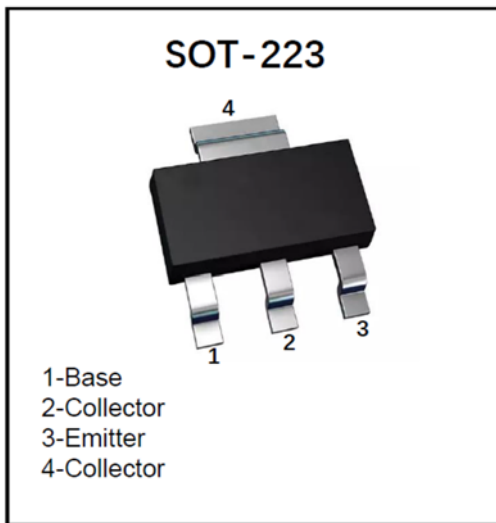


NPN General Purpose Amplifier



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

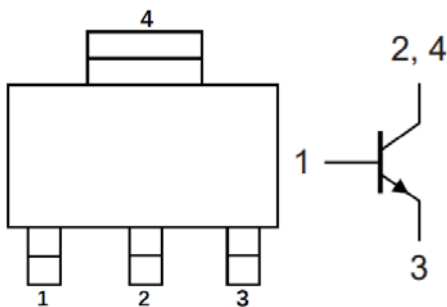
Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

Equivalent circuit



Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				S306NZ
Collector-base voltage	V_{CB0}	V	$I_C=1\text{mA}$, $I_E=0$	100
Collector-emitter voltage	V_{CE0}	V	$I_C=1\text{mA}$, $I_B=0$	100
Emitter-base voltage	V_{EB0}	V	$I_E=100\mu\text{A}$, $I_C=0$	5
Collector current	I_C	A		5.1
Peak Collector current	I_{CM}	A	single pulse, $t_p \leq 1\text{ms}$	10.2
Base current	I_B	A		0.4
Power dissipation	P_D	mW		500
Junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



YJBS306NZ

RoHS
COMPLIANT

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =1mA, I _E =0	100		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =1mA, I _B =0	100		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =100uA, I _C =0	5		
Collector-base cut-off current	I _{CBO}	nA	V _{CB} =80V I _E =0			100
Emitter-base cut-off current	I _{EBO}	nA	V _{EB} =5V I _C =0			100
Collector Cutoff Current	I _{CES}	uA	V _{CE} =80V V _{BE} =0			10
DC current gain	h _{FE}		V _{CE} =2V I _C =0.5A	200		
			V _{CE} =2V I _C =1A	150		
			V _{CE} =2V I _C =2A	100		
			V _{CE} =2V I _C =4A	50		
			V _{CE} =2V I _C =5A	40		
Collector-emitter saturation voltage	V _{CE(sat)}	mV	I _C =0.5A I _B =50mA			40
			I _C =1A I _B =50mA			75
			I _C =1A I _B =10mA			150
			I _C =2A I _B =40mA			160
			I _C =4A I _B =200mA			225
			I _C =4A I _B =400mA			200
			I _C =4.5A I _B =225mA			245
Collector-emitter saturation resistance	R _{CE(sat)}	mΩ	I _C =4A I _B =200mA			56
Base-emitter saturation voltage	V _{BE(sat)}	V	I _C =1A I _B =100mA			0.9
			I _C =4A I _B =400mA			1.05
Base-emitter turn-on voltage	V _{BE}	V	V _{CE} =2V I _C =2A			0.85

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	250
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	50

