

SILICON NPN TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR

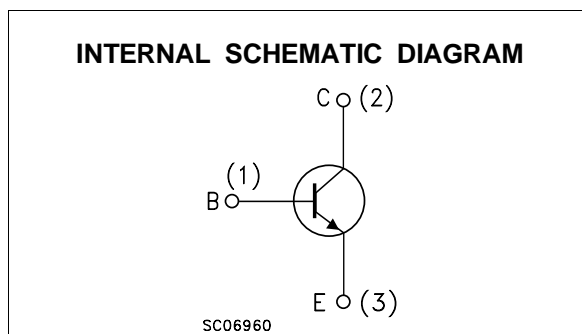
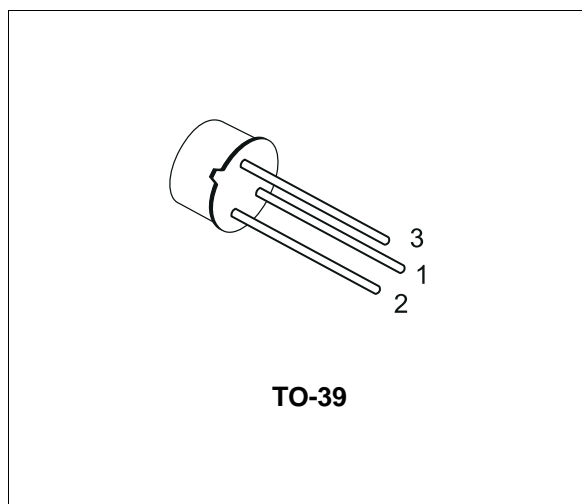
APPLICATIONS

- 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 _{thj-case}	Thermal Resistance Junction-case	Max	15	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	175	°C/W

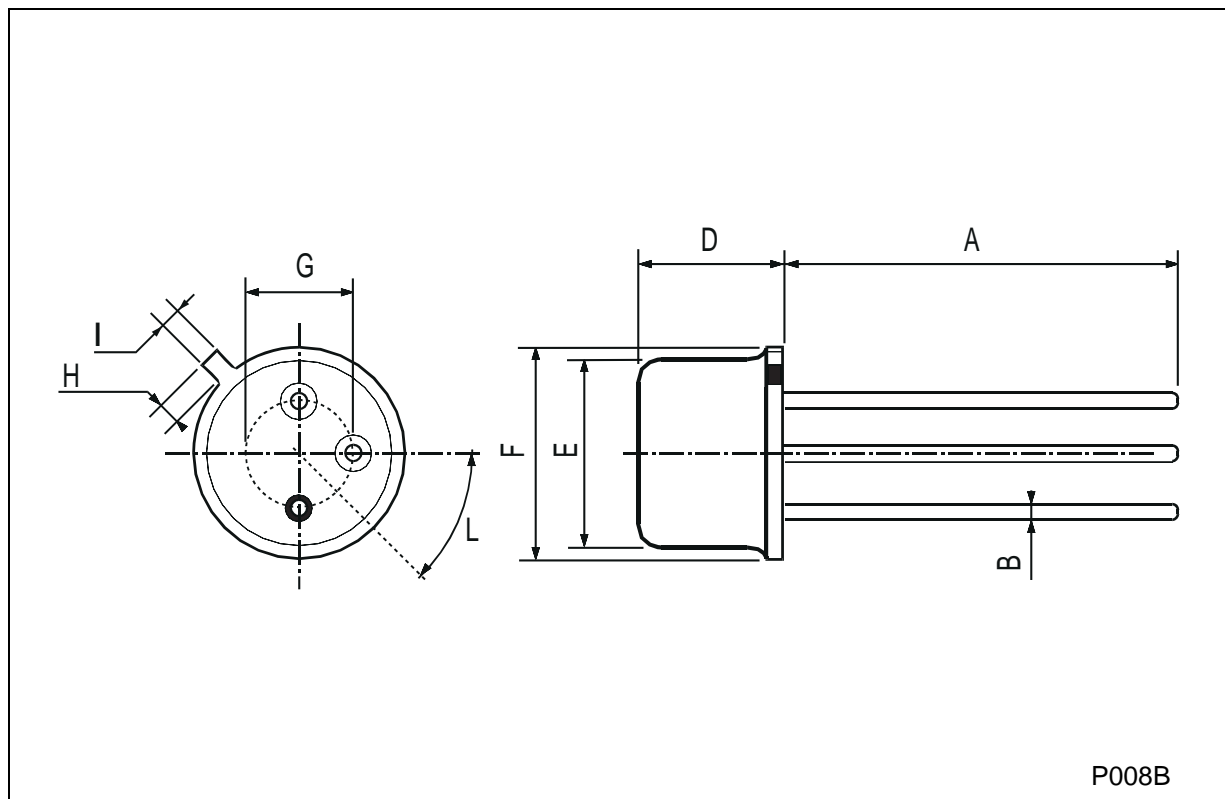
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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