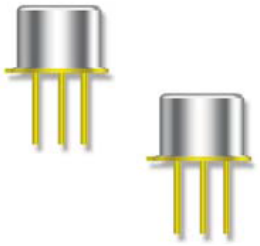
2N5152, 2N5152L, 2N5154, 2N5154L

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 Vdc, I_C = 0 V_{EB} = 5.5 Vdc, I_C = 0	I_{EBO}	µAdc mAdc	— —	1.0 1.0
Collector - Emitter Cutoff Current	V_{CE} = 60 Vdc, V_{BE} = 0 V_{CE} = 100 Vdc, V_{BE} = 0	I_{CES}	µAdc mAdc	— —	1.0 1.0
Collector - Emitter Cutoff Current	V_{CE} = 40 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 I_C = 2.5 Adc, V_{CE} = 5.0 Vdc 2N5152 2N5154 I_C = 5.0 Adc, V_{CE} = 5.0 Vdc 2N5152 2N5154	H_{FE}	-	 20 50 30 70 20 40	 — — 90 200 — —
Collector - Emitter Saturation Voltage	I_C = 2.5 Adc, I_B = 250 mAdc I_C = 5.0 Adc, I_B = 500 mAdc	$V_{CE(SAT)}$	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	$\lvert H_{FE} \rvert$	-	 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	C_{OBO}	pF	—	250

(Continued next page)

NPN Power Silicon Transistor

Rev. V1

Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Switching Characteristics					
Turn-On Time	I_C = 5.0 Adc; I_{B1} = 500 mAdc	T_{ON}	µs	—	0.5
Turn-Off Time	R_L = 6 Ω	T_{OFF}	µs	—	1.5
Storage Time	I_{B2} = -500 mAdc	T_S	µs	—	1.4
Fall Time	$V_{BE(OFF)}$ = 3.7 Vdc	T_f	µs	—	0.5
Safe Operating Area					
DC Tests: Test 1: Test 2: Test 3:	T_C = +25°C, I Cycle, t = 1.0 s V_{CE} = 5.0 Vdc, I_C = 2.0 Adc V_{CE} = 32 Vdc, I_C = 310 mAdc V_{CE} = 80 Vdc, I_C = 12.5 mAdc				

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	I_C	2 Adc
Total Power Dissipation @ T_A = 25°C @ T_C = 25°C	P_T	 1.0 W 100 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to +200°C

Thermal Characteristics

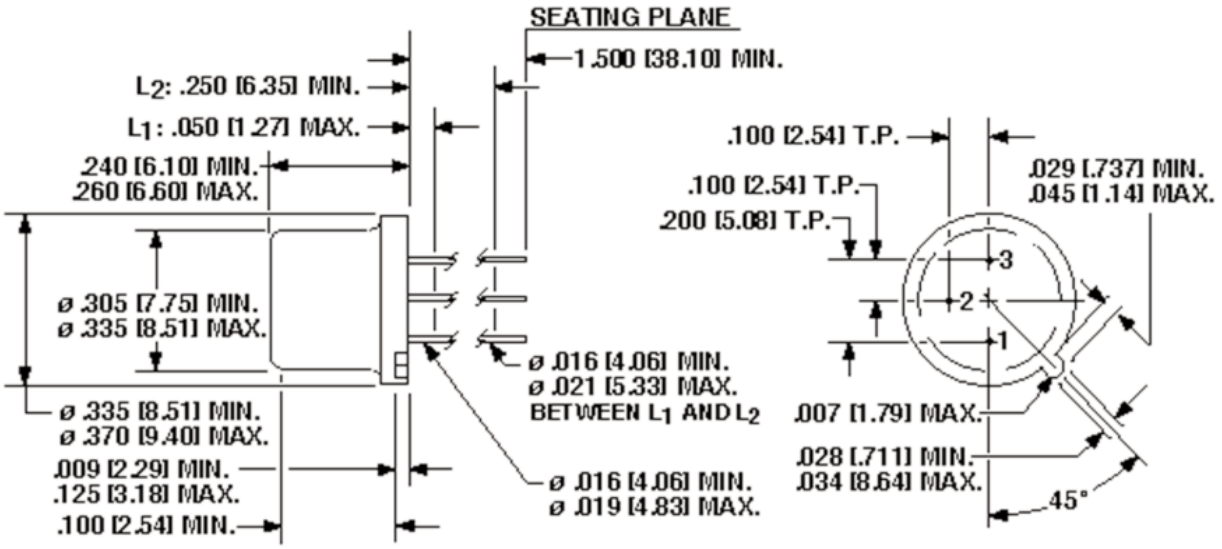
Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	10°C/W

NPN Power Silicon Transistor

Rev. V1

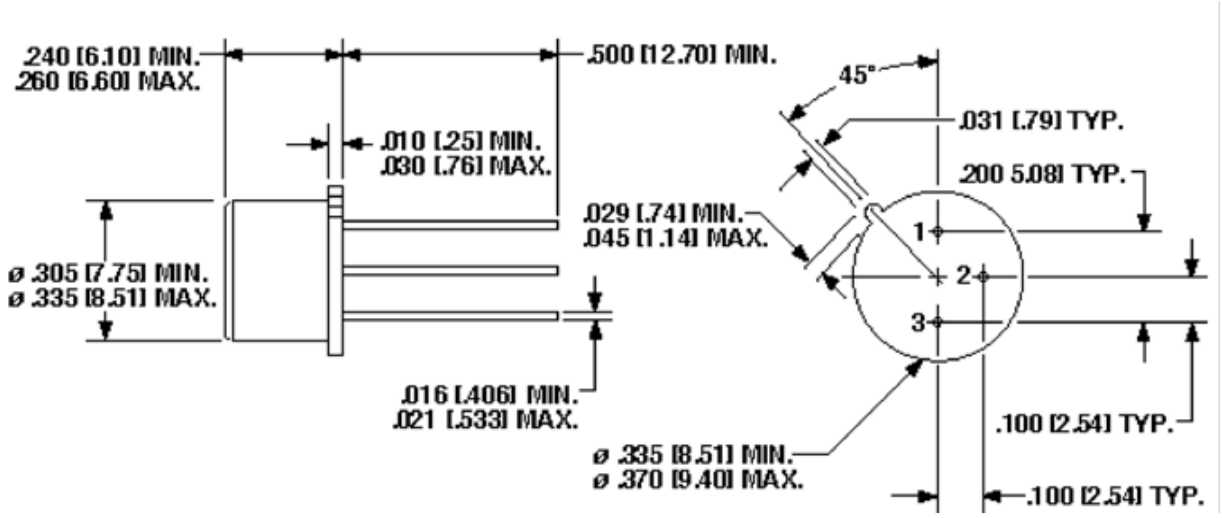
Outline Drawings

TO-5 Package (2N5152L, 2N5154L)



Dimensions are in inches.

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



Dimensions are in inches.