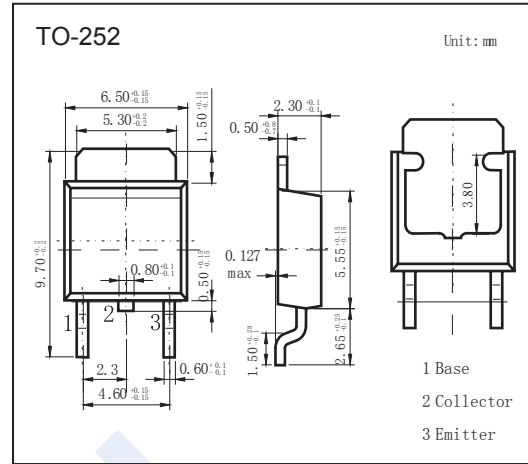


## NPN Transistors

## 2SD1815



### ■ Features

- Low Collector-to-Emitter Saturation Voltage
- Fast Switching Speed
- High fr.
- Complementary to 2SB1215

### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	120	V
Collector - Emitter Voltage	V <sub>CE0</sub>	100	
Emitter - Base Voltage	V <sub>EB0</sub>	6	
Collector Current - Continuous	I <sub>c</sub>	3	A
Collector Power Dissipation	P <sub>c</sub>	1	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to 150	

### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V <sub>CB0</sub>	I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	120			V
Collector- emitter breakdown voltage	V <sub>CE0</sub>	I <sub>c</sub> = 1 mA, I <sub>B</sub> = 0	100			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0	6			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 100 V, I <sub>E</sub> = 0			1	μA
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0			1	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 1.5 A, I <sub>B</sub> = 150 mA			0.4	V
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 1.5 A, I <sub>B</sub> = 150 mA			1.2	
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 500 mA	70		400	
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 A	40			
Turn-on time	t <sub>on</sub>	V <sub>CC</sub> = 50 V, I <sub>C</sub> = 1.5 A, I <sub>B1</sub> = -I <sub>B2</sub> = -0.15 A		100		ns
Storage Time	t <sub>stg</sub>			900		
Fall Time	t <sub>f</sub>			50		
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f= 1 MHz		25		pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 500 mA		180		MHz

### ■ Classification of h<sub>FE(1)</sub>

Type	2SD1815-Q	2SD1815-R	2SD1815-S	2SD1815-T
Range	70-140	100-200	140-280	200-400