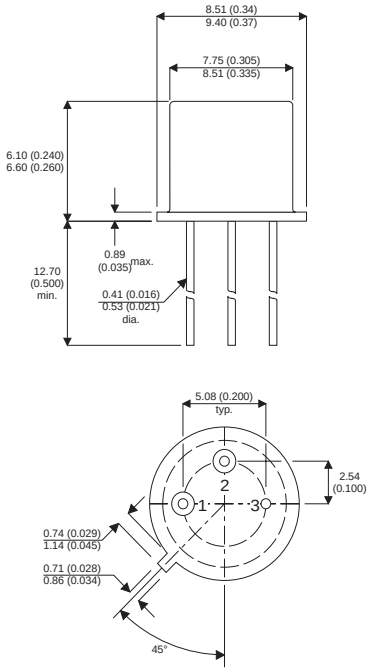
2N5152
2N5154

MECHANICAL DATA
Dimensions in mm (inches)



TO-39 (TO-205AD)

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

HIGH SPEED MEDIUM VOLTAGE SWITCHES

DESCRIPTION

The 2N5152 and the 2N5154 are silicon expitaxial planar NPN transistors in jedec TO-39 metal case intended for use in switching applications.

The complementary PNP types are the 2N5151 and 2N5153 respectively

ABSOLUTE MAXIMUM RATINGS

	(T_{CASE} = 25°C unless otherwise stated)	2N5152	2N5154
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	

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Semelab plc. Telephone +44(0)1455) 556565. Fax +44(0)1455) 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 3072
Issue 3

2N5152
2N5154

ELECTRICAL CHARACTERISTICS FOR 2N5152 (T_{case} = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut Off Current	V_{CE} = 60V	V_{BE} = 0			1	µA
		V_{CE} = 100V	V_{BE} = 0			1	mA
I_{CEV}	Collector Cut Off Current	V_{CE} = 60V V_{BE} =- 2V	T_{case} = 150°C			500	µA
I_{CEO}	Collector Cut Off Current	V_{CE} = 40V	I_B = 0			50	
I_{EBO}	Emitter Cut Off Current	V_{EB} = 5V	I_C = 0			1	µA
		V_{EB} = 6V	I_C = 0			1	mA
$V_{CEO(SUS)}$*	Collector Emitter Saturation Voltage	I_C = 100mA	I_B = 0	80			V
$V_{CE(sat)}$*	Collector Emitter Saturation Voltage	I_C = 2.5A	I_B = 250mA			0.75	
		I_C = 5A	I_B = 500mA			1.5	
$V_{BE(sat)}$*	Base Emitter Saturation Voltage	I_C = 2.5A	I_B = 250mA			1.45	
		I_C = 5A	I_B = 500mA			2.2	
V_{BE}*	Base Emitter Voltage	I_C = 2.5A	V_{CE} = 5V			1.45	
h_{FE}*	DC Current Gain	I_C = 50mA	V_{CE} = 5V	20			
		I_C = 2.5A	V_{CE} = 5V	30		90	
			T_C = -55°C	15			
		I_C = 5A	V_{CE} = 5v	20			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = 10V			250	pF
h_{FE}	Small Signal Current Gain	I_C = 0.1A f = 1KHz	V_{CE} = 5V	20			
		I_C = 0.5A f = 20MHz	V_{CE} = 5v	3			
t_{on}	Turn On Time	I_C = 5A I_{B1} = 0.5A	V_{CC} = 30v		0.5		µs
t_{off}	Turn Off Time	I_C = 5A I_{B1}=-I_{B2} = 0.5A	V_{CC} = 30V		1.3		µs

* Pulse test t_p = 300µs , δ < 2%

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Semelab plc. Telephone +44(0)1455) 556565. Fax +44(0)1455) 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 3072
Issue 3

2N5152
2N5154

ELECTRICAL CHARACTERISTICS FOR 2N5154 (T_{case} = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut Off Current	V_{CE} = 60V	V_{BE} = 0			1	µA
		V_{CE} = 100V	V_{BE} = 0			1	mA
I_{CEV}	Collector Cut Off Current	V_{CE} = 60V V_{BE} =- 2V	T_{case} = 150°C			500	µA
I_{CEO}	Collector Cut Off Current	V_{CE} = 40V	I_B = 0			50	
I_{EBO}	Emitter Cut Off Current	V_{EB} = 5V	I_C = 0			1	µA
		V_{EB} = 6V	I_C = 0			1	mA
$V_{CEO(SUS)}$*	Collector Emitter Saturation Voltage	I_C = 100mA	I_B = 0	80			V
$V_{CE(sat)}$*	Collector Emitter Saturation Voltage	I_C = 2.5A	I_B = 250mA			0.75	
		I_C = 5A	I_B = 500mA			1.5	
$V_{BE(sat)}$*	Base Emitter Saturation Voltage	I_C = 2.5A	I_B = 250mA			1.45	
		I_C = 5A	I_B = 500mA			2.2	
V_{BE}*	Base Emitter Voltage	I_C = 2.5A	V_{CE} = 5V			1.45	
h_{FE}*	DC Current Gain	I_C = 50mA	V_{CE} = 5V	50			
		I_C = 2.5A	V_{CE} = 5V	70		200	
			T_C = -55°C	35			
		I_C = 5A	V_{CE} = 5v	40			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = 10V			250	pF
h_{FE}	Small Signal Current Gain	I_C = 0.1A f = 1KHz	V_{CE} = 5V	50			
		I_C = 0.5A f = 20MHz	V_{CE} = 5v	3.5			
t_{on}	Turn On Time	I_C = 5A I_{B1} = 0.5A	V_{CC} = 30v		0.5		µs
t_{off}	Turn Off Time	I_C = 5A I_{B1}=-I_{B2} = 0.5A	V_{CC} = 30V		1.3		µs

* Pulse test t_p = 300µs , δ < 2%

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Semelab plc. Telephone +44(0)1455) 556565. Fax +44(0)1455) 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 3072
Issue 3