

## 3DD13001 TRANSISTOR (NPN)

### FEATURES

Power dissipation

$P_{CM}$ : 1.2 W ( $T_{amb}=25^{\circ}C$ )

Collector current

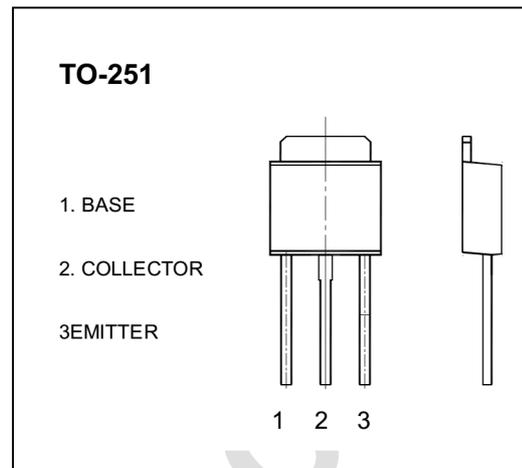
$I_{CM}$ : 0.2 A

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	$V_{(BR)CEO}$	$I_C=1\text{ mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	7			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=600\text{ V}, I_E=0$			100	$\mu A$
Collector cut-off current	$I_{CEO}$	$V_{CE}=400\text{ V}, I_B=0$			200	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=7\text{ V}, I_C=0$			100	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE}=20\text{ V}, I_C=20\text{ mA}$	10		40	
	$h_{FE(2)}$	$V_{CE}=10\text{ V}, I_C=0.25\text{ mA}$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\text{ mA}, I_B=10\text{ mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\text{ mA}, I_B=10\text{ mA}$			1.2	V
Base-emitter voltage	$V_{BE}$	$I_E=100\text{ mA}$			1.1	V
Transition frequency	$f_T$	$V_{CE}=20\text{ V}, I_C=20\text{ mA}$ $f=1\text{ MHz}$	8			MHz
Fall time	$t_f$	$I_C=50\text{ mA}, I_{B1}=-I_{B2}=5\text{ mA}$			0.3	$\mu s$
Storage time	$t_s$	$V_{CC}=45\text{ V}$			1.5	$\mu s$

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

Rank						
Range	10-15	15-20	20-25	25-30	30-35	35-40