

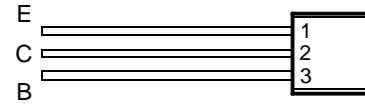
TIPP110, TIPP111, TIPP112 NPN SILICON POWER DARLINGTONS

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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 ($I_E = 0$)	TIPP110	V_{CBO}	60	V
	TIPP111		80	
	TIPP112		100	
Collector-emitter voltage ($I_B = 0$)	TIPP110	V_{CEO}	60	V
	TIPP111		80	
	TIPP112		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.



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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)	$I_B = 0$	TIPP110	60			V
				TIPP111	80			
				TIPP112	100			
I_{CEO}	Collector-emitter cut-off current	$V_{CE} = 30 \text{ V}$ $V_{CE} = 40 \text{ V}$ $V_{CE} = 50 \text{ V}$	$V_{BE} = 0$ $V_{BE} = 0$ $V_{BE} = 0$	TIPP110			2	mA
				TIPP111			2	
				TIPP112			2	
I_{CBO}	Collector-base cut-off current	$V_{CE} = 60 \text{ V}$ $V_{CE} = 80 \text{ V}$ $V_{CE} = 100 \text{ V}$	$I_B = 0$ $I_B = 0$ $I_B = 0$	TIPP110			1	mA
				TIPP111			1	
				TIPP112			1	
I_{EBO}	Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$				2	mA
h_{FE}	Forward current transfer ratio	$V_{CE} = 4 \text{ V}$	$I_C = 1 \text{ A}$	(see Notes 4 and 5)	1000			
		$V_{CE} = 4 \text{ V}$	$I_C = 2 \text{ A}$		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

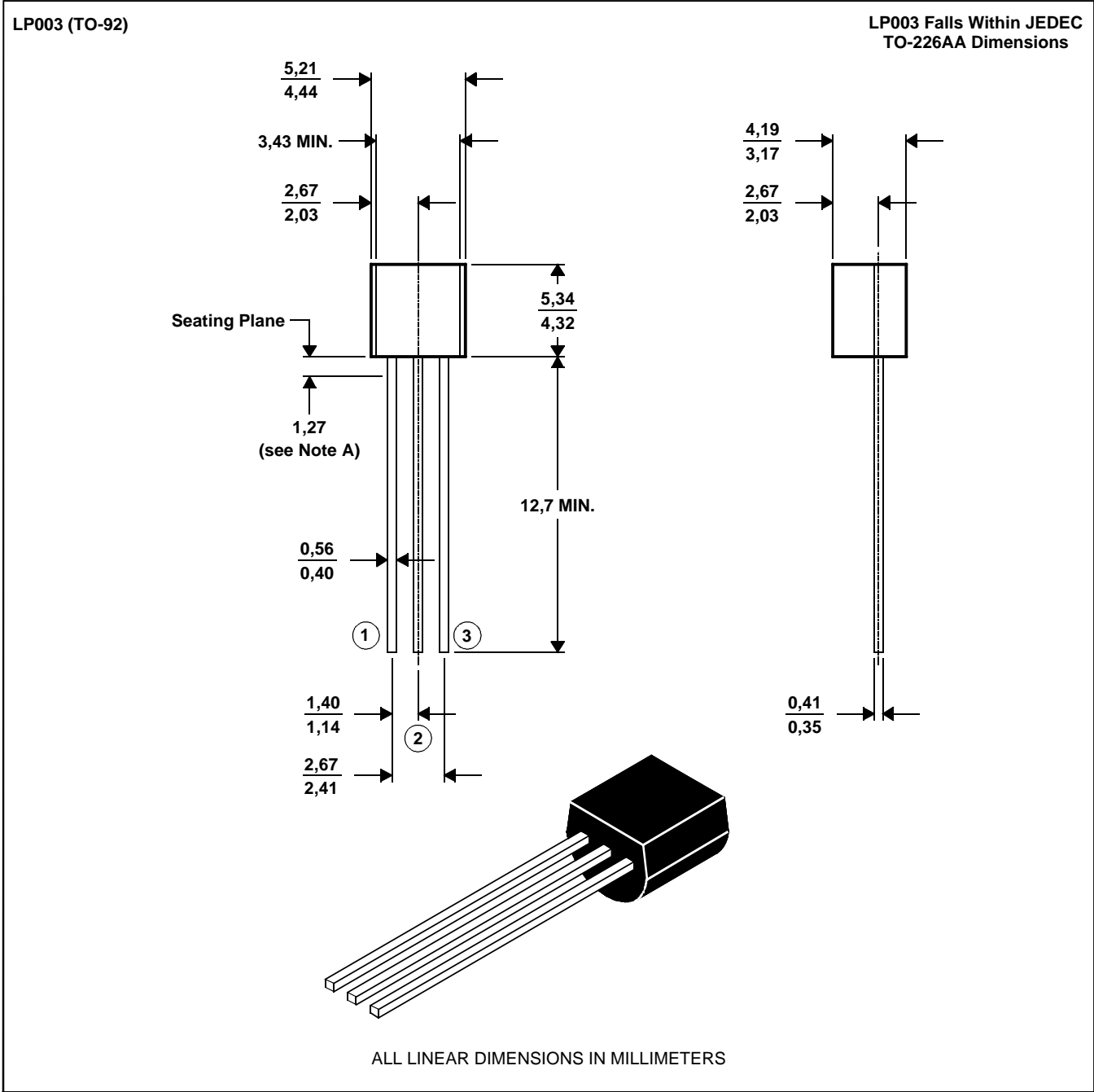
NOTES: 4. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

5. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts and located within 3.2 mm from device body.

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.



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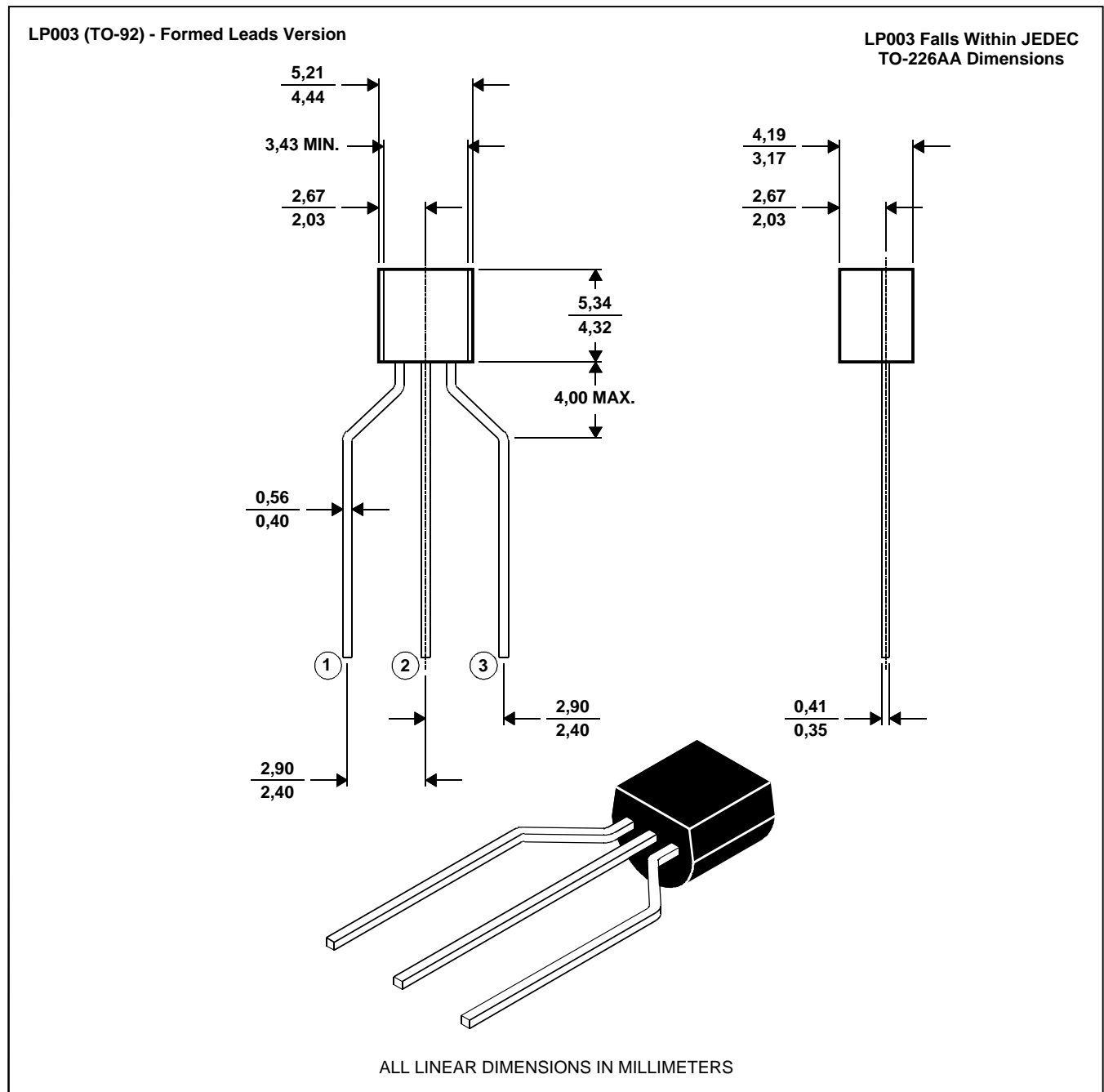
