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



LP PACKAGE

MDTRAB

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

RATING			VALUE	UNIT
	TIPP110		60	
Collector-base voltage (I <sub>E</sub> = 0)	TIPP111	$V_{CBO}$	80	V
	TIPP112		100	
	TIPP110		60	
Collector-emitter voltage (I <sub>B</sub> = 0)	TIPP111	V <sub>CEO</sub>	80	V
	TIPP112		100	
Emitter-base voltage			5	V
Continuous collector current			2	Α
Peak collector current (see Note 1)			4	Α
Continuous base current			50	mA
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)			0.8	W
Pulsed power dissipation (see Note 3)			20	W
Operating junction temperature range			-55 to +150	°C
Storage temperature range	T <sub>stg</sub>	-55 to +150	°C	
Lead temperature 3.2 mm from case for 10 seconds			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.  $V_{CE} = 20 \text{ V}$ ,  $I_{C} = 1 \text{ A}$ ,  $P_{W} = 10 \text{ ms}$ , duty cycle  $\leq 2\%$ .



## TIPP110, TIPP111, TIPP112 NPN SILICON POWER DARLINGTONS

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## electrical characteristics at 25°C case temperature

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT	
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage			TIPP110	60			
		$I_C = 10 \text{ mA}$	$I_B = 0$	TIPP111	80			V
		(see Note 4)		TIPP112	100			
I <sub>CEO</sub>	Collector-emitter cut-off current	V <sub>CE</sub> = 30 V	$V_{BE} = 0$	TIPP110			2	
		V <sub>CE</sub> = 40 V	$V_{BE} = 0$	TIPP111			2	mA
		V <sub>CE</sub> = 50 V	$V_{BE} = 0$	TIPP112			2	
I <sub>CBO</sub>	Collector-base cut-off current	V <sub>CE</sub> = 60 V	I <sub>B</sub> = 0	TIPP110			1	
		$V_{CE} = 80 V$	$I_B = 0$	TIPP111			1	mA
		V <sub>CE</sub> = 100 V	$I_B = 0$	TIPP112			1	
I <sub>EBO</sub>	Emitter cut-off	V <sub>EB</sub> = 5 V	I <sub>C</sub> = 0				2	mA
	current	AEB - 2 A						IIIA
h <sub>FE</sub>	Forward current	V <sub>CE</sub> = 4 V	I <sub>C</sub> = 1 A	(see Notes 4 and 5)	1000			
	transfer ratio	$V_{CE} = 4 V$	$I_C = 2 A$		500			
V <sub>CE(sat)</sub>	Collector-emitter	I <sub>B</sub> = 8 mA	I <sub>C</sub> = 2 A	(see Notes 4 and 5)			2.5	V
	saturation voltage	IB - OWK					2.0	v
V <sub>BE</sub>	Base-emitter	V <sub>CE</sub> = 4 V	I <sub>C</sub> = 2 A	(see Notes 4 and 5)			2.8	V
	voltage						2.0	•
V <sub>EC</sub>	Parallel diode	I <sub>E</sub> = 4 A	I <sub>B</sub> = 0	(see Notes 4 and 5)			3.5	V
	forward voltage						0.0	V

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

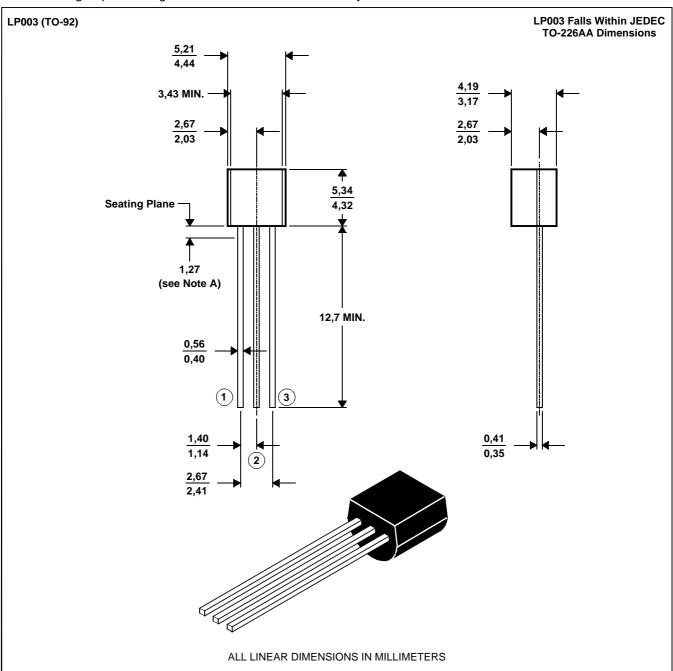
<sup>5.</sup> These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts and located within 3.2 mm from device body.

