

**SILICON NPN TRANSISTOR**

- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR

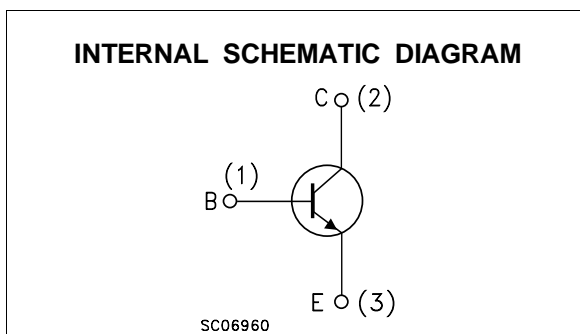
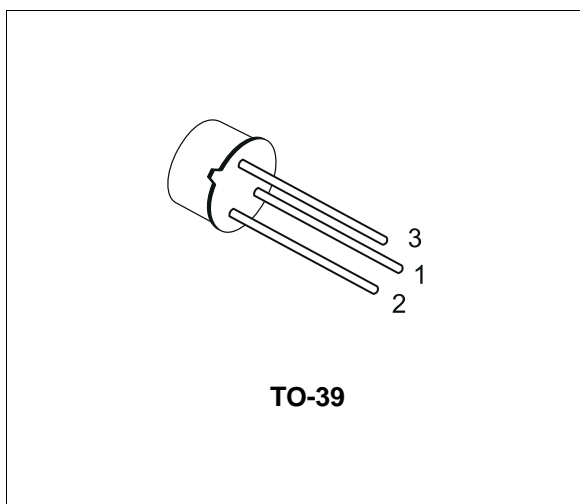
**APPLICATIONS**

- GENERAL PURPOSE SWITCHING

**DESCRIPTION**

The 2N5154 is a silicon epitaxial planar NPN transistors in Jedec TO-39 metal case intended for use in switching applications.

The complementary PNP type is the 2N5153.



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	100	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	80	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	5	A
$I_{CM}$	Collector Peak Current	10	A
$I_B$	Base Current	1	A
$P_{tot}$	Total Dissipation at $T_c \leq 50\text{ }^\circ\text{C}$	10	W
$P_{tot}$	Total Dissipation at $T_c \leq 100\text{ }^\circ\text{C}$	6.7	W
$P_{tot}$	Total Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	1	W
$T_{stg}$	Storage Temperature	-65 to 200	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	200	$^\circ\text{C}$

## 2N5154

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	15	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	175	°C/W

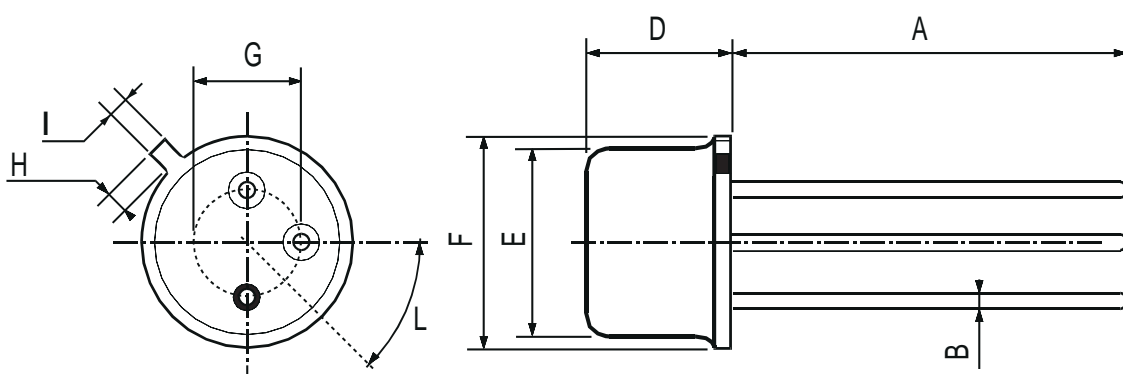
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = 60 V V <sub>CE</sub> = 100 V			1 1	μA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 40 V			50	μA
I <sub>CEV</sub>	Collector Cut-off Current (V <sub>BE</sub> = -2V)	V <sub>CE</sub> = 60 V T <sub>C</sub> = 150 °C			500	μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V V <sub>EB</sub> = 6 V			1 1	μA mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 100 mA	80			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2.5 A I <sub>B</sub> = 250 mA I <sub>C</sub> = 5 A I <sub>B</sub> = 500 mA			0.75 1.5	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2.5 A I <sub>B</sub> = 250 mA I <sub>C</sub> = 5 A I <sub>B</sub> = 500 mA			1.45 2.2	V V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 2.5 A V <sub>CE</sub> = 5 V			1.45	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 5 V I <sub>C</sub> = 2.5 A V <sub>CE</sub> = 5 V I <sub>C</sub> = 5 A V <sub>CE</sub> = 5 V I <sub>C</sub> = 2.5 A V <sub>CE</sub> = 5 V T <sub>C</sub> = -55 °C	50 70 40 35		200	
h <sub>FE</sub>	Small Signal Current Gain	I <sub>C</sub> = 0.1 A V <sub>CE</sub> = 5 V f = 1KHz I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 5 V f = 20MHz	50 3.5			
C <sub>CB0</sub>	Collector-Base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 10 V f = 1MHz			250	pF
t <sub>on</sub>	Turn on Time	I <sub>C</sub> = 5 A V <sub>CC</sub> = 30 V I <sub>B1</sub> = 0.5 A		0.5		μs
t <sub>off</sub>	Turn off Time	I <sub>C</sub> = 5 A V <sub>CC</sub> = 30 V I <sub>B1</sub> = -I <sub>B2</sub> = 0.5A		1.3		μs

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

## TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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