2N5152, 2N5152L, 2N5154, 2N5154L



NPN Power Silicon Transistor

Rev. V1

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



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.	
Off Characteristics						
Collector - Emitter Breakdown Voltage	I _C = 100 mAdc, I _B = 0	V _{(BR)CEO}	Vdc	80	_	
Emitter - Base Cutoff Current	$V_{EB} = 4.0 \text{ Vdc}, I_{C} = 0$ $V_{EB} = 5.5 \text{ Vdc}, I_{C} = 0$	I _{EBO}	µAdc mAdc	_	1.0 1.0	
Collector - Emitter Cutoff Current	$V_{CE} = 60 \text{ Vdc}, V_{BE} = 0$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = 0$	I _{CES}	μAdc mAdc	_	1.0 1.0	
Collector - Emitter Cutoff Current	$V_{CE} = 40 \text{ Vdc}, I_B = 0$	I _{CEO}	μAdc		50	
On Characteristics						
Forward Current Transfer Ratio	I_C = 50 mAdc, V_{CE} = 5.0 Vdc 2N5152 2N5154	H _{FE} -		20 50	_	
	I_C = 2.5 Adc, V_{CE} = 5.0 Vdc 2N5152 2N5154		-	30 70	90 200	
	I_C = 5.0 Adc, V_{CE} = 5.0 Vdc 2N5152 2N5154			20 40	_	
Collector - Emitter Saturation Voltage	I_C = 2.5 Adc, I_B = 250 mAdc I_C = 5.0 Adc, I_B = 500 mAdc	$V_{\text{CE(SAT)}}$	Vdc	_	0.75 1.50	
Emitter - Base Voltage Non-Saturation	I_C = 2.5 Adc, V_{CE} = 5 Vdc	V _{BE(ON)}	Vdc	_	1.45	
Emitter - Base Saturation Voltage	I_C = 2.5 Adc, I_B = 250 mAdc I_C = 5.0 Adc, I_B = 500 mAdc	V _{BE(SAT)}	Vdc		1.45 2.20	
Dynamic Characteristics						
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 500 mAdc, V_{CE} = 5.0 Vdc, f = 10 mHz 2N5152 2N5154	H _{FE}	-	6 7	_	
Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 100 mAdc, V_{CE} = 5.0 Vdc, f = 10 mHz 2N5152 2N5154	H _{FE}	-	20 50	_	
Output Capacitance	V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz	Сово	pF	_	250	

(Continued next page)

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Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Switching Characteristics					
Turn-On Time	$I_C = 5.0 \text{ Adc}; I_{B1} = 500 \text{ mAdc}$	T _{ON}	μs	_	0.5
Turn-Off Time	R _L = 6 Ω	T _{OFF}	μs	_	1.5
Storage Time	I _{B2} = -500 mAdc	Ts	μs	_	1.4
Fall Time	V _{BE(OFF)} = 3.7 Vdc	T _f	μs	_	0.5

Safe Operating Area

 $\begin{array}{lll} \text{DC Tests:} & T_{\text{C}} = +25^{\circ}\text{C}, \text{ I Cycle, t} = 1.0 \text{ s} \\ \text{Test 1:} & V_{\text{CE}} = 5.0 \text{ Vdc, I}_{\text{C}} = 2.0 \text{ Adc} \\ \text{Test 2:} & V_{\text{CE}} = 32 \text{ Vdc, I}_{\text{C}} = 310 \text{ mAdc} \\ \text{Test 3:} & V_{\text{CE}} = 80 \text{ Vdc, I}_{\text{C}} = 12.5 \text{ mAdc} \\ \end{array}$

Absolute Maximum Ratings

Ratings	Symbol	Value
Collector - Emitter Voltage	V _{CEO}	80 Vdc
Collector - Base Voltage	V _{CBO}	100 Vdc
Emitter - Base Voltage	V _{EBO}	5.5 Vdc
Collector Current	Ic	2 Adc
Total Power Dissipation @ $T_A = 25^{\circ}C$ @ $T_C = 25^{\circ}C$	P _T	1.0 W 100 W
Operating & Storage Temperature Range	T _{OP} , T _{STG}	-65°C to +200°C

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{ heta JC}$	10°C/W

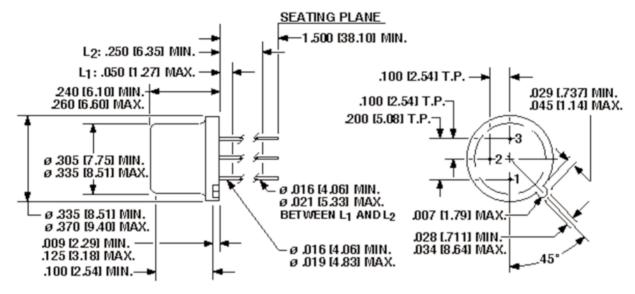


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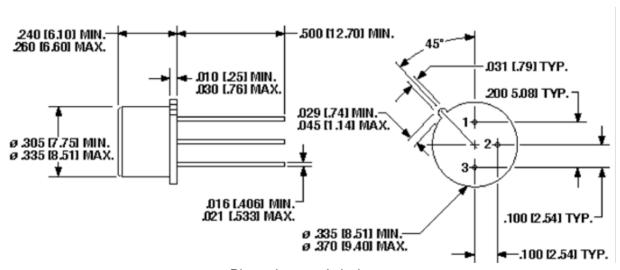
Outline Drawings

TO-5 Package (2N5152L, 2N5154L)



Dimensions are in inches.

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



Dimensions are in inches.

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