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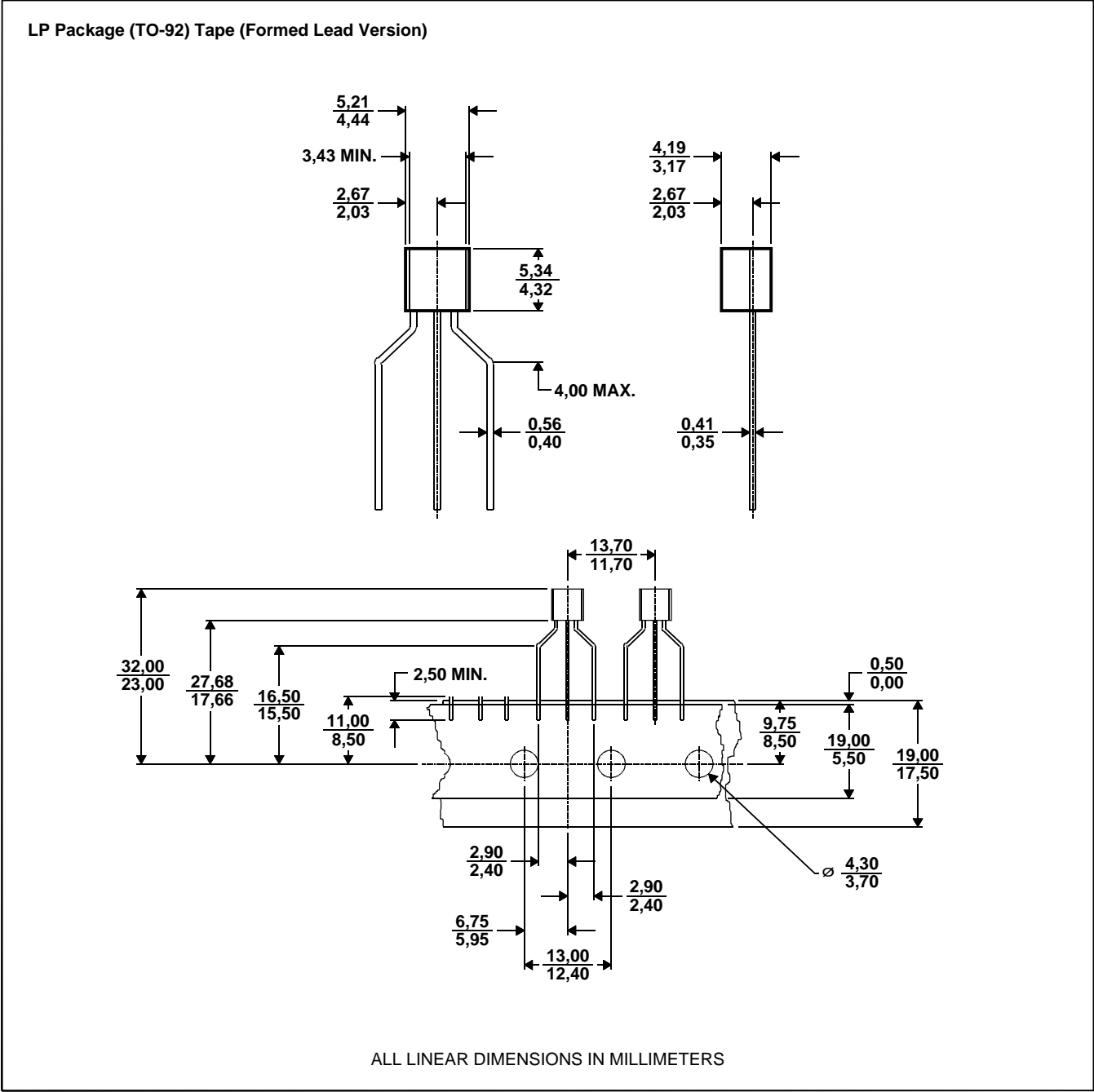
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MECHANICAL DATA

LPR
 tape dimensions



MDXXAS

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PRODUCT INFORMATION