



TO-220 Plastic-Encapsulate Transistors

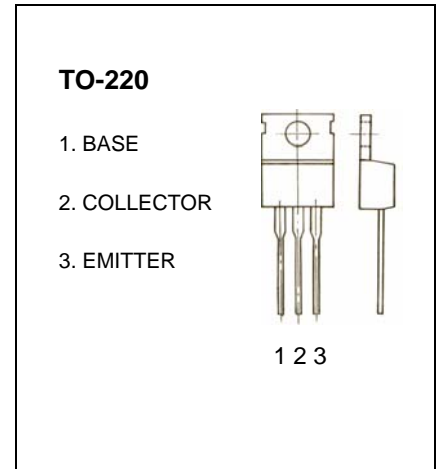
3DD13003 TRANSISTOR (NPN)

FEATURES

- power switching applications

MAXIMUM RATINGS* T_A=25°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	°C



ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

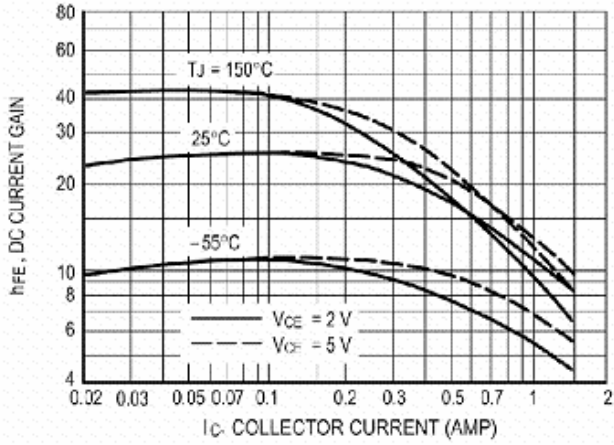
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V(BR) _{CBO}	I _C = 1000μA, I _E =0	700			V
Collector-emitter breakdown voltage	V(BR) _{CEO}	I _C = 10 mA, I _B =0	400			V
Emitter-base breakdown voltage	V(BR) _{EBO}	I _E = 1mA, I _C =0	9			V
Collector cut-off current	I _{CBO}	V _{CB} = 700V, I _E =0			1000	μA
Collector cut-off current	I _{CEO}	V _{CE} = 400V, I _B =0			500	μA
Emitter cut-off current	I _{EBO}	V _{EB} = 9 V, I _C =0			1000	μA
DC current gain	h _{FE} (1)	V _{CE} = 5 V, I _C = 0.5 A	8		40	
	h _{FE} (2)	V _{CE} = 5 V, I _C = 1.5A	5			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =1000mA, I _B = 250 mA			1	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =1000mA, I _B = 250mA			1.2	V
Base-emitter voltage	V _{BE}	I _E = 2000 mA			3	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	μs
Storage time	t _s	V _{CC} =100V			2.5	μs

CLASSIFICATION OF h_{FE} (1)

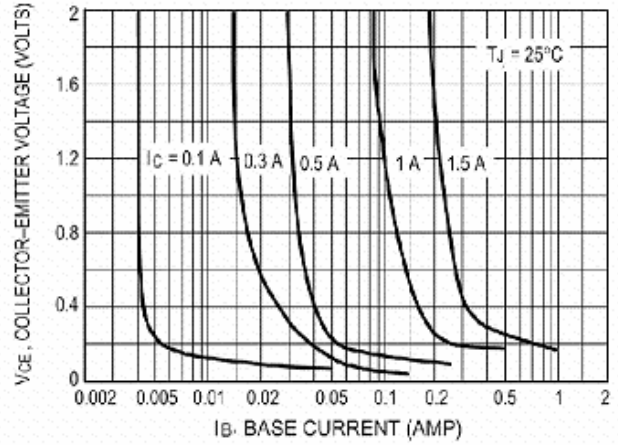
Rank							
Range	8-10	10-15	15-20	20-25	25-30	30-35	35-40

