

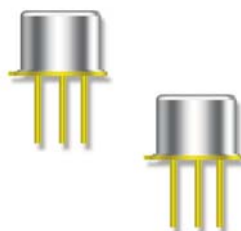
NPN Power Silicon Transistor

2N5152, 2N5152L & 2N5154, 2N5154L



Features

- Available in commercial, JAN, JANTX, JANTXV, JANS and JANSR 100K rads (Si) per MIL-PRF-19500/544
- TO-5 Package: 2N5152L, 2N5154L
TO-39 (TO-205AD) Package: 2N5152, 2N5154



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	μAdc 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	μAdc mAdc
Collector - Emitter Cutoff Current $V_{CE} = 40 \text{ Vdc}, I_B = 0$	I_{CEO}	---	50	μAdc

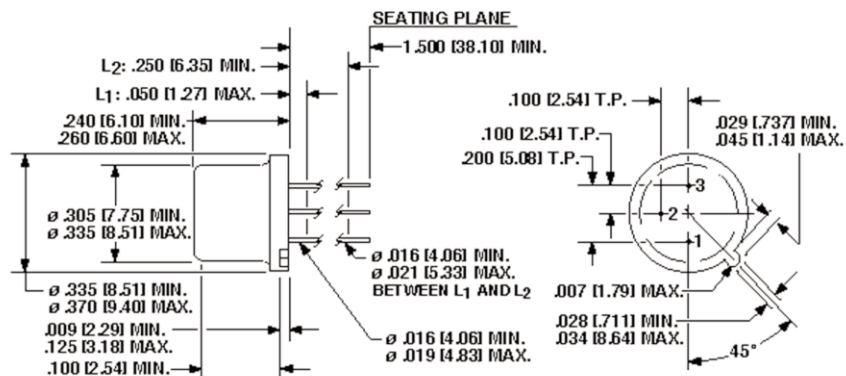


Electrical Characteristics -con't

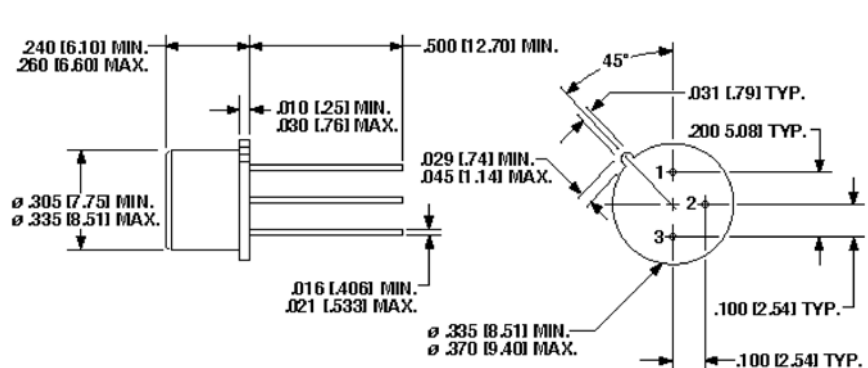
ON Characteristics			Symbol	Mimimum	Maximum	Units
Forward Current Transfer Ratio $I_C = 50 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}$ $I_C = 2.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	2N5152	H_{FE}	20	---		
	2N5154		50	---		
	2N5152		30	90		
	2N5154		70	200		
	2N5152		20	---		
	2N5154		40	---		
Collector - Emitter Saturation Voltage $I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc}$ $I_C = 5.0 \text{ Adc}, I_B = 500 \text{ mAdc}$			$V_{CE(sat)}$	---	0.75 1.5	Vdc
Emitter - Base Voltage Non-Saturation $I_C = 2.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$			$V_{BE(ON)}$	---	1.45	Vdc
Emitter - Base Saturation Voltage $I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc}$ $I_C = 5.0 \text{ Adc}, I_B = 500 \text{ mAdc}$			$V_{BE(sat)}$	---	1.45 2.2	Vdc
DYNAMIC Characteristics						
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 500 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}, f = 10 \text{ MHz}$			$ h_{fe} $	6 7	---	
2N5152 2N5154				---		
Small-signal short Circuit FOI Ward-Current Transfer Ratio $I_C = 100 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1\text{KHz}$			h_{fe}	20 50	---	
2N5152 2N5154				---		
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$			C_{obo}	---	250	pF
SWITCHING Characteristics						
Turn-On Time $I_C = 5.0 \text{ Adc}; I_{B1} = 500 \text{ mAdc}$			t_{on}	---	0.5	μs
Turn-off Time $R_L = 6 \Omega$			t_{off}	---	1.5	μs
Storage Time $I_{B2} = -500 \text{ mAdc}$			t_s	---	1.4	μs
Fall Time $V_{BE(OFF)} = 3.7 \text{ Vdc}$			t_f	---	0.5	μs
SAFE OPERATING AREA						
DC Tests:			$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$			
Test 1:			$V_{CE} = 5.0 \text{ Vdc}, I_C = 2.0 \text{ Adc}$			
Test 2:			$V_{CE} = 32.0 \text{ Vdc}, I_C = 310 \text{ mAdc}$			
Test 3:			$V_{CE} = 80 \text{ Vdc}, I_C = 12.5 \text{ mAdc}$			

Outline Drawing

TO-5 Package: (2N5152L, 2N5154L)



TO-39 (TO-205AD) Package: (2N5152, 2N5154)



NOTE: Dimensions in Inches [mm]

Aeroflex / Metelics, Inc.

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

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

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

ISO 9001: 2008 certified companies

www.aeroflex.com/metelics metelics-sales@aeroflex.com

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