



**THE DATASHEET OF  
JANTX2N5153**



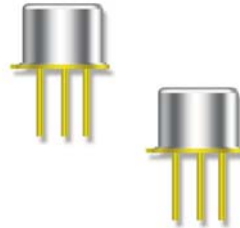
# PNP Power Silicon Transistor

## 2N5151, 2N5151L & 2N5153, 2N5153L



### Features

- Available in commercial, JAN, JANTX, JANTXV, JANS and JANSR 100K rads (Si) per MIL-PRF-19500/545
- TO-5 Package: 2N5151L, 2N5153L  
TO-39 (TO-205AD) Package: 2N5151, 2N5153



### Maximum Ratings ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CEO}$	80	Vdc
Collector - Base Voltage	$V_{CBO}$	100	Vdc
Emitter - Base Voltage	$V_{EBO}$	5.5	Vdc
Collector Current	$I_C$	2.0	Adc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$ @ $T_C = +25^\circ\text{C}$	$P_T$	1.0 10	W
Operating & Storage Temperature Range	$T_{op}, T_{stg}$	-65 to +200	$^\circ\text{C}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	10	$^\circ\text{C/W}$

### Electrical Characteristics ( $T_A = +25^\circ\text{C}$ unless otherwise noted)

OFF Characteristics	Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}, I_B = 0$	$V_{(BR)CEO}$	80	---	Vdc
Emitter - Base Cutoff Current $V_{EB} = 4.0 \text{ Vdc}, I_C = 0$ $V_{EB} = 5.5 \text{ Vdc}, I_C = 0$	$I_{EBO}$	---	1.0 1.0	$\mu\text{Adc}$ mAdc
Collector - Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}, V_{BE} = 0$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = 0$	$I_{CES}$	---	1.0 1.0	$\mu\text{Adc}$ mAdc
Collector - Emitter Cutoff Current $V_{CE} = 40 \text{ Vdc}, I_B = 0$	$I_{CEO}$	---	50	$\mu\text{Adc}$

