

Silicon NPN Triple Diffused Transistor

3DD4020B

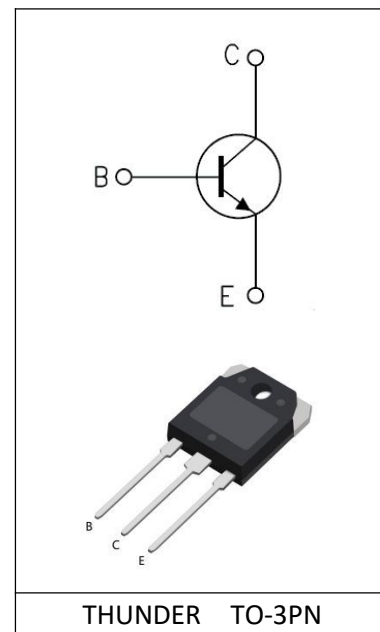
3DD4020B, the silicon NPN power switch transistor, is manufactured using planar technology, guard ring terminal structure and minority life-time controlling technology for realization of high voltage capability, high switching speed and reliability.

Features:

- High Breakdown Voltage
- High Switching Speed
- High Reliability
- RoHS product

Applications:

- High frequency switching power supply
- High frequency power transfer



Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	700	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current(DC)	I_C	20	A
Collector Peak Current($t_p<5\text{ms}$)	I_{CM}	35	A
Base Current(DC)	I_B	4	A
Base Peak Current($t_p<5\text{ms}$)	I_{BM}	8	A
Collector Power Dissipation($T_a=25^{\circ}\text{C}$)	P_C	150	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-65~150	$^{\circ}\text{C}$

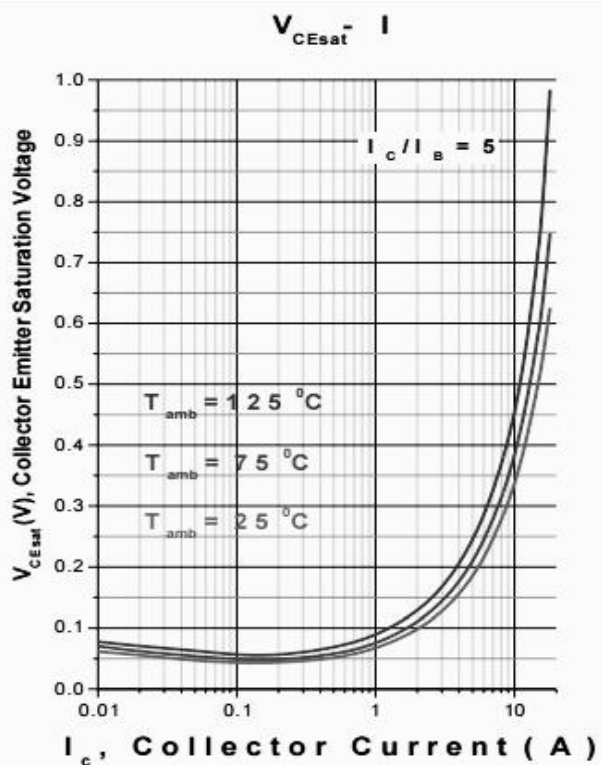
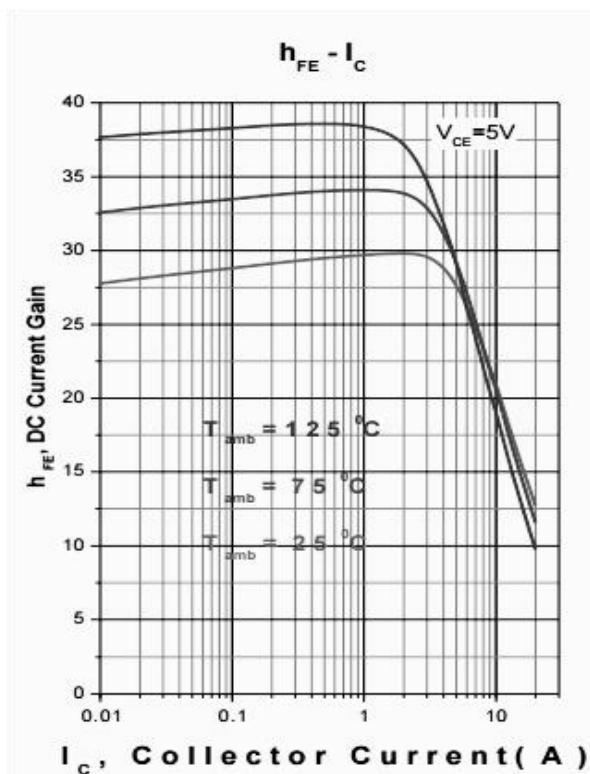
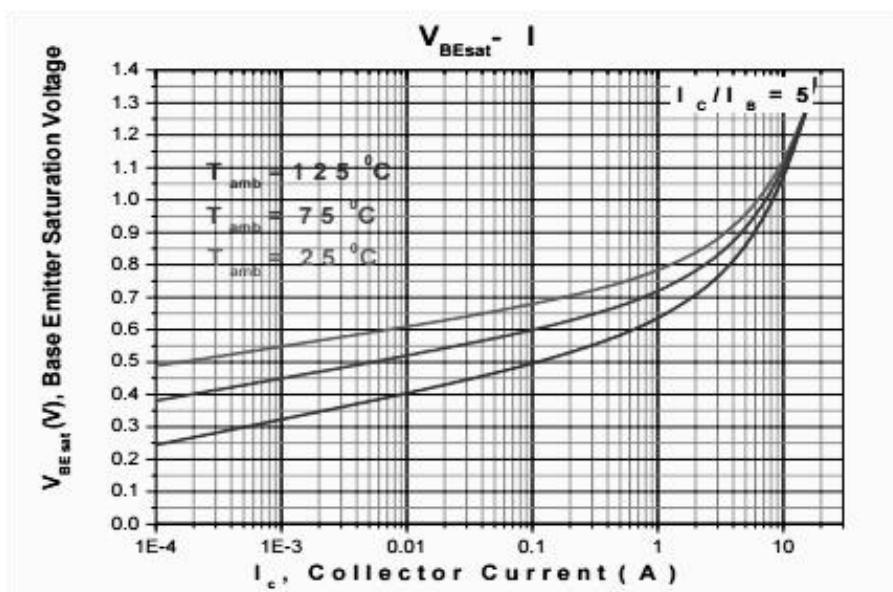
Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Cut-off Current	I_{CBO}	$V_{CB}=700\text{V}, I_E=0$			0.1	mA
Collector-Emitter Cut-off Current	I_{CEO}	$V_{CE}=400\text{V}, I_B=0$			0.1	mA
Emitter-Base Cut-off Current	I_{EBO}	$V_{EB}=9\text{V}, I_C=0$			0.1	mA
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=0.1\text{mA}$	700			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=1\text{mA}$	400			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=100\mu\text{A}$	9			V
DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}, I_C=10\text{mA}$	10		40	
	h_{FE2}	$V_{CE}=5\text{V}, I_C=6\text{A}$	15		35	
	h_{FE3}	$V_{CE}=5\text{V}, I_C=12\text{A}$	2			
Collector-Emitter Saturation Voltage	V_{CESat}	$I_C=5\text{A}, I_B=1.0\text{A}$			0.4	V
Base-Emitter Saturation Voltage	V_{BESat}	$I_C=5\text{A}, I_B=1.0\text{A}$			1.30	V
Storage Time	t_s	UI9600, $I_C=500\text{mA}$	2.0		13.0	μs
Rise Time	t_r				2.0	μs
Fall Time	t_f				2.0	μs
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_{CE}=1\text{A}$	4			Mhz

