

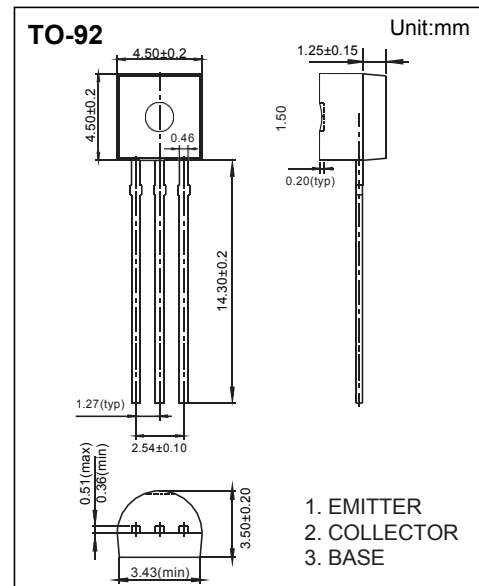
# Transistor

## NPN Transistors

### MJE13001

#### ■ Features

- Collector current:  $I_C=1A$
- Collector base voltage:  $V_{CB0}=600V$



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	600	V
Collector - Emitter Voltage	$V_{CE0}$	400	
Emitter - Base Voltage	$V_{EB0}$	7	
Collector Current - Continuous	$I_C$	200	mA
Collector Power Dissipation	$P_C$	750	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to 150	

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#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collecto- base breakdown voltage	V <sub>CBO</sub>	I <sub>C</sub> = 100 μA, I <sub>E</sub> =0	600			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>C</sub> = 1 mA, I <sub>B</sub> =0	400			
Emitter - base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> = 100 μA, I <sub>C</sub> =0	7			
Base-emitter voltage	V <sub>BE</sub>	I <sub>E</sub> = 100 μA			1.1	
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 600 V, I <sub>E</sub> =0			0.1	μA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> = 400 V, I <sub>B</sub> =0			0.2	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 7V, I <sub>C</sub> =0			0.1	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50 mA, I <sub>B</sub> = 10mA			0.5	V
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =50 mA, I <sub>B</sub> = 10mA			1.2	
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 20V, I <sub>C</sub> = 20mA	10		70	
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.25mA	5			
Storage time	t <sub>s</sub>	I <sub>C</sub> =50mA, I <sub>B1</sub> =-I <sub>B2</sub> =5mA, V <sub>CC</sub> =45V			1.5	μs
Fall time	t <sub>f</sub>				0.3	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 20V, I <sub>C</sub> =20mA,f=1MHz	8			MHz

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

Rank	A	B	C	D	E	F	G	H	I	J	K	L
Range	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70

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■ Typical Characteristics

