3DD13003 TRANSISTOR (NPN)

TO-251

1.BASE
2.COLLECTOR
3.EMITTER

FEATURES

- **Power Switching Applications**

MAXIMUM RATINGS(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
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	1.25	W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	Ic= 1mA,I_E=0	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	Ic= 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			1	mA
Collector cut-off current	I_{CEO}	V_{CE}= 400V,I_B=0			0.5	mA
Emitter cut-off current	I_{EBO}	V_{EB}= 9 V, I_C=0			1	mA
DC current gain	$h_{FE(1)}$	V_{CE}= 5 V, I_C= 0.5 A	20		40	
	$h_{FE(2)}$	V_{CE}= 5 V, I_C= 1.5A	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=1A,I_B= 250 mA			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=1A, I_B= 250mA			1.2	V
Base-emitter voltage	V_{BE}	I_E= 2A			3	V
Transition frequency	f_T	V_{CE}=10V,Ic=100mA f =1MHz	5			MHz
Fall time	t_f	I_C=1A,I_{B1}=-I_{B2}=0.2A V_{CC}=100V			0.5	μs
Storage time	t_s	Ic=250mA	2		4	μs

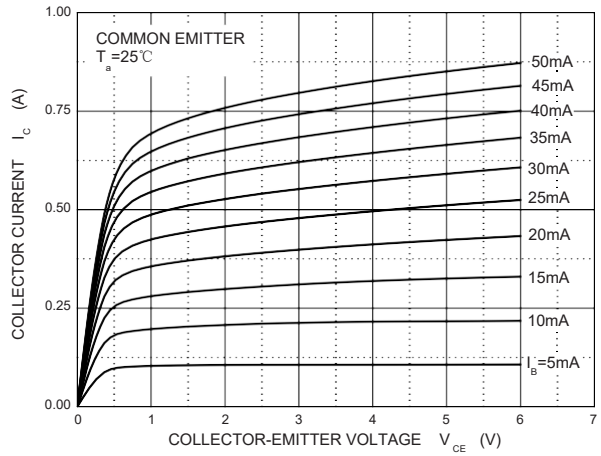
CLASSIFICATION OF $h_{FE(1)}$

Range	20-30	30-40

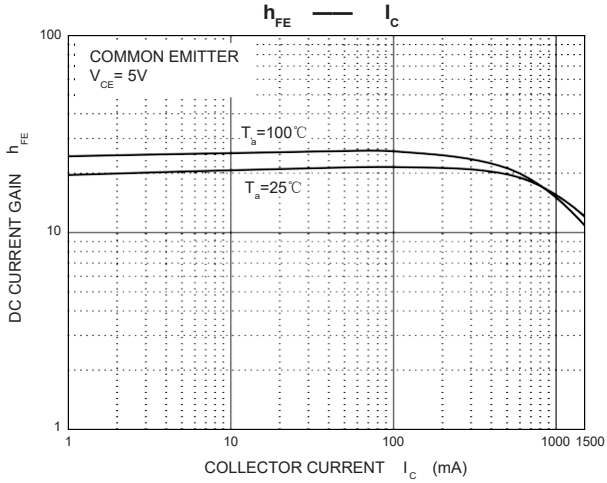
CLASSIFICATION OF t_S

Rank	A	B
Range	2.0-3.0 (μ s)	3.0-4.0(μ s)

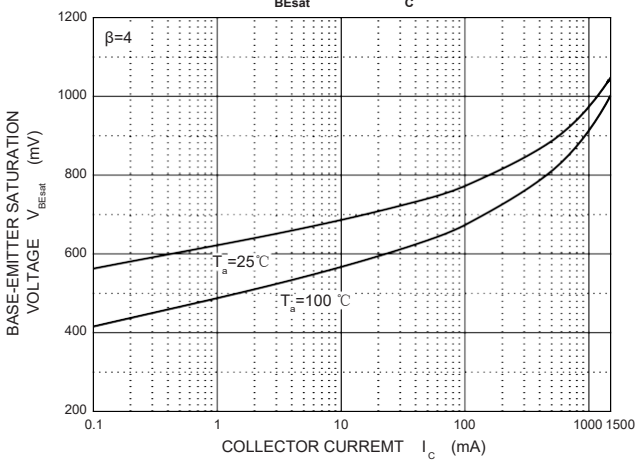
Static Characteristic



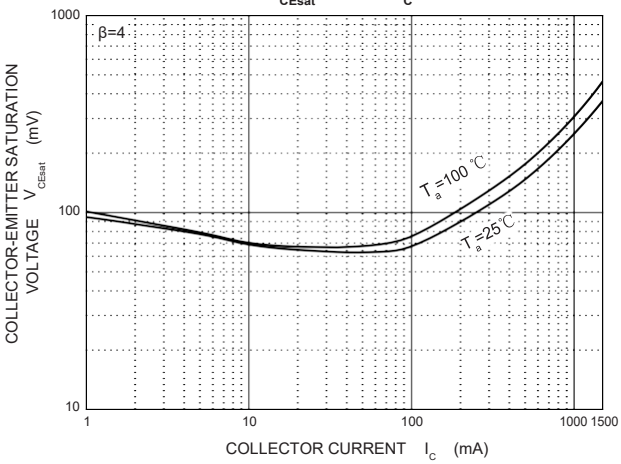
h_{FE} — I_C



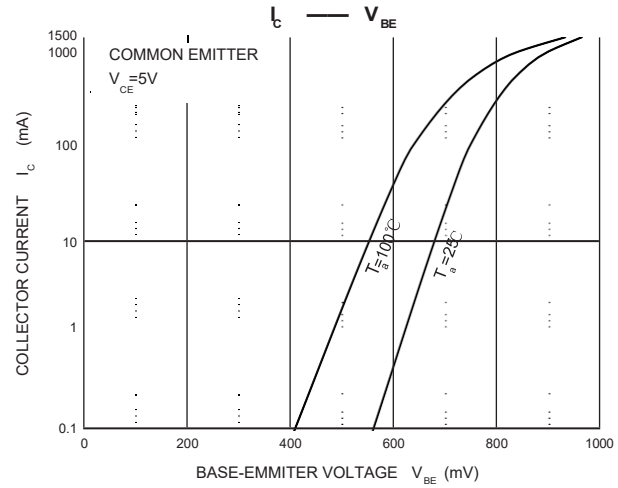
V_{BEsat} — I_C



V_{CEsat} — I_C



I_C — V_{BE}



P_C — T_a