

MACROBIZES CO., LTD.

TO-251 Plastic-Encapsulate Transistors

3DD13002 TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM}: 1.25 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

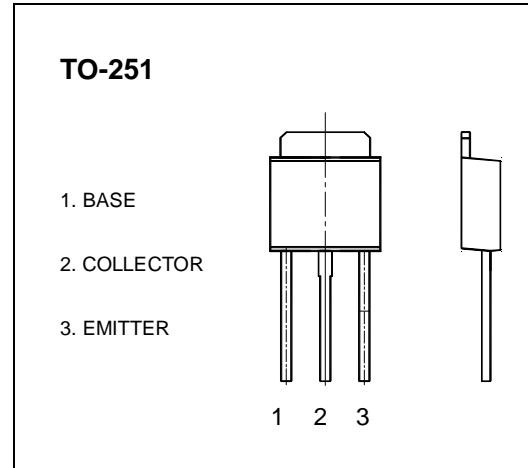
$$I_{CM}: 1 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO}: 600 \text{ V}$$

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	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	600			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 600\text{V}, I_E = 0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6\text{V}, I_C = 0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 10\text{V}, I_C = 200 \text{ mA}$	9		40	
	$h_{FE(2)}$	$V_{CE} = 10\text{V}, I_C = 250 \mu\text{A}$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 200\text{mA}, I_B = 40 \text{ mA}$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 200\text{mA}, I_B = 40 \text{ mA}$			1.1	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 100\text{mA}$ $f = 1\text{MHz}$	5			MHz
Fall time	t_f	$I_C = 1\text{A}, I_{B1} = -I_{B2} = 0.2\text{A}$			0.5	μs
Storage time	t_s	$V_{CC} = 100\text{V}$			2.5	μs

CLASSIFICATION OF $h_{FE(2)}$

Rank						
Range	9-15	15-20	20-25	25-30	30-35	35-40