

TO-220 Plastic-Encapsulate Transistors

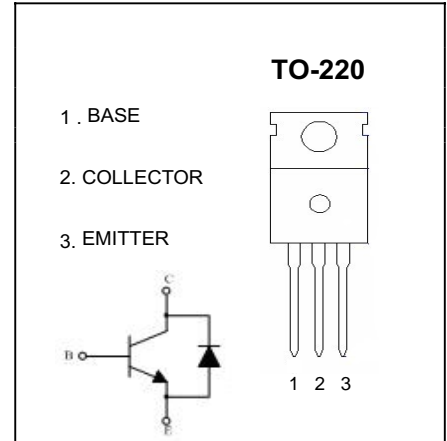
MJE13007 TRANSISTOR (NPN)

FEATURES

- Power switching applications

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	8	A
P_C	Collector Power Dissipation	2	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB} = 700\text{V}, I_E = 0$			100	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 400\text{V}, I_B = 0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 9\text{V}, I_C = 0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 2\text{A}$	10		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 8\text{A}$	5			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1	V
	$V_{CE(sat)2}$	$I_C = 5\text{A}, I_B = 1\text{A}$			2	V
	$V_{CE(sat)3}$	$I_C = 8\text{A}, I_B = 2\text{A}$			3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1.2	V
	$V_{BE(sat)2}$	$I_C = 5\text{A}, I_B = 1\text{A}$			1.6	V
Storage time	t_s	$I_C = 500\text{mA}$ (UI9600)	3		6	μs
Fall time	t_f	$I_C = 500\text{mA}$ (UI9600)			0.5	μs
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$	4			MHz

CLASSIFICATION OF $h_{FE(1)}$

Range	10-15	15-20	20-25	25-30	30-35	35-40
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CLASSIFICATION OF t_s

Rank	A	B	C
Range	3-4 (μs)	4-5 (μs)	5-6 (μs)