



## TO-92 Plastic-Encapsulate Transistors

### 3DD13002/ 3DD13002B TRANSISTOR (NPN)

#### FEATURE

Power dissipation

$$P_{CM}: \quad 900 \quad \text{mW (Tamb=25}^{\circ}\text{C)}$$

Collector current

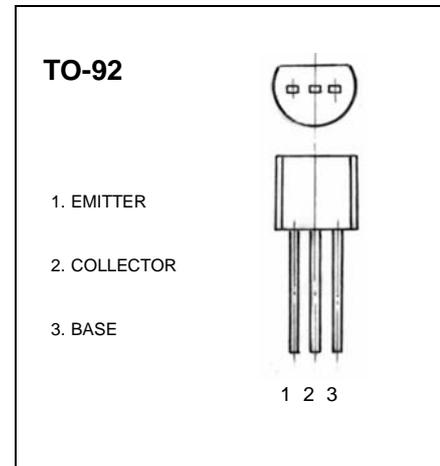
$$I_{CM}: \quad \begin{array}{ll} 3DD13002: & 1 \quad \text{A} \\ 3DD13002B: & 0.8 \quad \text{A} \end{array}$$

Collector-base voltage

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

Operating and storage junction temperature range

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



#### 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	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=6\text{V}, I_C=0$			100	$\mu\text{A}$
	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=200\text{mA}$	9		40	
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	6			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=200\text{mA}, I_B=40\text{mA}$			0.5	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	$\mu\text{s}$
Storage time	$t_s$	$V_{CC}=100\text{V}$			2.5	$\mu\text{s}$

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

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