

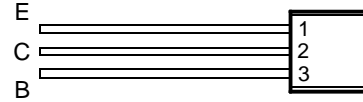
TIPP115, TIPP116, TIPP117 PNP SILICON POWER DARLINGTONS

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MAY 1989 - REVISED MARCH 1997

- 20 W Pulsed Power Dissipation
- 100 V Capability
- 2 A Continuous Collector Current
- 4 A Peak Collector Current

LP PACKAGE
(TOP VIEW)



MDTRAB

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

| RATING | | SYMBOL | VALUE | UNIT |
|--|---------|-----------|-------------|------|
| Collector-base voltage ($I_E = 0$) | TIPP115 | V_{CBO} | -60 | V |
| | TIPP116 | | -80 | |
| | TIPP117 | | -100 | |
| Collector-emitter voltage ($I_B = 0$) | TIPP115 | V_{CEO} | -60 | V |
| | TIPP116 | | -80 | |
| | TIPP117 | | -100 | |
| Emitter-base voltage | | V_{EBO} | -5 | V |
| Continuous collector current | | I_C | -2 | A |
| Peak collector current (see Note 1) | | I_{CM} | -4 | A |
| Continuous base current | | I_B | -50 | mA |
| Continuous device dissipation at (or below) 25°C case temperature (see Note 2) | | P_{tot} | 0.8 | W |
| Pulsed power dissipation (see Note 3) | | P_T | 20 | W |
| Operating junction temperature range | | T_j | -55 to +150 | °C |
| Storage temperature range | | T_{stg} | -55 to +150 | °C |
| Lead temperature 3.2 mm from case for 10 seconds | | T_L | 260 | °C |

NOTES: 1. This value applies for $t_p \leq 0.3$ ms, duty cycle $\leq 10\%$.
 2. Derate linearly to 150°C case temperature at the rate of 0.32 W/°C.
 3. $V_{CE} = 20$ V, $I_C = 1$ A, $P_W = 10$ ms, duty cycle $\leq 2\%$.

PRODUCT INFORMATION

Information is current as of publication date. Products conform to specifications in accordance with the terms of Power Innovations standard warranty. Production processing does not necessarily include testing of all parameters.



TIPP115, TIPP116, TIPP117

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electrical characteristics at 25°C case temperature

| PARAMETER | | TEST CONDITIONS | | | MIN | TYP | MAX | UNIT |
|---------------|--------------------------------------|---|--|---------------------|------|-----|------|------|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C = -10 \text{ mA}$ (see Note 4) | $I_B = 0$ | TIPP115 | -60 | | | V |
| | | | | TIPP116 | -80 | | | |
| | | | | TIPP117 | -100 | | | |
| I_{CEO} | Collector-emitter cut-off current | $V_{CE} = -30 \text{ V}$ $V_{CE} = -40 \text{ V}$ $V_{CE} = -50 \text{ V}$ | $V_{BE} = 0$ $V_{BE} = 0$ $V_{BE} = 0$ | TIPP115 | | | -2 | mA |
| | | | | TIPP116 | | | -2 | |
| | | | | TIPP117 | | | -2 | |
| I_{CBO} | Collector-base cut-off current | $V_{CE} = -60 \text{ V}$ $V_{CE} = -80 \text{ V}$ $V_{CE} = -100 \text{ V}$ | $I_B = 0$ $I_B = 0$ $I_B = 0$ | TIPP115 | | | -1 | mA |
| | | | | TIPP116 | | | -1 | |
| | | | | TIPP117 | | | -1 | |
| I_{EBO} | Emitter cut-off current | $V_{EB} = -5 \text{ V}$ | $I_C = 0$ | | | | -2 | mA |
| h_{FE} | Forward current transfer ratio | $V_{CE} = -4 \text{ V}$ $V_{CE} = -4 \text{ V}$ | $I_C = -1 \text{ A}$ $I_C = -2 \text{ A}$ | (see Notes 4 and 5) | 1000 | | | |
| | | | | | 500 | | | |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_B = -8 \text{ mA}$ | $I_C = -2 \text{ A}$ | (see Notes 4 and 5) | | | -2.5 | V |
| V_{BE} | Base-emitter voltage | $V_{CE} = -4 \text{ V}$ | $I_C = -2 \text{ A}$ | (see Notes 4 and 5) | | | -2.8 | V |
| V_{EC} | Parallel diode forward voltage | $I_E = -4 \text{ A}$ | $I_B = 0$ | (see Notes 4 and 5) | | | -3.5 | V |