#### **MECHANICAL DATA**

## LP003 (TO-92)

#### 3-pin cylindical 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.

**MDXXAX** 



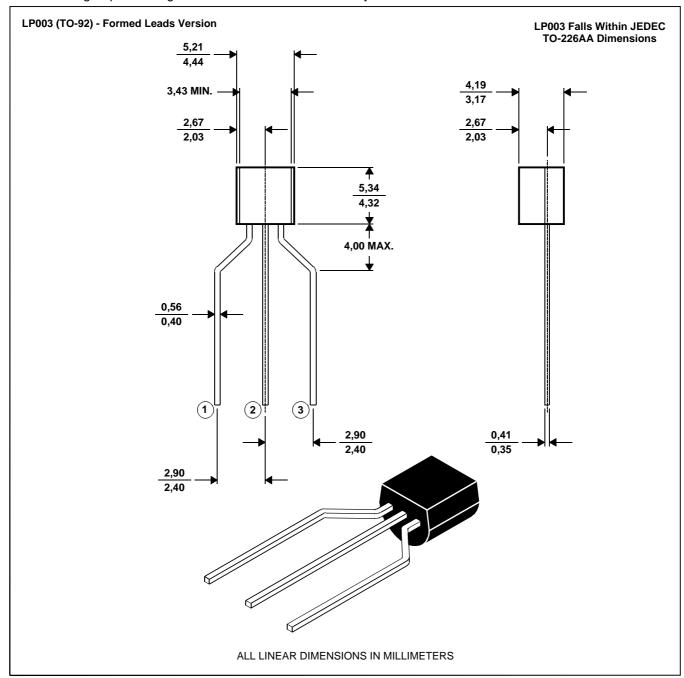
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#### **MECHANICAL DATA**

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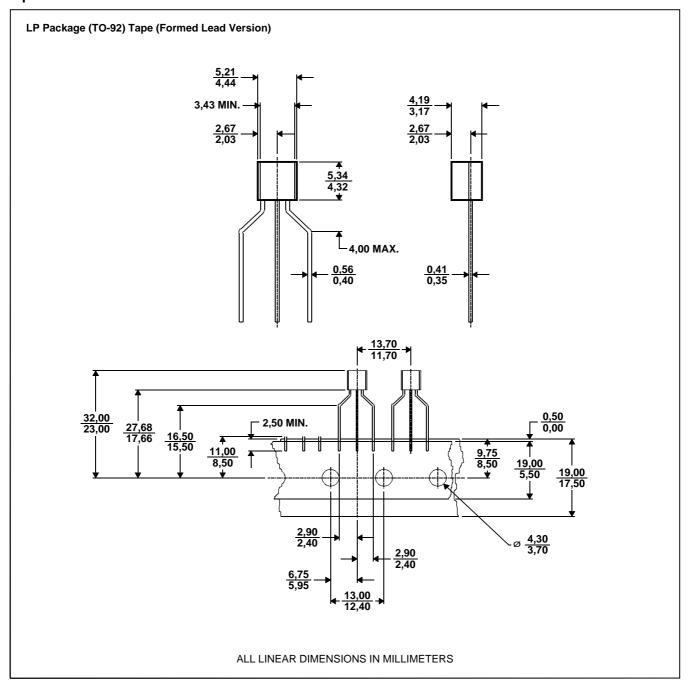


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#### PRODUCT INFORMATION

#### **MECHANICAL DATA**

LPR tape dimensions



**MDXXAS** 



# TIPP110, TIPP111, TIPP112 NPN SILICON POWER DARLINGTONS

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