Typical Characteristics

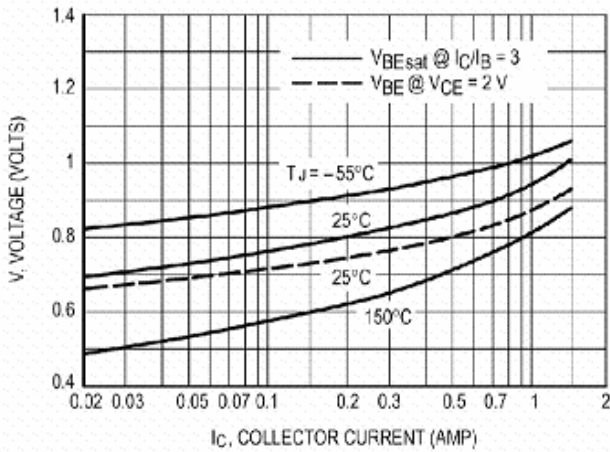
3DD13003



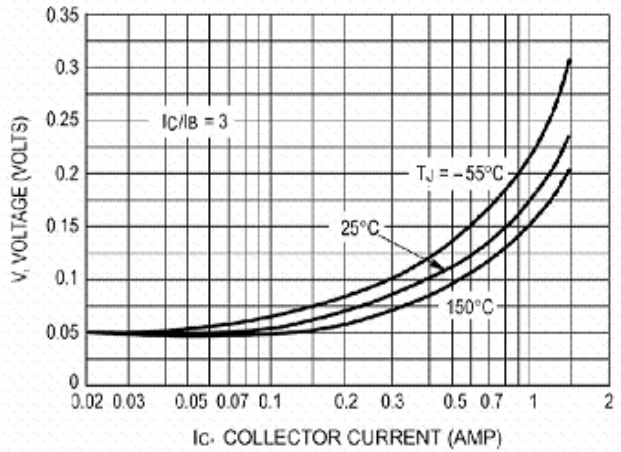
DC Current Gain



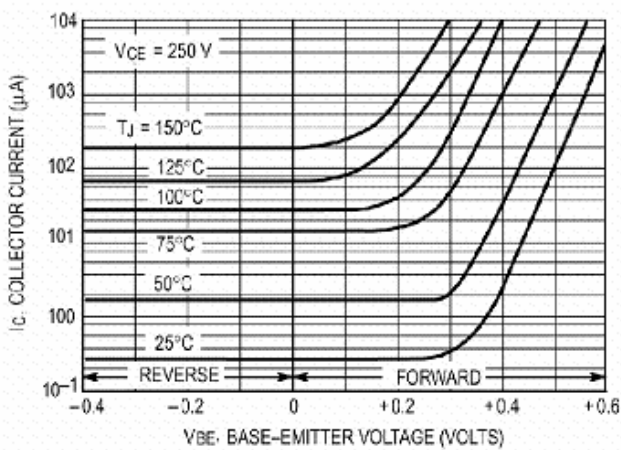
Collector Saturation Region



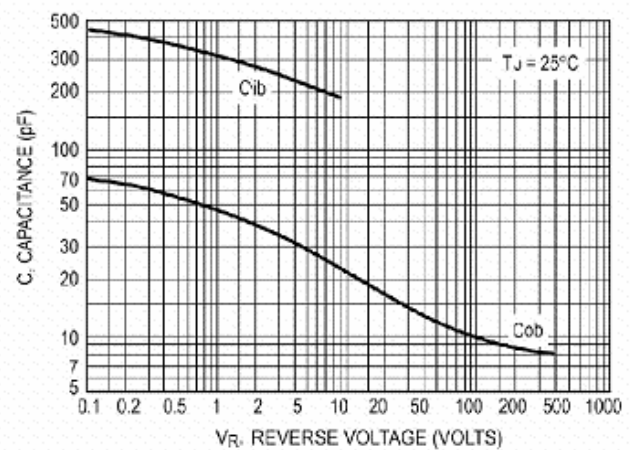
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance