



## TO-220 Plastic-Encapsulated Transistors

### 3DD13007 TRANSISTOR (NPN)

#### FEATURES

Power dissipation

$$P_{CM}: 2 \text{ W (Tamb=25°C)}$$

Collector current

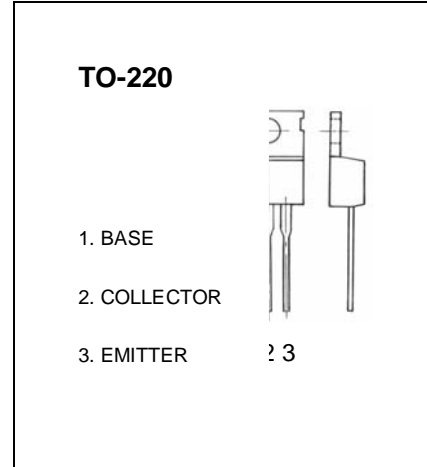
$$I_{CM}: 8 \text{ A}$$

Collector-base voltage

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

Operating and storage junction temperature range

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



#### 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	$\mu\text{A}$
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	$t_f$	$V_{CC} = 125\text{V}, I_C = 5\text{A}$ $I_{B1} = -I_{B2} = 1\text{A}$			0.7	$\mu\text{s}$
Storage time	$t_s$				3	$\mu\text{s}$

#### CLASSIFICATION OF $h_{FE(1)}$

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