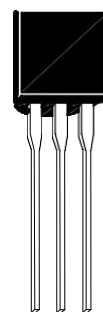


High Voltage NPN Epitaxial Planar Transistor

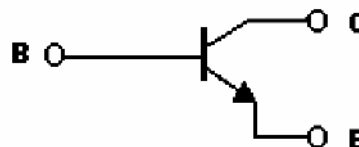
Features:

- High breakdown voltage. ($BV_{CEO}=400V$)
- Low saturation voltage, typically $V_{CE(sat)}=60mV$ at $I_C/I_B=10mA/1mA$.
- Pb-free lead plating and halogen-free package

TO-92



E B C



B : Base

C : Collector

E : Emitter

Ordering Information

Device	Package	Shipping
KWNA44-X-TB-G	TO-92 (Pb-free lead plating package)	2000 pcs / Tape & Box
KWNA44-X-BK-G	TO-92 (Pb-free lead plating package)	1000 pcs/ bag, 10 bags/box, 10boxes/carton

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CBO}	550	V
Collector-Emitter Voltage	V _{CEO}	400	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	I _C	300	mA
Power Dissipation (Ta=25°C)	P _D	0.625	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : *1. Single Pulse P_w ≤ 380μs, Duty ≤ 2%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	550	-	-	V	I _C =100μA, I _E =0
BV _{CEO}	400	-	-	V	I _C =1mA, I _B =0
BV _{EBO}	6	-	-	V	I _E =10μA, I _C =0
I _{CBO}	-	-	0.1	μA	V _{CB} =500V, I _E =0
I _{EBO}	-	-	0.1	μA	V _{EB} =6V, I _C =0
I _{CES}	-	-	0.5	μA	V _{CE} =400V, V _{BE} =0
V _{CE(sat)} 1	-	0.06	0.12	V	I _C =1mA, I _B =0.1mA
V _{CE(sat)} 2	-	0.06	0.15	V	I _C =10mA, I _B =1mA
*V _{CE(sat)} 3	-	0.1	0.2	V	I _C =50mA, I _B =5mA
V _{BE(sat)}	-	0.68	0.75	V	I _C =10mA, I _B =1mA
h _{FE} 1	80	-	-	-	V _{CE} =10V, I _C =1mA
h _{FE} 2	82	-	270	-	V _{CE} =10V, I _C =10mA
*h _{FE} 3	80	-	-	-	V _{CE} =10V, I _C =50mA
*h _{FE} 4	40	-	-	-	V _{CE} =10V, I _C =100mA
f _T	50	-	-	MHz	V _{CE} =20V, I _E =10mA, f=100MHz
Cob	-	4	-	pF	V _{CB} =20V, f=1MHz

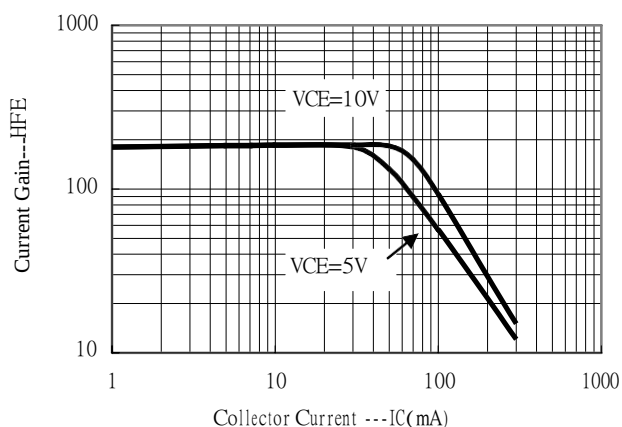
*Pulse Test : Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

