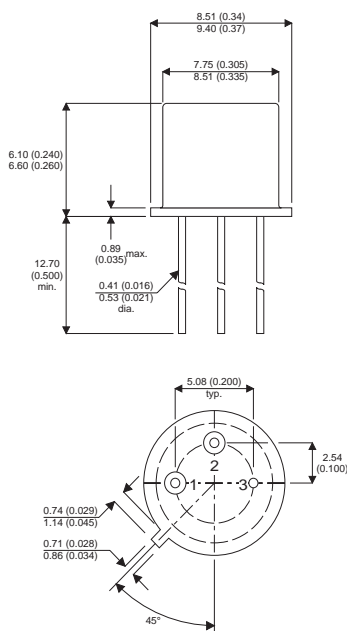


MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AD)

Underside View

Pin 1 = Base Pin 2 = Collector Pin = 3 – Emitter

HIGH SPEED MEDIUM VOLTAGE SWITCH

DESCRIPTION

The 2N5154XX is a silicon expitaxial planar NPN transistor in a TO-39 metal case for use in Switching and Linear applications.

ABSOLUTE MAXIMUM RATINGS $T_{CASE} = 25^{\circ}C$ unless otherwise stated

V_{CBO}	Collector – Base Voltage ($I_E = 0$)	100V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	80V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	6V
I_C	Continuous Collector Current	5A
$I_{C(PK)}$	Peak Collector Current	10A
I_B	Base Current	1A
P_{tot}	Total Dissipation at $T_{amb} \leq 25^{\circ}C$	1W
	$T_{case} \leq 50^{\circ}C$	10W
	$T_{case} \leq 100^{\circ}C$	6.7W
T_{stg}	Operating and Storage Temperature Range	-65 to +200°C
T_j	Junction temperature	200°C

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ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES} Collector Cut Off Current	$V_{\text{CE}} = 60\text{V}$ $V_{\text{BE}} = 0$			1	μA
	$V_{\text{CE}} = 100\text{V}$ $V_{\text{BE}} = 0$			1	mA
I_{CEV} Collector Cut Off Current	$V_{\text{CE}} = 60\text{V}$ $T_{\text{case}} = 150^{\circ}\text{C}$ $V_{\text{BE}} = -2\text{V}$			500	μA
I_{CEO} Collector Cut Off Current	$V_{\text{CE}} = 40\text{V}$ $I_{\text{B}} = 0$			50	
I_{EBO} Emitter Cut Off Current	$V_{\text{EB}} = 4\text{V}$ $I_{\text{C}} = 0$			1	μA
	$V_{\text{EB}} = 5.5\text{V}$ $I_{\text{C}} = 0$			1	mA
$V_{\text{CEO(SUS)}}^*$ Collector Emitter Saturation Voltage	$I_{\text{C}} = 100\text{mA}$ $I_{\text{B}} = 0$	80			V
$V_{\text{CE(sat)}}^*$ Collector Emitter Saturation Voltage	$I_{\text{C}} = 2.5\text{A}$ $I_{\text{B}} = 250\text{mA}$			0.75	
	$I_{\text{C}} = 5\text{A}$ $I_{\text{B}} = 500\text{mA}$			1.5	
$V_{\text{BE(sat)}}^*$ Base Emitter Saturation Voltage	$I_{\text{C}} = 2.5\text{A}$ $I_{\text{B}} = 250\text{mA}$			1.45	
	$I_{\text{C}} = 5\text{A}$ $I_{\text{B}} = 500\text{mA}$			2.2	
V_{BE}^* Base Emitter Voltage	$I_{\text{C}} = 2.5\text{A}$ $V_{\text{CE}} = 5\text{V}$			1.45	
h_{FE}^* DC Current Gain	$I_{\text{C}} = 50\text{mA}$ $V_{\text{CE}} = 5\text{V}$	50			—
	$I_{\text{C}} = 2.5\text{A}$ $V_{\text{CE}} = 5\text{V}$	60		200	
	$T_{\text{C}} = -55^{\circ}\text{C}$	25			
	$I_{\text{C}} = 5\text{A}$ $V_{\text{CE}} = 5\text{V}$	30			
C_{CBO} Collector Base Capacitance	$I_{\text{E}} = 0$ $V_{\text{CB}} = 10\text{V}$ $f = 1\text{MHz}$			250	pF
h_{FE} Small Signal Current Gain	$I_{\text{C}} = 0.1\text{A}$ $V_{\text{CE}} = 5\text{V}$ $f = 1\text{KHz}$	50			—
	$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CE}} = 5\text{V}$ $f = 20\text{MHz}$	3.5			
t_{on} Turn On Time	$I_{\text{C}} = 5\text{A}$ $V_{\text{CC}} = 30\text{V}$ $I_{\text{B1}} = 0.5\text{A}$		0.5		μs
t_{off} Turn Off Time	$I_{\text{C}} = 5\text{A}$ $V_{\text{CC}} = 30\text{V}$ $I_{\text{B1}} = -I_{\text{B2}} = 0.5\text{A}$		1.3		

* Pulse test $t_p = 300\mu\text{s}$, $\delta < 2\%$

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