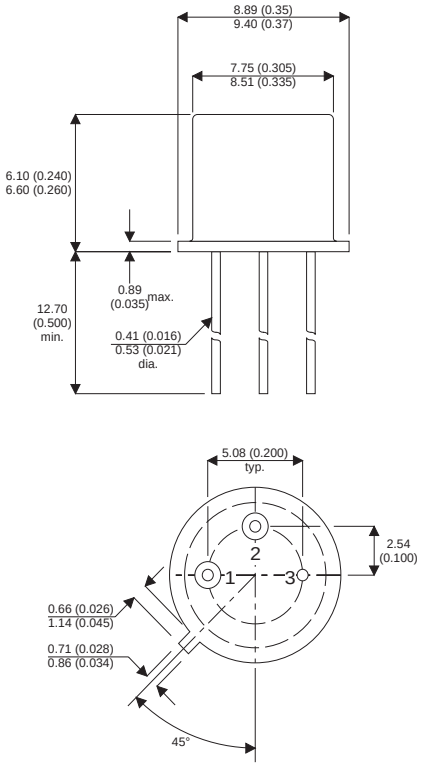
2N5151
2N5153

MECHANICAL DATA

Dimensions in mm (inches)



TO-39

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

HIGH SPEED MEDIUM VOLTAGE SWITCHES

DESCRIPTION

The 2N5151 and the 2N5153 are silicon expitaxial planar PNP transistors in jedec TO-39 metal case intended for use in switching applications.

The complementary NPN types are the 2N5152 and 2N5154 respectively

ABSOLUTE MAXIMUM RATINGS

T_{CASE} = 25°c unless otherwise stated		2N5151 | 2N5153
V_{CBO}	Collector – Base Voltage	-100V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	-80V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	-5.5V
I_C	Continuous Collector Current	-5A
$I_{C(PK)}$	Peak Collector Current	-10A
I_B	Base Current	-2.5A
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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2N5153

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

ELECTRICAL CHARACTERISTICS FOR 2N5151 (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} = -4V	I_C = 0			-1	µA
		V_{EB} = -5.5V	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	
		I_C = -5A	V_{CE} = -5v	20			
		T_{case} = -55°C					
		I_C =2.5A	V_{CE} = -5V	15			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = -10V			250	pF
h_{FE}	Small Signal Current Gain	IC = -0.1A f = 1KHz	VCE = -5V	20			
		IC = -0.5A f = 20MHz	VCE = -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%

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SEME LAB

2N5151
2N5153

ELECTRICAL CHARACTERISTICS FOR 2N5153 (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} = -4V	I_C = 0			-1	µA
		V_{EB} = -5.5V	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	
		I_C = -5A	V_{CE} = -5v	40			
		T_{case} = -55°C					
		I_C =2.5A	V_{CE} = -5V	35			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = -10V			250	pF
h_{FE}	Small Signal Current Gain	IC = -0.1A f = 1KHz	VCE = -5V	50			
		IC = -0.5A f = 20MHz	VCE = -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%

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