



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-251/TO-252-2L Plastic-Encapsulate Transistors

3DD13002 TRANSISTOR (NPN)

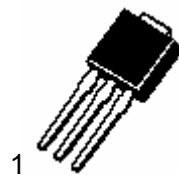
FEATURE

- power switching applications

MAXIMUM RATINGS* $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CB0}	Collector -Base Voltage	600	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	1	A
P_C	Collector Power Dissipation	1.25	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

TO-251
TO-252-2L



1. BASE

2. COLLECTOR

3. EMITTER



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

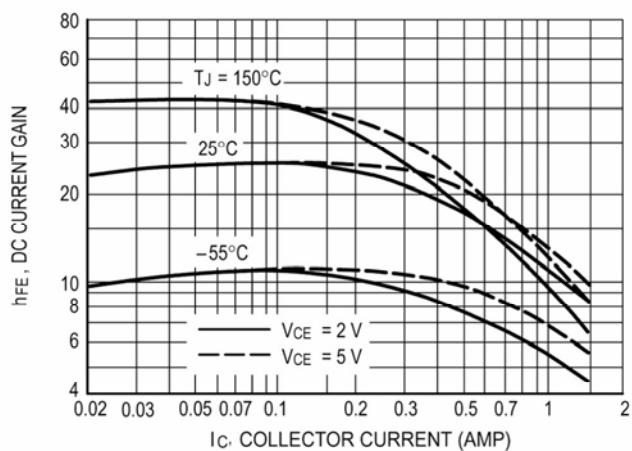
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	600			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	6			
Collector cut-off current	I_{CBO}	$V_{CB}=600\text{V}$, $I_E=0$			100	μA
	I_{CEO}	$V_{CB}=400\text{V}$, $I_E=0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7\text{V}$, $I_C=0$			100	μA
Dc current gain	h_{FE1}	$V_{CE}=10\text{V}$, $I_C=200\text{mA}$	9		40	
	h_{FE2}	$V_{CE}=10\text{V}$, $I_C=0.25\text{mA}$	5			
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	$I_C=1\text{A}$, $I_{B1}=-I_{B2}=0.2\text{A}$ $V_{CC}=100\text{V}$			0.5	μs
Storage time	t_s				2.5	μs

CLASSIFICATION OF h_{FE1}

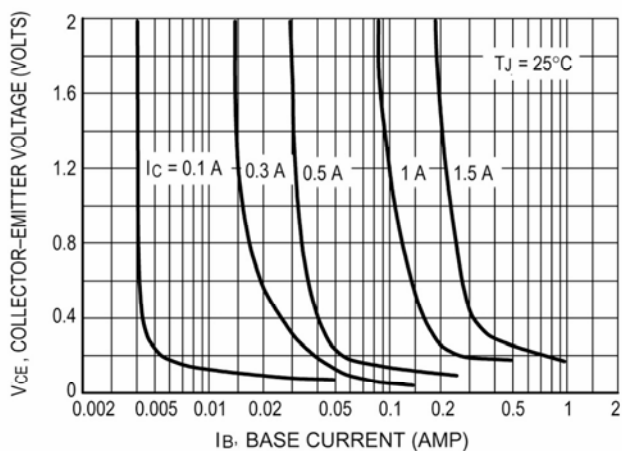
Range	9-15	15-20	20-25	25-30	30-35	35-40
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Typical characteristics

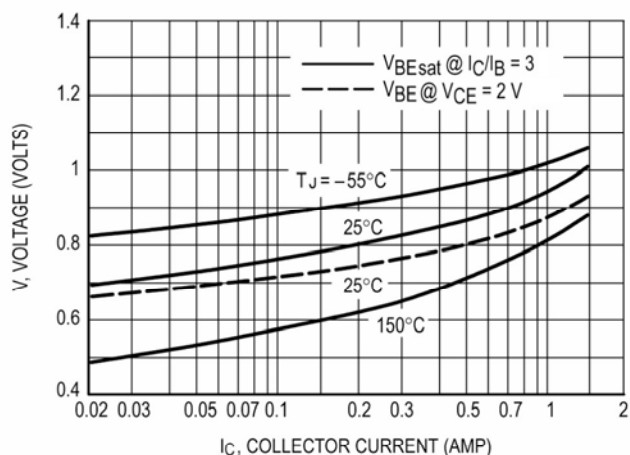
3DD13002



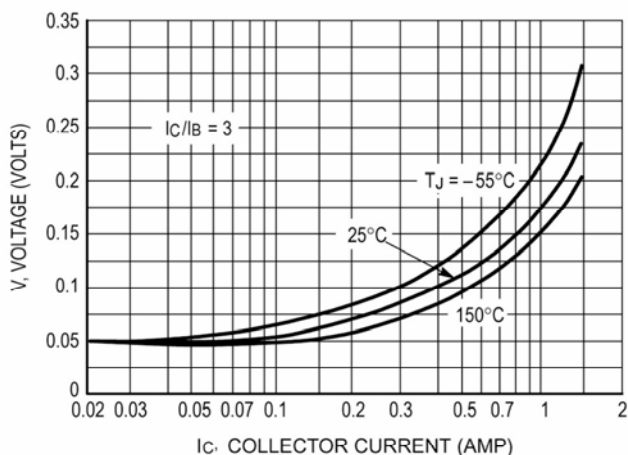
DC Current Gain



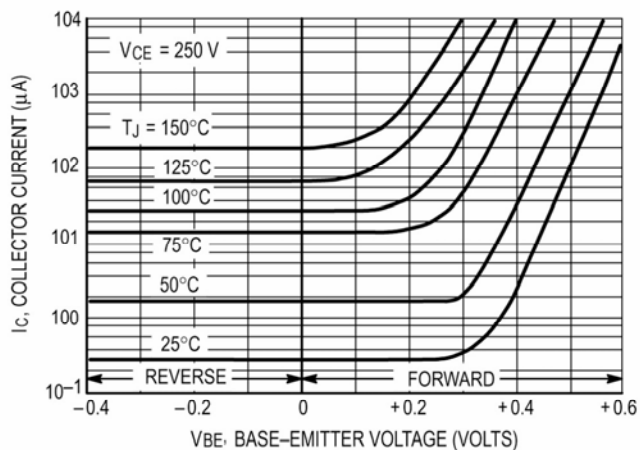
Collector Saturation Region



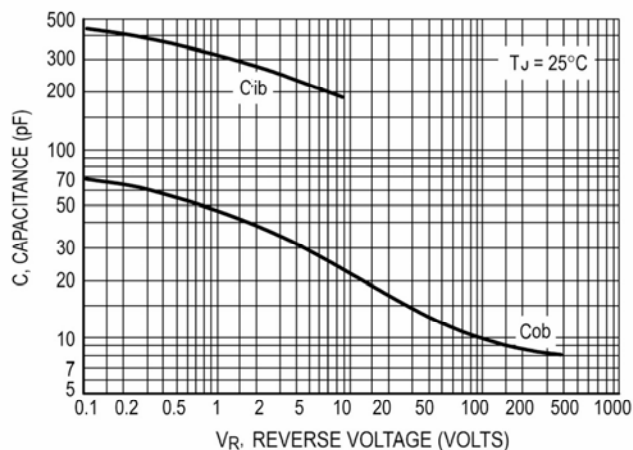
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance