Temperature

^{5.} For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.

^{6.} Refer to JEDEC specification JESD22-A114 and JESD22-A115.



Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|--|----------------------------|-------------------------------------|------|------|--|
| OFF CHARACTERISTICS (Note 7) | | | | | |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | -30 | _ | V | $I_C = -100 \mu A, V_{BE} = 0 V$ |
| Collector Cut-Off Current | I _{CBO} | _ | -100 | nA | $V_{CB} = -30V, I_{E} = 0$ |
| Emitter Cut-Off Current | I _{EBO} | _ | -100 | nA | $V_{EB} = -10V, I_C = 0$ |
| ON CHARACTERISTICS (Note 7) | | | | | |
| DC Current Gain MMB1 MMB1 MMB1 MMB1 | A64 A63 h _{FE} | 5,000 10,000 10,000 20,000 | _ | _ | I _C = -10mA, V _{CE} = -5.0V I _C = -10mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | _ | -1.5 | V | $I_C = -100 \text{mA}, I_B = -100 \mu \text{A}$ |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | _ | -2.0 | V | $I_C = -100 \text{mA}, V_{CE} = -5.0 \text{V}$ |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| Current Gain-Bandwidth Product | f⊤ | 125 | _ | MHz | $V_{CE} = -5.0V, I_{C} = -10mA,$ f = 100MHz |

Note: 7. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.



Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

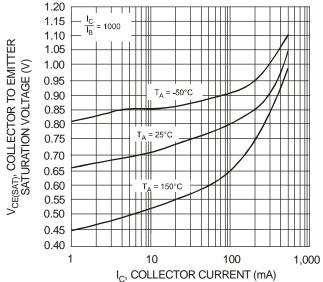
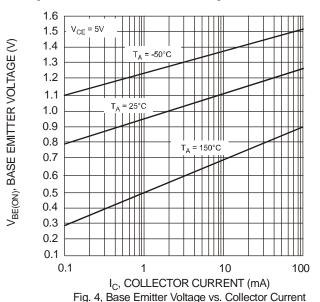


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



1,000,000 1,000,000 1,000,000 1,00

Fig. 3, DC Current Gain vs. Collector Current

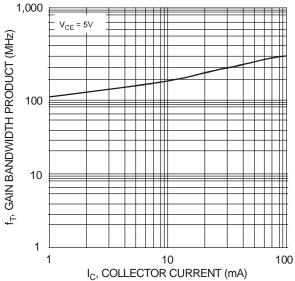


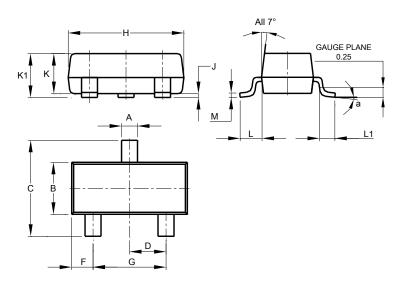
Fig. 5, Gain Bandwidth Product vs. Collector Current



Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23

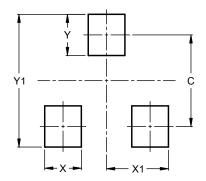


| SOT23 | | | | | |
|----------------------|-------|-------|-------|--|--|
| Dim | Min | Max | Тур | | |
| Α | 0.37 | 0.51 | 0.40 | | |
| В | 1.20 | 1.40 | 1.30 | | |
| С | 2.30 | 2.50 | 2.40 | | |
| D | 0.89 | 1.03 | 0.915 | | |
| F | 0.45 | 0.60 | 0.535 | | |
| G | 1.78 | 2.05 | 1.83 | | |
| Н | 2.80 | 3.00 | 2.90 | | |
| J | 0.013 | 0.10 | 0.05 | | |
| K | 0.890 | 1.00 | 0.975 | | |
| K1 | 0.903 | 1.10 | 1.025 | | |
| L | 0.45 | 0.61 | 0.55 | | |
| L1 | 0.25 | 0.55 | 0.40 | | |
| М | 0.085 | 0.150 | 0.110 | | |
| а | 0° | 8° | | | |
| All Dimensions in mm | | | | | |

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23



| Dimensions | Value (in mm) |
|------------|---------------|
| С | 2.0 |
| X | 0.8 |
| X1 | 1.35 |
| Y | 0.9 |
| V4 | 2.0 |



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