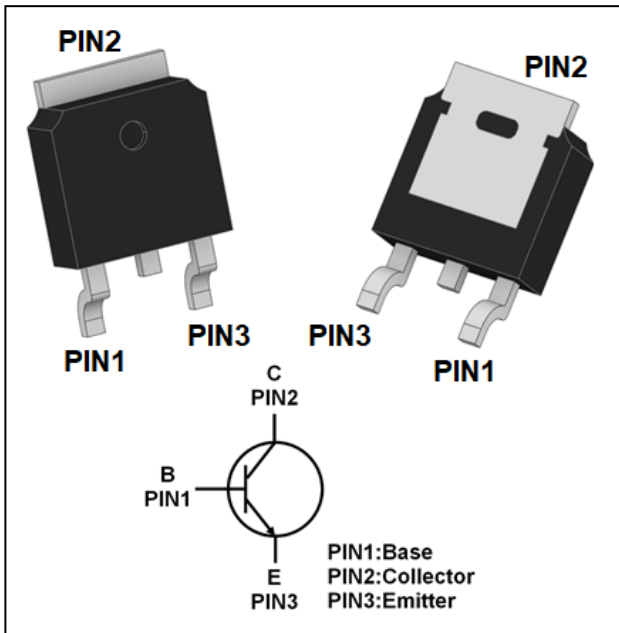


NPN High Power Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1

Applications

- High DC Current Gain
- Low Saturation Voltage
- High Power Dissipation

Mechanical Data

- Package: TO-252
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Unit Weight: 0.32g

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Device marking code			B313-E
Collector-base voltage	V_{CBO}	V	60
Collector-emitter voltage	V_{CEO}	V	60
Emitter-base voltage	V_{EBO}	V	5
Collector current	I_C	A	3
Peak Collector current (single pulse, $t_p \leq 1ms$)	I_{CM}	A	5
Power dissipation	P_D	W	1.75
Thermal resistance, junction-to-ambient (Note1)	R_{thJA}	°C/W	71.5
Thermal resistance, junction-to-case(Note1)	R_{thJC}	°C/W	58
Junction temperature	T_j	°C	-55 to +150
Storage temperature	T_{STG}	°C	-55 to +150

(*) Device mounted on FR-4 PCB(25.4*25.4*1.0mm)mounting pad.



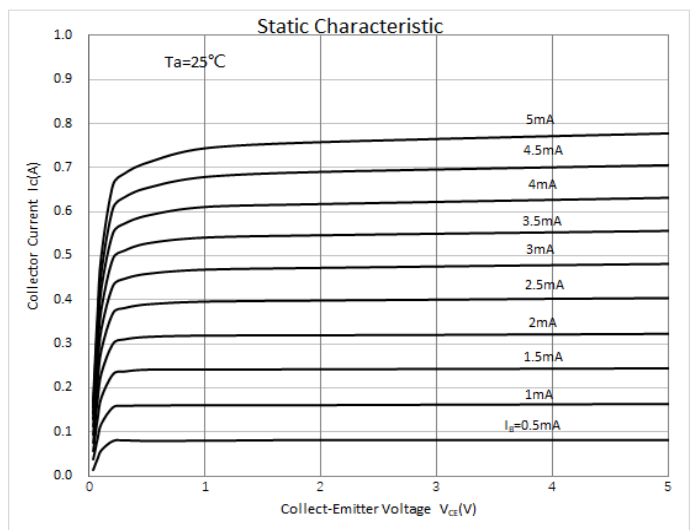
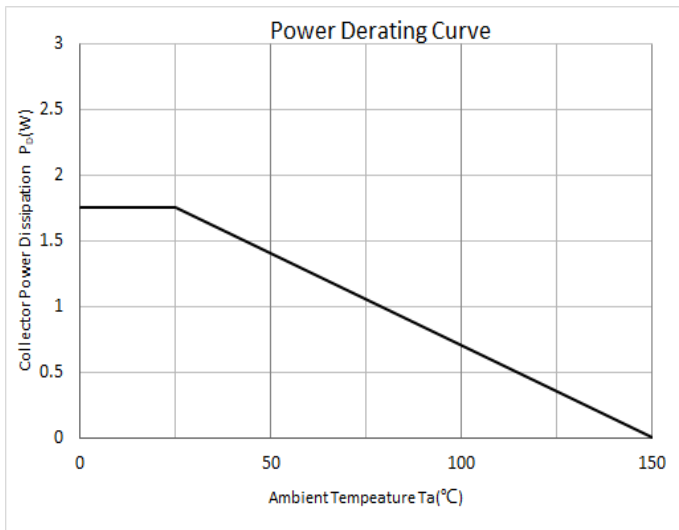
■ Electrical Characteristics (Ta=25°C unless otherwise noted)

