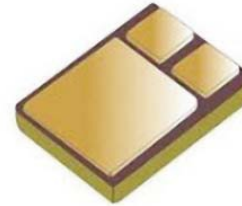


PNP Power Silicon Transistor

Rev. V2

Features

- JANS and JANSR Qualified to MIL-PRF-19500/561
- JEDEC Registered 2N6193
- Lightweight & Low Power
- Ideal for Space, Military, and Other High Reliability Applications
- Surface Mount U3 (TO-276AA) Package



Electrical Characteristics

| Parameter | Test Conditions | Symbol | Units | Min. | Max. |
|---|---|------------------------|-----------------|----------------|---------------|
| Off Characteristics | | | | | |
| Collector - Emitter Breakdown Voltage | $I_C = 50 \text{ mAdc}$ | $V_{(BR)CEO}$ | Vdc | 100 | — |
| Collector - Emitter Cutoff Current | $V_{CE} = 100 \text{ Vdc}$ $V_{CE} = 90 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ | I_{CEO} I_{CEX} | μAdc | — | 100 10 |
| Collector - Base Cutoff Current | $V_{CB} = 100 \text{ Vdc}$ | I_{CBO} | μAdc | — | 10 |
| Emitter - Base Cutoff Current | $V_{EB} = 6.0 \text{ Vdc}$ | I_{EBO} | μAdc | — | 100 |
| On Characteristics¹ | | | | | |
| Forward Current Transfer Ratio | $I_C = 0.5 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 2.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ | H_{FE} | - | 60 60 40 | — 240 — |
| Collector - Emitter Saturation Voltage | $I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ | $V_{CE(SAT)}$ | Vdc | — | 0.7 1.2 |
| Emitter - Base Saturation Voltage | $I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$ | $V_{BE(SAT)}$ | Vdc | — | 1.2 1.8 |
| Dynamic Characteristics | | | | | |
| Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio | $I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 10 \text{ mHz}$ | $ H_{FE} $ | - | 3 | 15 |
| Output Capacitance | $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$ | C_{OBO} | pF | — | 300 |
| Input Capacitance | $V_{BE} = 2 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$ | C_{IBO} | pF | — | 1250 |
| Switching Characteristics | | | | | |
| Delay Time | $V_{CC} = -40 \text{ Vdc}; V_{BE(OFF)} = 2.3 \text{ Vdc}$ | T_D | ns | — | 100 |
| Rise Time | $I_C = 2.0 \text{ Adc}, I_{B1} = 0.2 \text{ Adc}$ | T_R | ns | — | 100 |
| Storage Time | $V_{CC} = -40 \text{ Vdc}; I_C = 2.0 \text{ Adc}$ | T_S | μs | — | 2.0 |
| Fall Time | $I_{B1} = -I_{B2} = 0.2 \text{ Adc}$ | T_F | ns | — | 200 |
| Safe Operating Area | | | | | |
| DC Tests: | $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t \geq 0.5 \text{ s}$ | | | | |
| Test 1: | $V_{CE} = 2 \text{ Vdc}, I_C = 5 \text{ Adc}$ | | | | |
| Test 2: | $V_{CE} = 90 \text{ Vdc}, I_C = 55 \text{ mAdc}$ | | | | |