NOTES: 4. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

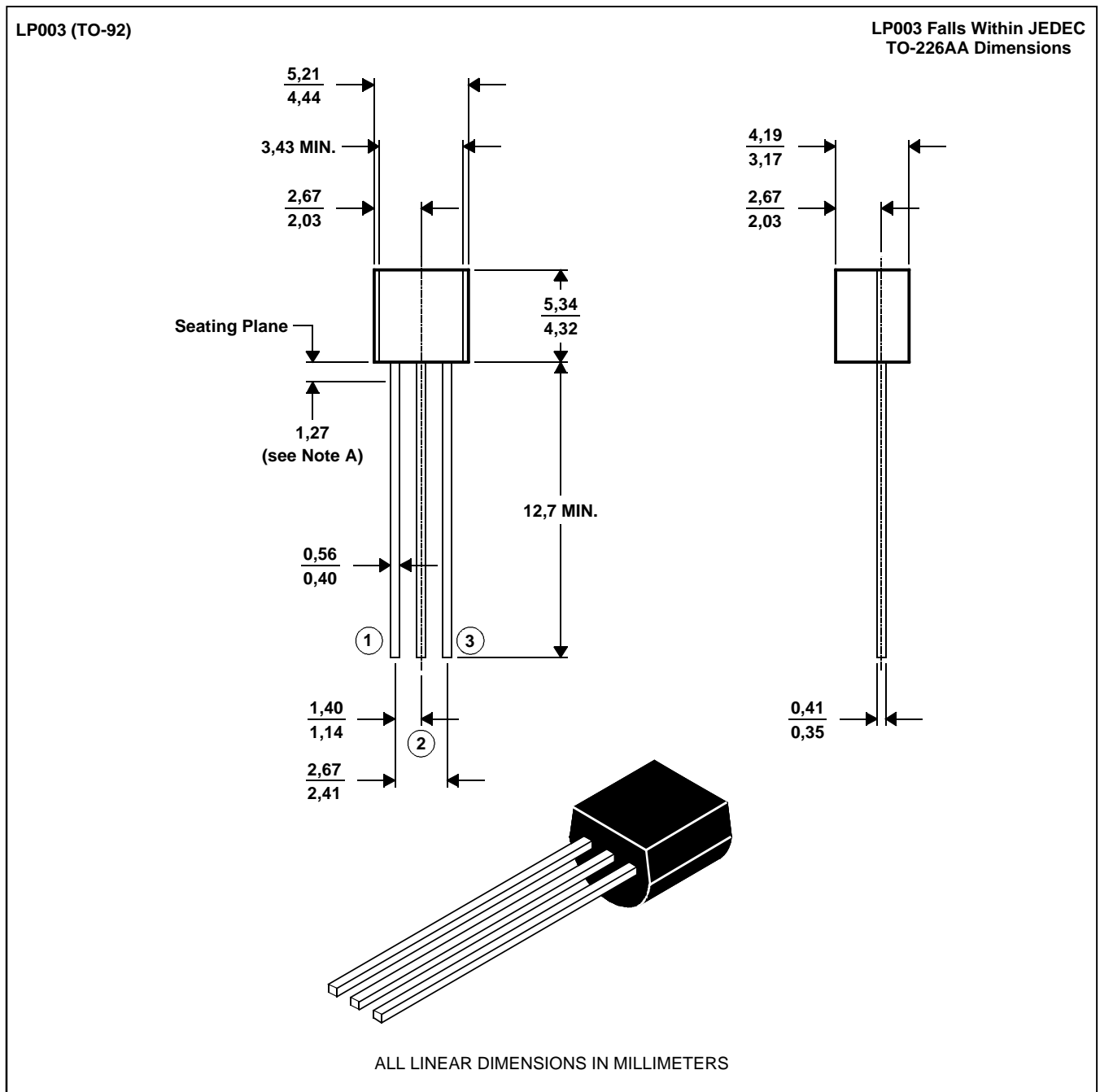
5. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

MECHANICAL DATA

LP003 (TO-92)

3-pin cylindrical plastic package

This single-in-line package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.



NOTE A: Lead dimensions are not controlled in this area.

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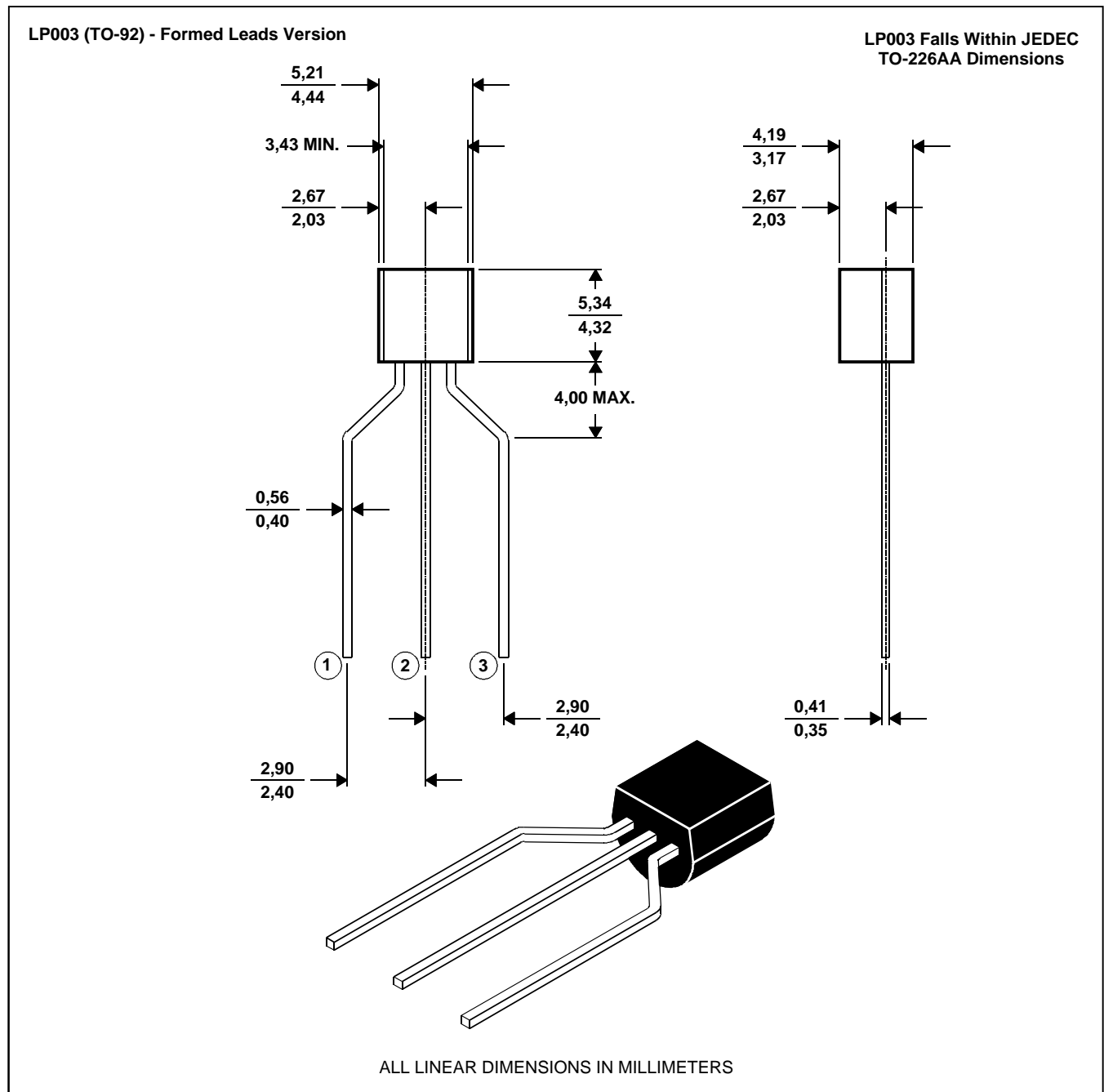
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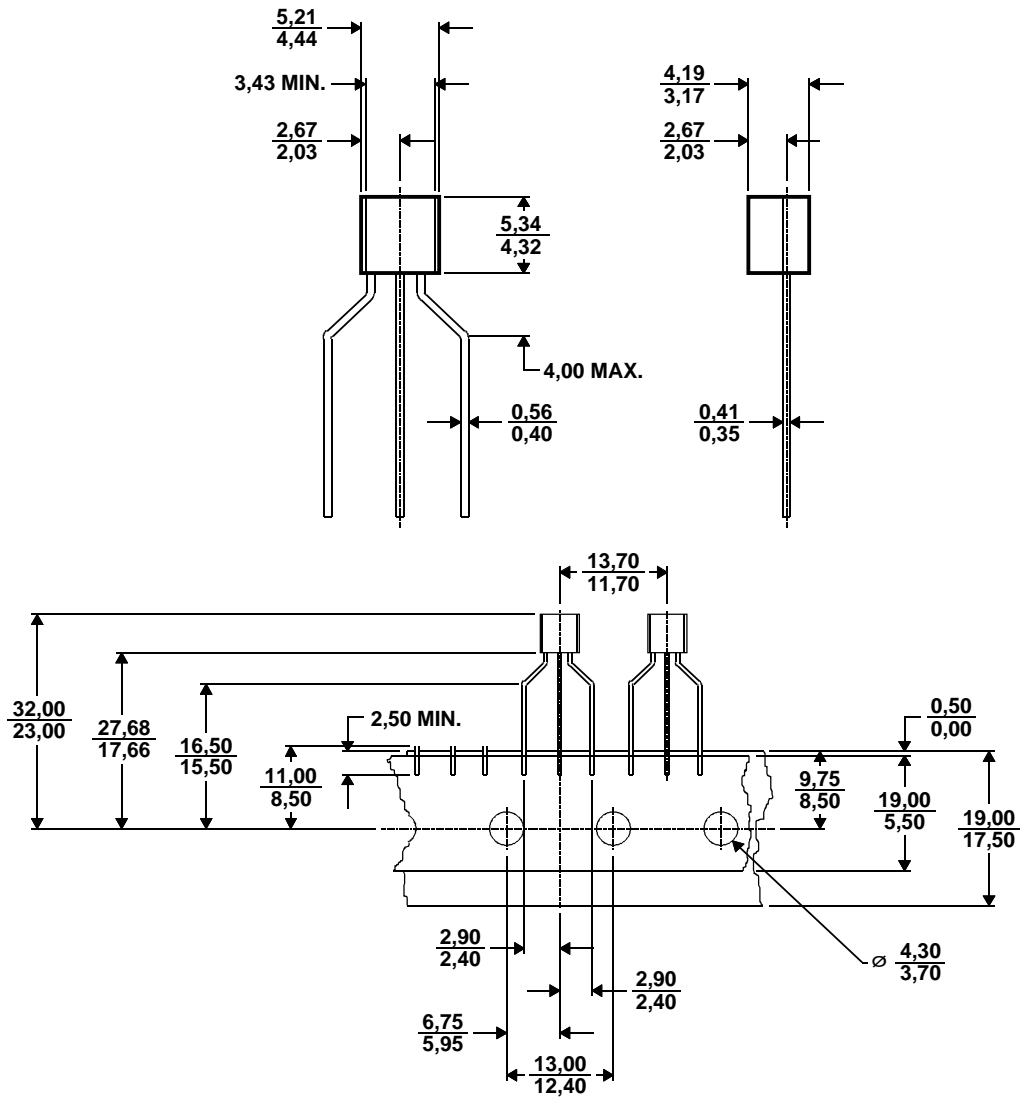


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MECHANICAL DATA

LPR
tape dimensions

LP Package (TO-92) Tape (Formed Lead Version)



ALL LINEAR DIMENSIONS IN MILLIMETERS

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PRODUCT INFORMATION