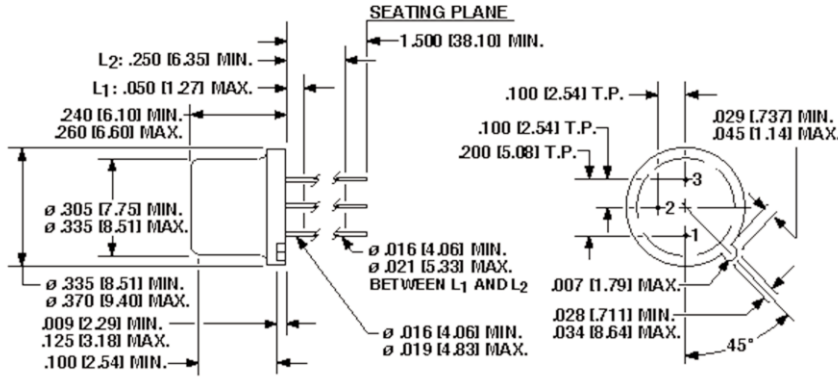


## Electrical Characteristics -con't

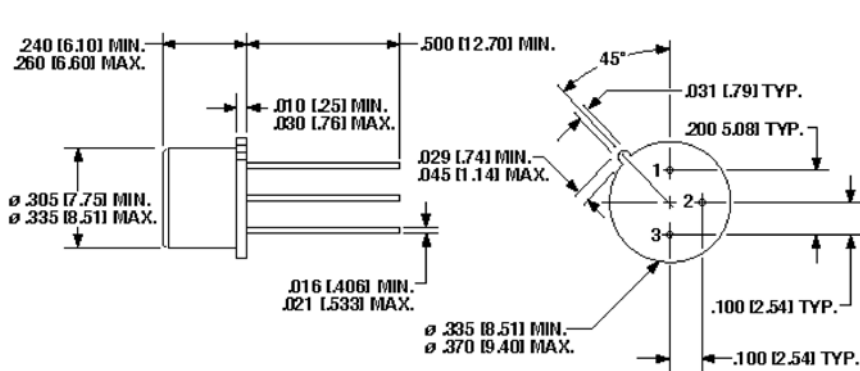
ON Characteristics		Symbol	Mimumum	Maximum	Units
Forward Current Transfer Ratio $I_C = 50 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}$	2N5151	H <sub>FE</sub>	20	---	
	2N5153		50	---	
$I_C = 2.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	2N5151		30	90	
	2N5153		70	200	
$I_C = 5.0 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	2N5151		20	---	
	2N5153		40	---	
Collector - Emitter Saturation Voltage $I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc}$ $I_C = 5.0 \text{ Adc}, I_B = 500 \text{ mAdc}$		V <sub>CE(sat)</sub>	---	0.75 1.5	Vdc
Emitter - Base Voltage Non-Saturation $I_C = 2.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$		V <sub>BE(ON)</sub>	---	1.45	Vdc
Emitter - Base Saturation Voltage $I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc}$ $I_C = 5.0 \text{ Adc}, I_B = 500 \text{ mAdc}$		V <sub>BE(sat)</sub>	---	1.45 2.2	Vdc
<b>DYNAMIC Characteristics</b>					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 500 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}, f = 10 \text{ MHz}$	2N5151 2N5153	h <sub>fe</sub>	6.0 7.0	---	
Small-signal short Circuit FOI Ward-Current Transfer Ratio $I_C = 100 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1 \text{ KHz}$	2N5151 2N5153	hfe	20 50	---	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$		C <sub>obo</sub>	---	250	pF
<b>SWITCHING Characteristics</b>					
Turn-On Time $I_C = 5.0 \text{ Adc}; I_{B1} = 500 \text{ mAdc}$ $R_L = 6 \Omega$ $V_{BE(OFF)} = 3.7 \text{ Vdc}$		t <sub>on</sub>	---	0.5	μs
Turn-off Time $I_C = 5.0 \text{ Adc}; I_{B1} = 500 \text{ mAdc}$ $I_{B2} = -500 \text{ mAdc}$ $R_L = 6 \Omega$ $V_{BE(OFF)} = 3.7 \text{ Vdc}$		t <sub>off</sub>	---	1.5	μs
Storage Time $I_C = 5.0 \text{ Adc}; I_{B1} = 500 \text{ mAdc}$ $I_{B2} = -500 \text{ mAdc}$ $R_L = 6 \Omega$		t <sub>s</sub>	---	1.4	μs
Fall Time $V_{BE(OFF)} = 3.7 \text{ Vdc}$		t <sub>f</sub>	---	0.5	μs
<b>SAFE OPERATING AREA</b>					
<b>DC Tests:</b>	T <sub>C</sub> = +25 °C, 1 Cycle, t <sub>p</sub> = 1.0 s				
<b>Test 1:</b>	V <sub>CE</sub> = 5.0 Vdc, I <sub>C</sub> = 2.0 Adc				
<b>Test 2:</b>	V <sub>CE</sub> = 32.0 Vdc, I <sub>C</sub> = 310 mAdc				
<b>Test 3:</b>	V <sub>CE</sub> = 80 Vdc, I <sub>C</sub> = 12.5 mAdc				

**Outline Drawing**

TO-5 Package: (2N5151L, 2N5153L)



TO-39 (TO-205AD) Package: (2N5151, 2N5153)



NOTE: Dimensions in Inches [mm]

**Aeroflex / Metelics, Inc.**

ISO 9001: 2008 certified companies

975 Stewart Drive,  
Sunnyvale, CA 94085  
Tel: (408) 737-8181  
Fax: (408) 733-7645

54 Grenier Field Road,  
Londonderry, NH 03053  
Tel: (603) 641-3800  
Fax: (603)-641-3500

Sales: 888-641-SEMI (7364)

**Hi-Rel Components**

9 Hampshire Street,  
Lawrence, MA 01840  
Tel: (603) 641-3800  
Fax: (978) 683-3264

[www.aeroflex.com/metelics-hirelcomponents](http://www.aeroflex.com/metelics-hirelcomponents)

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