

MACROBIZES CO., LTD.

## TO-251 Plastic-Encapsulate Transistors

### 3DD13002 TRANSISTOR (NPN)

#### FEATURES

Power dissipation

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

Collector current

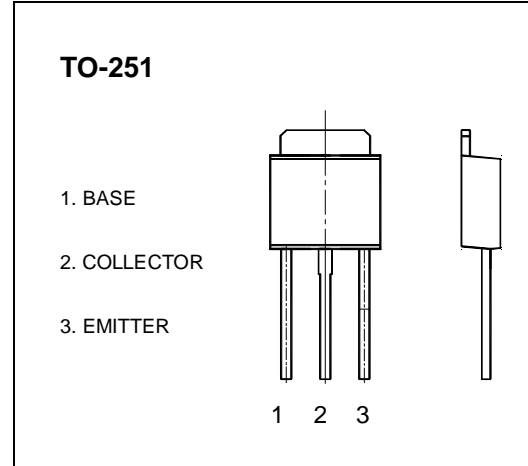
$I_{CM}$ : 1 A

Collector-base voltage

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

Operating and storage junction temperature range

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



#### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}C$ unless otherwise specified)

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

#### CLASSIFICATION OF $h_{FE(2)}$

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