Classification Of h_{FE}2

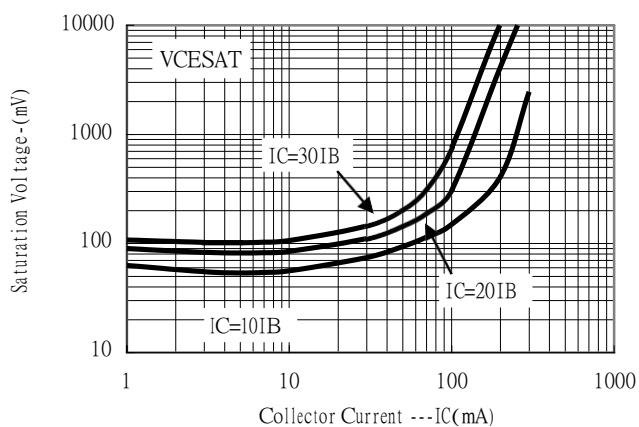
Rank	P	Q
Range	82~180	120~270

Typical Characteristics

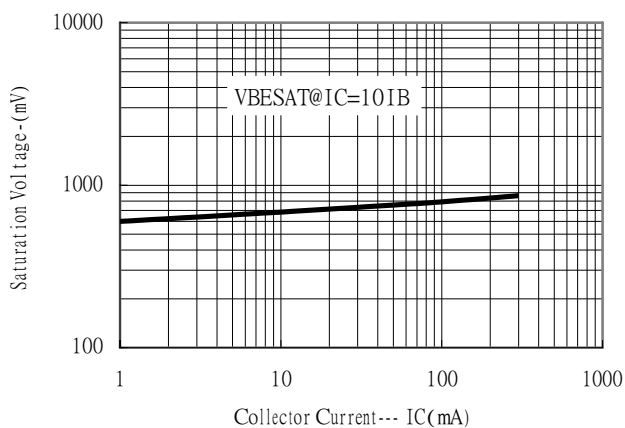
Current Gain vs Collector Current



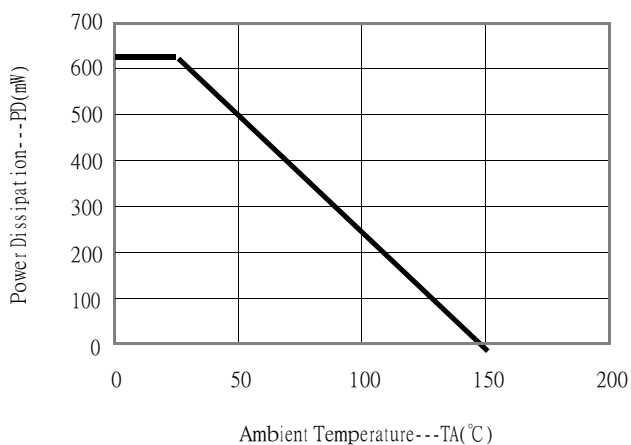
Saturation Voltage vs Collector Current



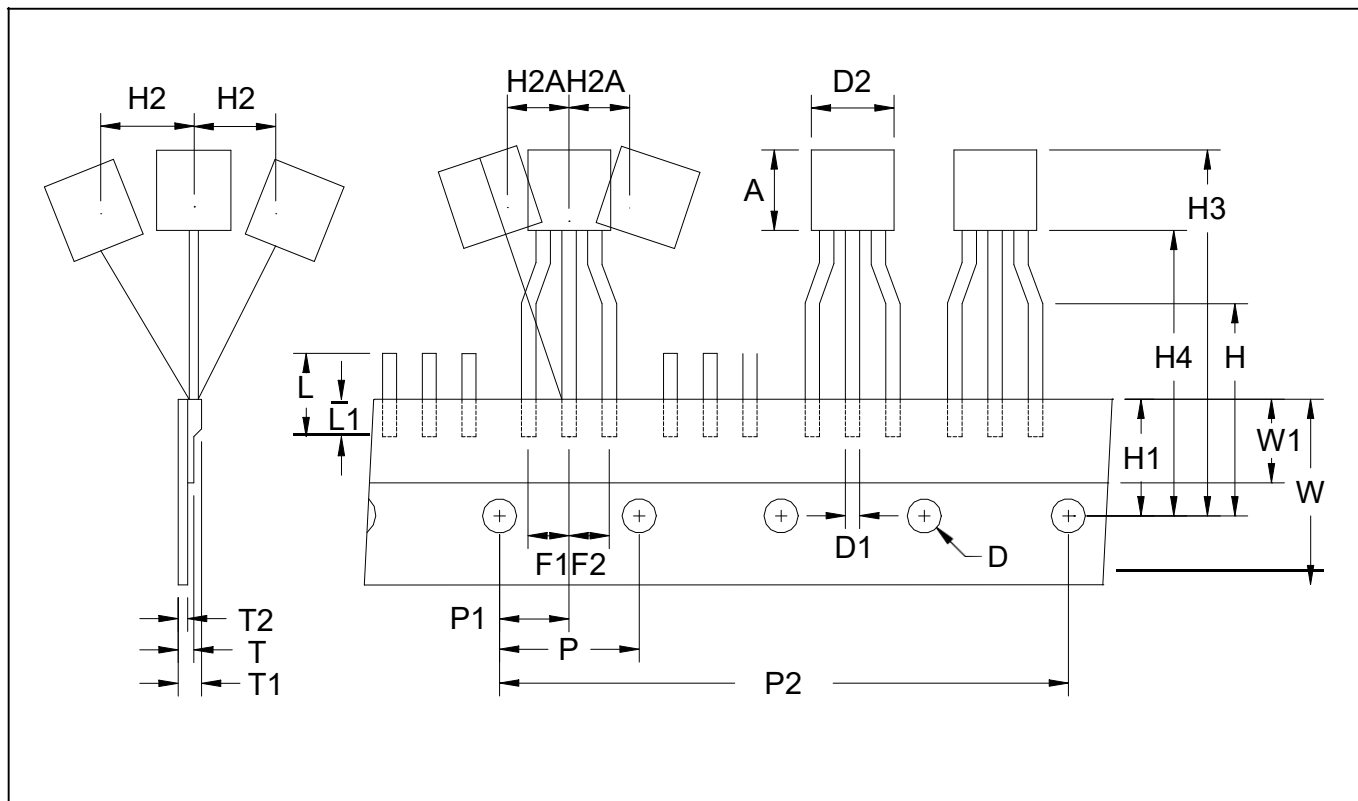
Saturation Voltage vs Collector Current



Power Derating Curve

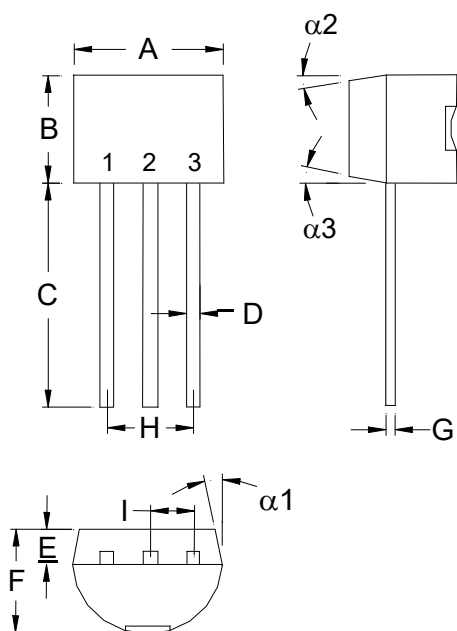


TO-92 Taping Outline

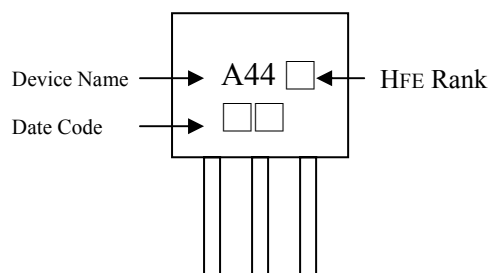


DIM	Item	Millimeters	
		Min.	Max.
A	Component body height	4.33	4.83
D	Tape Feed Diameter	3.80	4.20
D1	Lead Diameter	0.36	0.53
D2	Component Body Diameter	4.33	4.83
F1,F2	Component Lead Pitch	2.40	2.90
F1,F2	F1-F2	-	±0.3
H	Height Of Seating Plane	15.50	16.50
H1	Feed Hole Location	8.50	9.50
H2	Front To Rear Deflection	-	1
H2A	Deflection Left Or Right	-	1
H3	Component Height	-	27
H4	Feed Hole To Bottom Of Component	-	21
L	Lead Length After Component Removal	-	11
L1	Lead Wire Enclosure	2.50	-
P	Feed Hole Pitch	12.50	12.90
P1	Center Of Seating Plane Location	5.95	6.75
P2	4 Feed Hole Pitch	50.30	51.30
T	Over All Tape Thickness	-	0.55
T1	Total Taped Package Thickness	-	1.42
T2	Carrier Tape Thickness	0.36	0.68
W	Tape Width	17.50	19.00
W1	Adhesive Tape Width	5.00	7.00
-	20 pcs Pitch	253	255

TO-92 Dimension



Marking:



Style: Pin 1.Emitter 2.Base 3.Collector

3-Lead TO-92 Plastic Package

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	α1	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	α2	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	α3	-	*2°	-	*2°