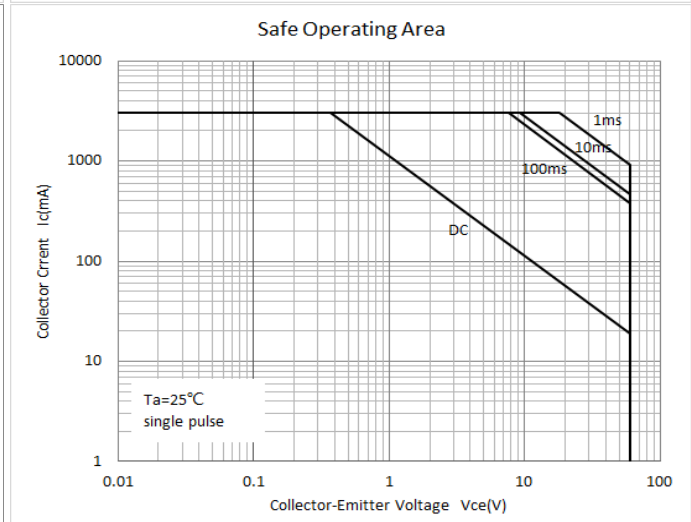
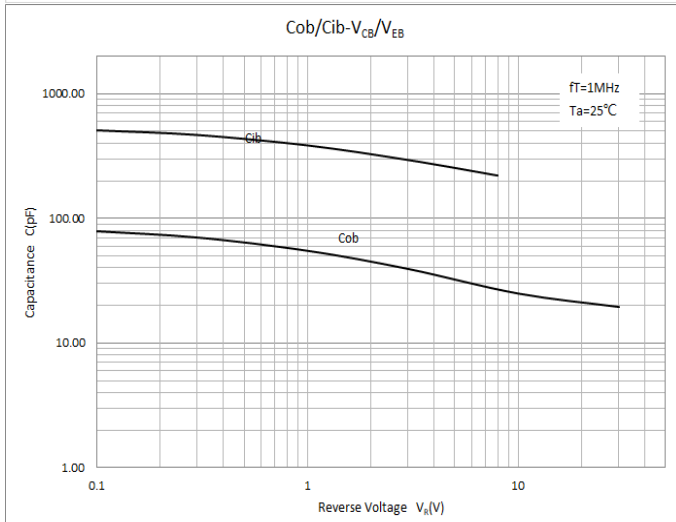
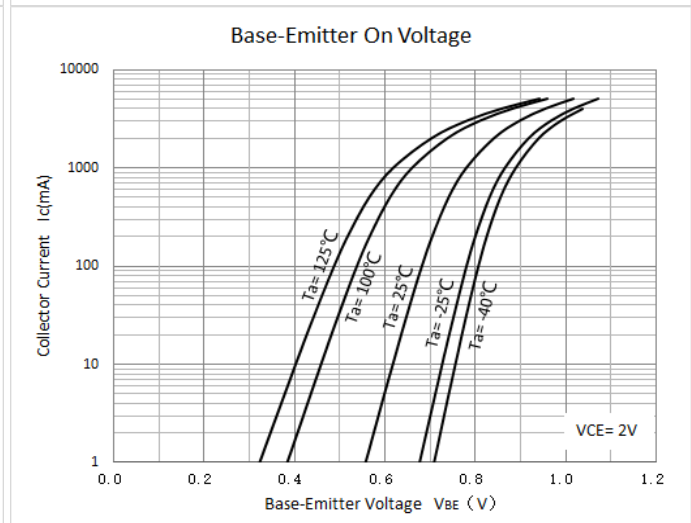
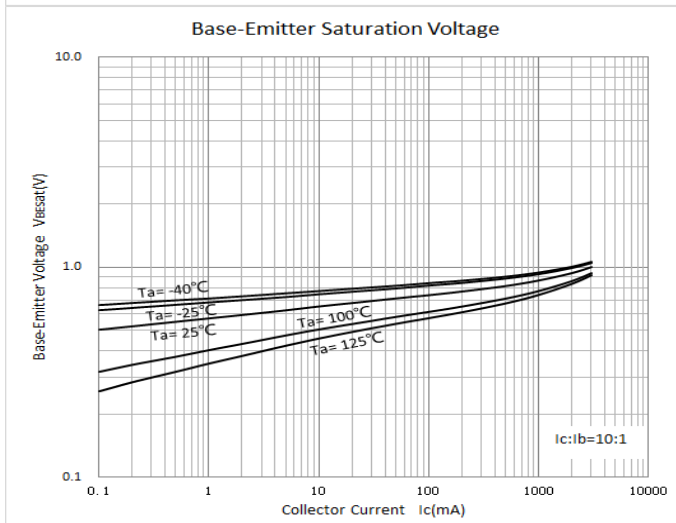
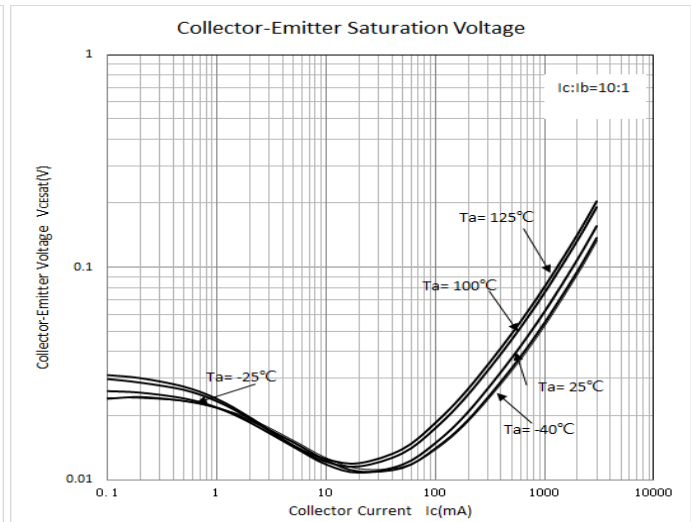
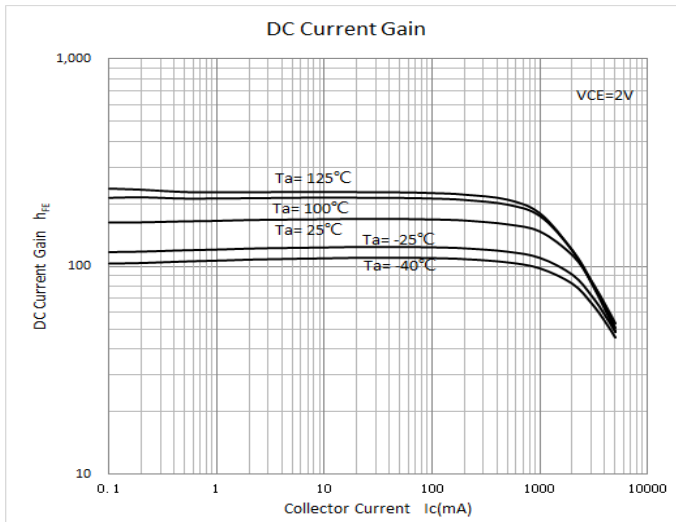
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C = 100\mu A, I_E = 0$	60		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C = 1mA, I_B = 0$	60		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E = 100\mu A, I_C = 0$	5		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB} = 60V$			100
Collector-emitter cut-off current	I_{CEO}	mA	$V_{CB} = 60V$			1
Emitter-base cut-off current	I_{EBO}	μA	$V_{EB} = 4V$			100
DC current gain	h_{FE}		$V_{CE} = 2V, I_C = 1A$	100		200
			$V_{CE} = 2V, I_C = 0.1A$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 2A, I_B = 0.2A$			1
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = 2A, I_B = 0.2A$			1.5
Base-Emitter Voltage	$V_{BE(on)}$	V	$V_{CE} = 2V, I_C = 1A$			1.5
Collector-base output capacitance	Cob	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$		30	

■ Ordering Information (Example)

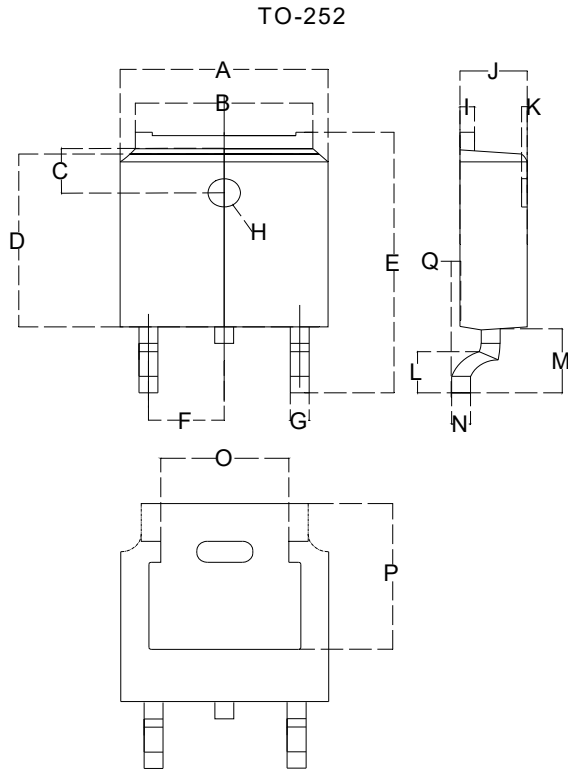
PREFERRED P/N	PACKING CODE	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SB313-E	F1	2500	2500	25000	13"Reel

■ Characteristics(Typical)





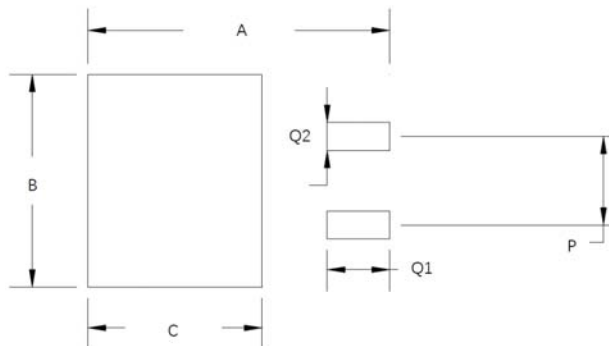
■ TO-252 Package information



Dimensions in millimeters

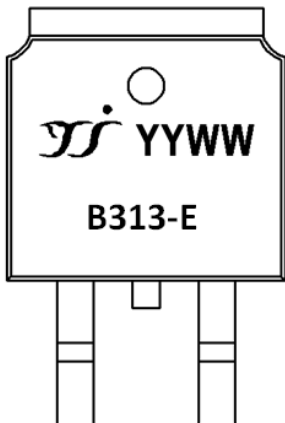
TO-252		
Dim	Min	Max
A	6.500	6.700
B	5.100	5.460
C	1.400	1.800
D	6.000	6.200
E	10.000	10.400
F	2.166	2.366
G	0.660	0.860
H	Φ 1.050	Φ 1.350
I	0.460	0.580
J	2.200	2.400
K	0	0.300
L	0.890	2.290
M	2.730	3.080
N	0.430	0.580
P	5.15	5.45
Q	0	0.2
R	4.50	5.10
S	1.60	2.40

■ Suggested Pad Layout



Dim	Millimeters
A	11.4
B	6.74
C	6.23
P	4.56
Q1	2.28
Q2	1.52

■ Marking Code



Yangjie LOGO

YYWW: YY, years; WW, week.

For example, 24 represents 2024; 01 represents the first week of this year.

B313-E: Product model.



Disclaimer

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