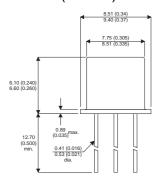


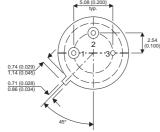


MECHANICAL DATA

Dimensions in mm (inches)



HIGH SPEED MEDIUM VOLTAGE SWITCH



TO-39 (TO-205AD)

Underside View

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

DESCRIPTION

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

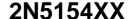
ABSOLUTE MAXIMUM RATINGS T_{CASE} = 25°c unless otherwise stated

$\overline{V_{CBO}}$	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} ≤ 25°C	1W		
	T _{case} ≤ 50°C	10W		
	T _{case} ≤ 100°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_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions		Min.	Тур.	Max.	Unit	
Collector Cut Off Current	V _{CE} = 60V	V _{BE} = 0			1	μA	
	V _{CE} = 100V	$V_{BE} = 0$			1	mA	
Collector Cut Off Current	V _{CE} = 60V	T _{case} = 150°C	5		500		
	$V_{BE} = -2V$				300	μA	
Collector Cut Off Current	V _{CE} = 40V	I _B = 0			50		
Emitter Cut Off Current	V _{EB} = 4V	$I_C = 0$			1	μA	
	$V_{EB} = 5.5V$	$I_C = 0$			1	mA	
Collector Emitter Saturation Voltage	$I_C = 100 \text{mA}$	$I_B = 0$	80			- V	
Collector Emitter Saturation Voltage	$I_{\rm C} = 2.5 A$	$I_B = 250 \text{mA}$			0.75		
	$I_C = 5A$	$I_B = 500 \text{mA}$			1.5		
Base Emitter Saturation Voltage	$I_{\rm C} = 2.5 A$	$I_B = 250 \text{mA}$			1.45		
	I _C = 5A	$I_B = 500 \text{mA}$			2.2		
Base Emitter Voltage	I _C = 2.5A	V _{CE} = 5V			1.45		
	$I_C = 50mA$	V _{CE} = 5V	50				
DC Current Gain	I _C = 2.5A	V _{CE} = 5V	60		200		
		$T_C = -55^{\circ}C$	25] —	
	I _C = 5A	$V_{CE} = 5V$	30				
Collector Base Capacitance	I _E = 0	V _{CB} = 10V			250	pF	
	f = 1MHz						
Small Signal Current Gain	$I_{C} = 0.1A$	$V_{CE} = 5V$	50				
	f = 1KHz						
	$I_{\rm C} = 0.5A$	V _{CE} = 5v	3.5				
	f = 20MHz						
Turn On Time	I _C = 5A	$V_{CC} = 30v$		0.5			
	$I_{B1} = 0.5A$			0.5		μs	
Turn Off Time	I _C = 5A	V _{CC} = 30V		1 2		μο	
	$I_{B1} = -I_{B2} = 0.5$	۹		1.5			
	Collector Cut Off Current Collector Cut Off Current Emitter Cut Off Current Collector Emitter Saturation Voltage Collector Emitter Saturation Voltage Base Emitter Saturation Voltage Base Emitter Voltage DC Current Gain Collector Base Capacitance Small Signal Current Gain	$ \begin{array}{c} \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 60 \text{V} \\ V_{\text{CE}} = 100 \text{V} \\ \end{array} \\ \begin{array}{c} V_{\text{CE}} = 60 \text{V} \\ V_{\text{BE}} = -2 \text{V} \end{array} \\ \begin{array}{c} \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 60 \text{V} \\ V_{\text{BE}} = -2 \text{V} \end{array} \\ \begin{array}{c} \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 40 \text{V} \\ \end{array} \\ \begin{array}{c} V_{\text{EB}} = 4 \text{V} \\ \end{array} \\ \begin{array}{c} V_{\text{EB}} = 5.5 \text{V} \end{array} \\ \begin{array}{c} \text{Collector Emitter Saturation Voltage} & \begin{array}{c} I_{\text{C}} = 2.5 \text{A} \\ I_{\text{C}} = 5.5 \text{A} \end{array} \\ \begin{array}{c} I_{\text{C}} = 2.5 \text{A} \\ \end{array} \\ \begin{array}{c} I_{\text{C}} = 5.5 \text{A} \end{array} \\ \begin{array}{c} I_{\text{C}} = 0.1 \text{A} \\ f = 1 \text{MHz} \end{array} \\ \begin{array}{c} I_{\text{C}} = 0.5 \text{A} \\ f = 20 \text{MHz} \end{array} \\ \begin{array}{c} I_{\text{C}} = 5.5 \text{A} \end{array} \\ \begin{array}{c} I_{\text{C}} = 5.5 $	$ \begin{array}{c} \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 60V & V_{\text{BE}} = 0 \\ \hline V_{\text{CE}} = 100V & V_{\text{BE}} = 0 \\ \hline \\ \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 60V & T_{\text{case}} = 150^{\circ}\text{C} \\ \hline V_{\text{BE}} = -2V & \\ \hline \\ \text{Collector Cut Off Current} & \begin{array}{c} V_{\text{CE}} = 40V & I_{\text{B}} = 0 \\ \hline V_{\text{EB}} = 4V & I_{\text{C}} = 0 \\ \hline V_{\text{EB}} = 5.5V & I_{\text{C}} = 0 \\ \hline \\ \text{Collector Emitter Saturation Voltage} & I_{\text{C}} = 100\text{mA} & I_{\text{B}} = 0 \\ \hline \\ \text{Collector Emitter Saturation Voltage} & I_{\text{C}} = 2.5A & I_{\text{B}} = 250\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{B}} = 500\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{B}} = 500\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{B}} = 500\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{B}} = 500\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{B}} = 500\text{mA} \\ \hline \\ I_{\text{C}} = 5A & I_{\text{C}} = 5V \\ \hline \\ I_{\text{C}} = 2.5A & V_{\text{CE}} = 5V \\ \hline \\ I_{\text{C}} = 2.5A & V_{\text{CE}} = 5V \\ \hline \\ I_{\text{C}} = 2.5A & V_{\text{CE}} = 5V \\ \hline \\ I_{\text{C}} = 2.5A & V_{\text{CE}} = 5V \\ \hline \\ I_{\text{C}} = 5A & V_{\text{CE}} = 5V \\ \hline \\ \text{Collector Base Capacitance} & I_{\text{E}} = 0 & V_{\text{CB}} = 10V \\ f = 1\text{MHz} \\ \hline \\ \text{Small Signal Current Gain} & I_{\text{C}} = 0.1A & V_{\text{CE}} = 5V \\ \hline \\ f = 1\text{KHz} & I_{\text{C}} = 0.5A & V_{\text{CE}} = 5V \\ \hline \\ \text{Turn On Time} & I_{\text{C}} = 5A & V_{\text{CC}} = 30V \\ \hline \\ I_{\text{B}} = 0.5A & V_{\text{CC}} = 30V \\ \hline \end{array}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	

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

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