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Junction-to-Case	0.83	$^{\circ}\text{C}/\text{W}$

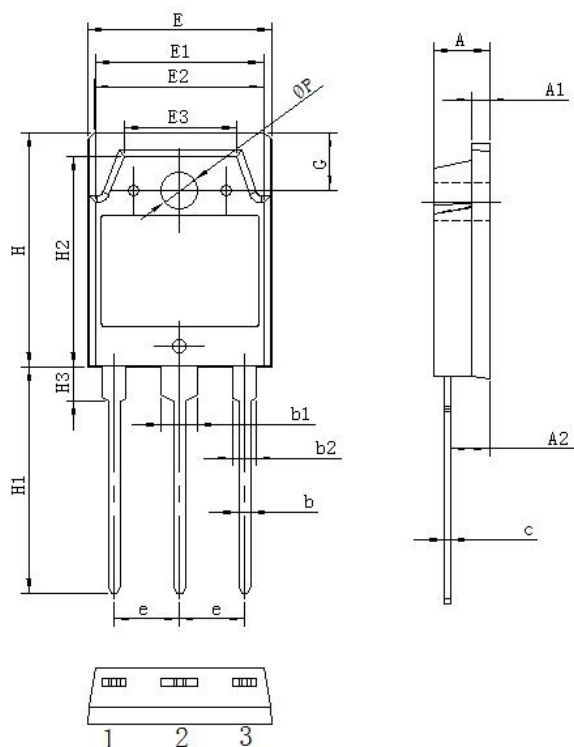
Typical Characteristics



Package Information

TO-3PN PACKAGE

基本尺寸



Symbol	单位 mm		
	Min	Nom	Max
A	4.60	4.80	5.00
A1	1.3	1.5	1.7
A2	2.20	2.40	2.60
b	0.80	1.0	1.20
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	15.2	15.6	16.0
E1	13.2	13.4	13.6
E2	13.1	13.3	13.5
E3	9.1	9.3	9.5
H	19.8	20.0	20.2
H1	19.4	19.8	20.2
H2	18.5	18.7	18.9
H3	2.9	3.1	3.3
G	4.8	5.0	5.2
ΦP	3.00	3.20	3.40

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