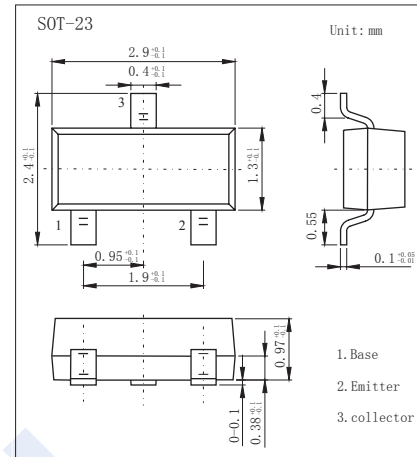


## NPN Transistors

## MJD13002

## ■ Features

- Power Switching Applications

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	600	V
Collector - Emitter Voltage	$V_{CE0}$	400	
Emitter - Base Voltage	$V_{EB0}$	6	
Collector Current - Continuous	$I_C$	800	mA
Collector Power Dissipation	$P_C$	300	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu\text{A}$ , $I_E = 0$	600			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_C = 1 \text{ mA}$ , $I_B = 0$	400			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}$ , $I_C = 0$	6			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 600 \text{ V}$ , $I_E = 0$			100	uA
Collector- emitter cut-off current	$I_{CE0}$	$V_{CE} = 400 \text{ V}$ , $I_E = 0$			100	
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 6 \text{ V}$ , $I_C = 0$			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 200 \text{ mA}$ , $I_B = 40 \text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 200 \text{ mA}$ , $I_B = 40 \text{ mA}$			1.1	
DC current gain	$h_{FE(1)}$	$V_{CE} = 10 \text{ V}$ , $I_C = 200 \text{ mA}$	9		40	
	$h_{FE(2)}$	$V_{CE} = 10 \text{ V}$ , $I_C = 0.25 \text{ mA}$	5			
Fall time	$t_f$	$I_C = 1 \text{ A}$ , $I_{B1} = -I_{B2} = 0.2 \text{ A}$			0.5	uS
Storage time	$t_s$	$V_{CC} = 100 \text{ V}$			2.5	
Transition frequency	$f_T$	$V_{CE} = 10 \text{ V}$ , $I_C = 100 \text{ mA}$ , $f = 1 \text{ MHz}$	5			MHz

■ Classification of  $h_{FE(1)}$ 

Type	MJD13002-A	MJD13002-B	MJD13002-C	MJD13002-D	MJD13002-E	MJD13002-F
Range	9-15	15-20	20-25	25-30	30-35	35-40
Marking	3002A	3002B	3002C	3002D	3002E	3002F

# NPN Transistors

## MJD13002

### Typical Characteristics