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

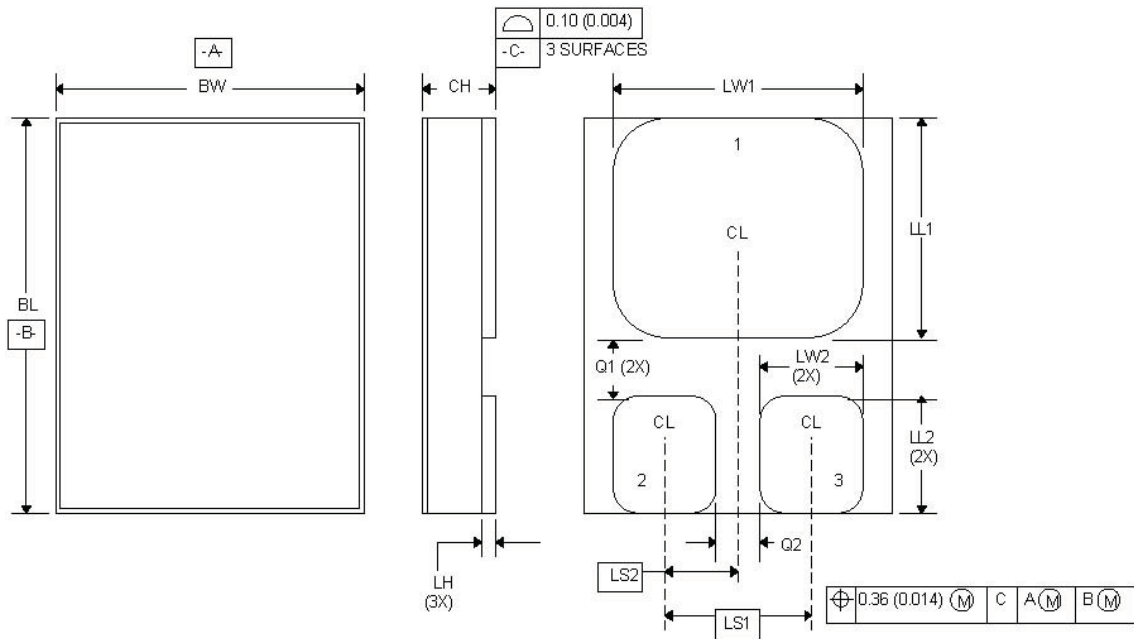
Absolute Maximum Ratings

| Ratings | Symbol | Value |
|---|-------------------|---|
| Collector - Emitter Voltage | V_{CEO} | 100 Vdc |
| Collector - Base Voltage | V_{CBO} | 100 Vdc |
| Emitter - Base Voltage | V_{EBO} | 6 Vdc |
| Base Current | I_B | 1 Adc |
| Collector Current | I_C | 5 Adc |
| Total Power Dissipation @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$ | P_T | 1.0 W 100 W |
| Operating & Storage Temperature Range | T_{OP}, T_{STG} | -65°C to $+200^\circ\text{C}$ |

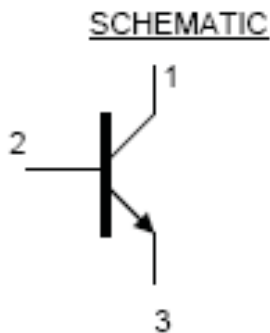
Thermal Characteristics

| Characteristics | Symbol | Max. Value |
|--------------------------------------|-----------------|------------------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 1.75°C/W |

Outline Drawing (U3)



1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to ϕ x symbology.
4. Terminal 1 - collector, terminal 2 - base, terminal 3 - emitter.



| Ltr | Dimensions | | | |
|-----|------------|--------|-------------|-------|
| | Inches | | Millimeters | |
| | Min. | Max. | Min. | Max. |
| BL | 0.395 | 0.405 | 10.03 | 10.29 |
| BW | 0.291 | 0.301 | 7.40 | 7.65 |
| CH | 0.1085 | 0.1205 | 2.76 | 3.06 |
| LH | 0.010 | 0.020 | 0.25 | 0.51 |
| LW1 | 0.281 | 0.291 | 7.14 | 7.39 |
| LW2 | 0.090 | 0.100 | 2.29 | 2.54 |
| LL1 | 0.220 | 0.230 | 5.59 | 5.84 |
| LL2 | 0.115 | 0.125 | 2.92 | 3.18 |
| LS1 | 0.150 BSC | | 3.81 BSC | |
| LS2 | 0.075 BSC | | 1.91 BSC | |
| Q1 | 0.030 | - | 0.762 | - |
| Q2 | 0.030 | - | 0.762 | - |

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