



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-220 Plastic-Encapsulate Transistors

3DD13003 TRANSISTOR (NPN)

FEATURES

- power switching applications

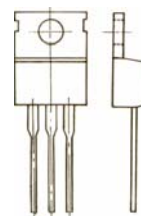
www.DataSheet4U.com

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	1.5	A
P_C	Collector Dissipation	2	W
T_J, T_{stg}	Junction and Storage Temperature	-55-150	$^{\circ}\text{C}$

TO-220

1. BASE
2. COLLECTOR
3. EMITTER



1 2 3

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

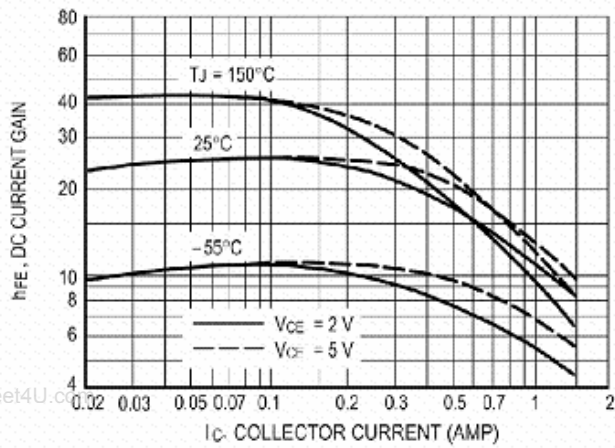
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1000\mu\text{A}, I_E = 0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{ mA}, I_C = 0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB} = 700\text{V}, I_E = 0$			1000	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 400\text{V}, I_B = 0$			500	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 9\text{ V}, I_C = 0$			1000	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	8		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 1.5\text{ A}$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1000\text{ mA}, I_B = 250\text{ mA}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1000\text{ mA}, I_B = 250\text{ mA}$			1.2	V
Base-emitter voltage	V_{BE}	$I_E = 2000\text{ mA}$			3	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 $h_{FE(1)}$

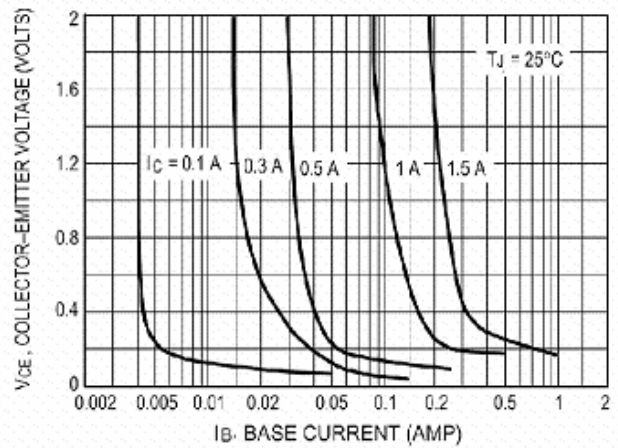
Rank							
Range	8-10	10-15	15-20	20-25	25-30	30-35	35-40

Typical Characteristics

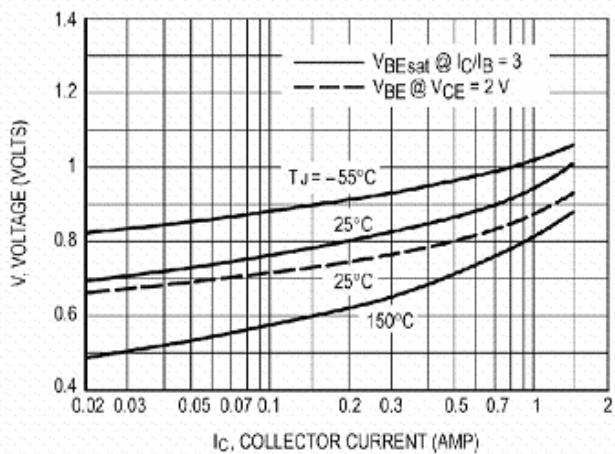
3DD13003



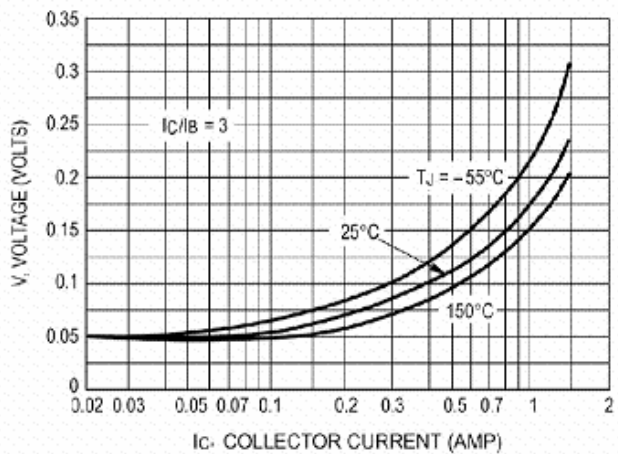
DC Current Gain



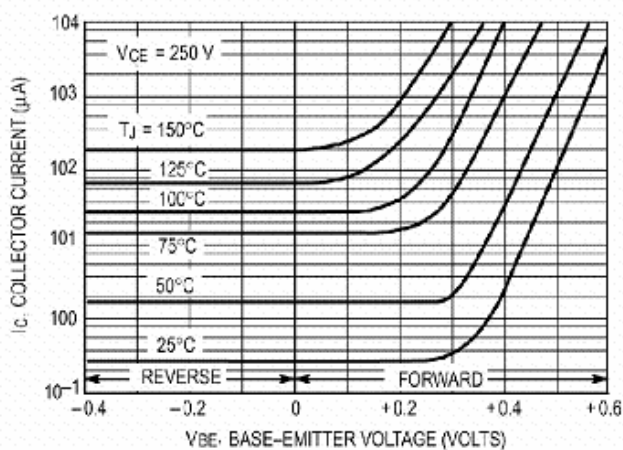
Collector Saturation Region



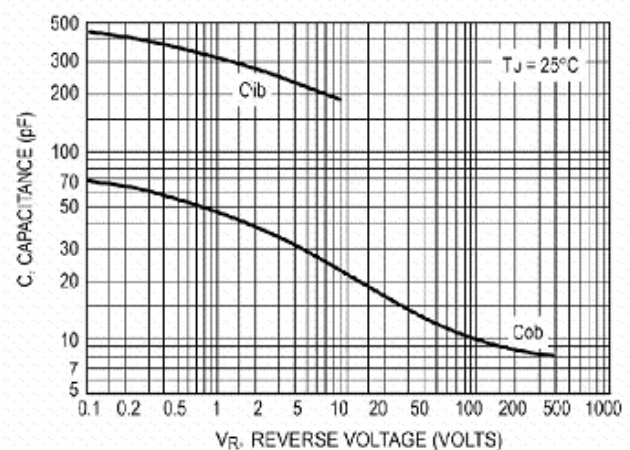
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance