



TO-220 Plastic-Encapsulate Transistors

13007

TRANSISTOR (NPN)

TO-220

1. BASE
2. COLLECTOR
3. EMITTER

FEATURES

Power dissipation

$$P_{CM} : 2 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

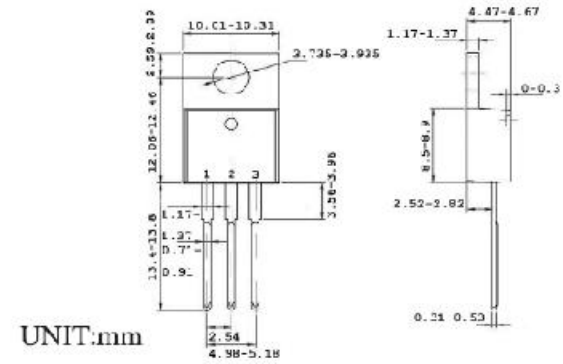
$$I_{CM} : 8 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : 700 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg} : -55^\circ\text{C to } +150^\circ\text{C}$$



ELECTRICAL CHARACTERISTICS (Tamb=25°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}	$V_{CB} = 700\text{V}, I_E = 0$			1	mA
Emitter cut-off current	I_{EBO}	$V_{EB} = 9\text{V}, I_C = 0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 2\text{A}$	8		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 5\text{A}$	5		30	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1.2	V
Transition frequency	f_T	$I_C = 500\text{mA}, V_{CE} = 10\text{V}$ $f = 1\text{MHz}$	4			MHz
Collector output capacitance	C_{ob}	$V_{CE} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$		80		pF
Fall time	t_f	$V_{CC} = 125\text{V}, I_C = 5\text{A}$			0.7	μs
Storage time	t_s	$I_{B1} = -I_{B2} = 1\text{A}$			3	μs

CLASSIFICATION OF $h_{FE(1)}$

Rank						
Range	8-15	15-20	20-25	25-30	30-35	35-40



TIP Semiconductor