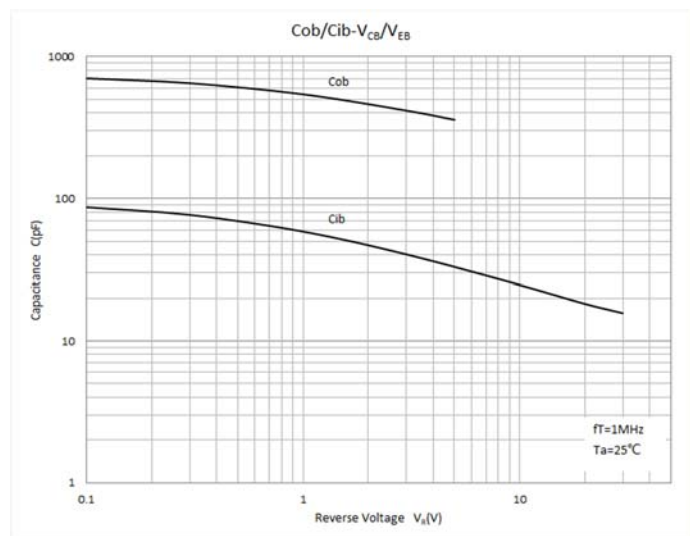
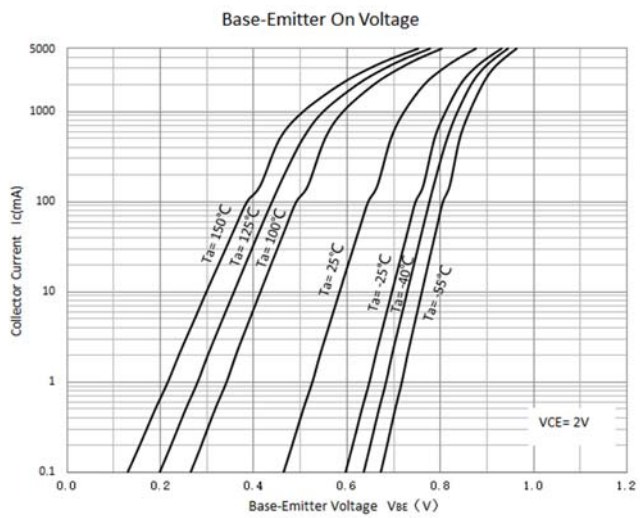
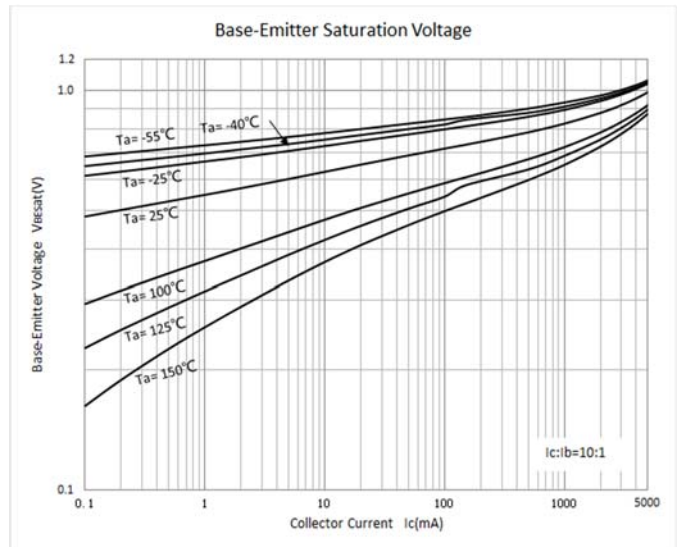
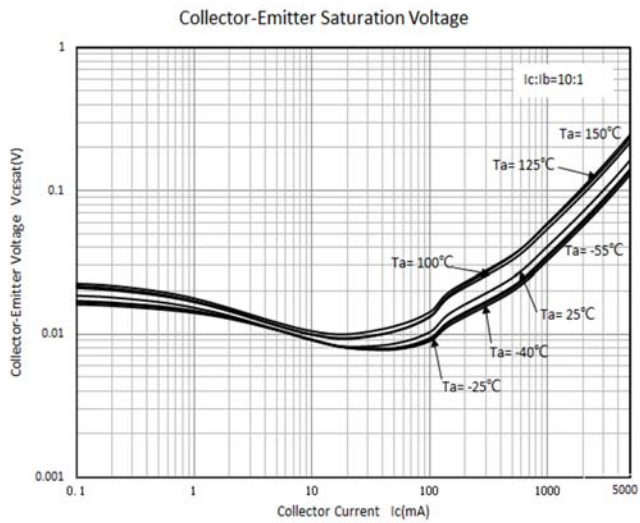
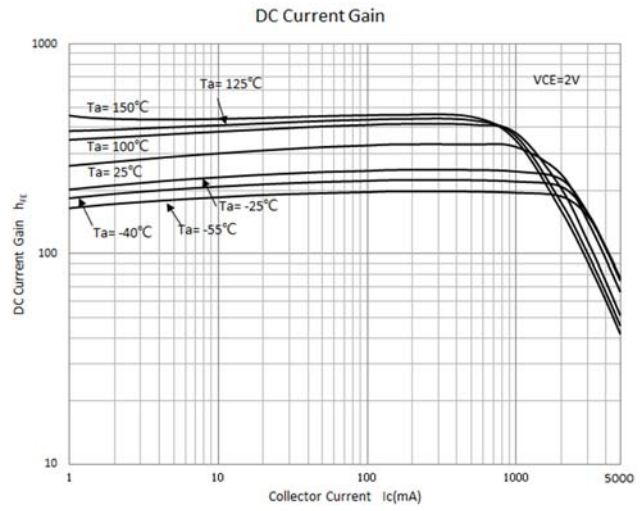
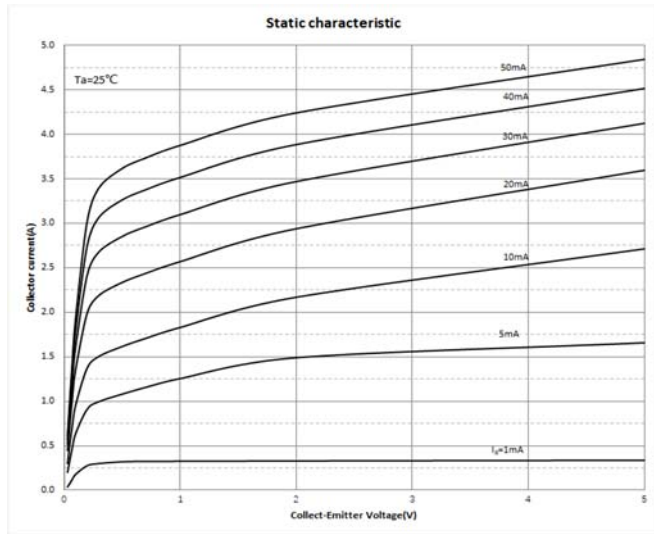
Note: The device is installed and tested on 25.4 * 25.4 * 1.5mm P.C.B.

■ Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
YJBS306NZ	F2	Approximate 0.11	2500	5000	25000	13" reel

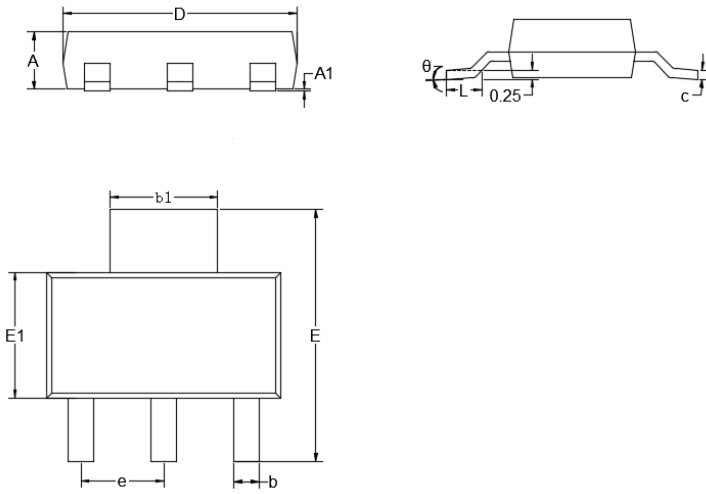


Characteristics



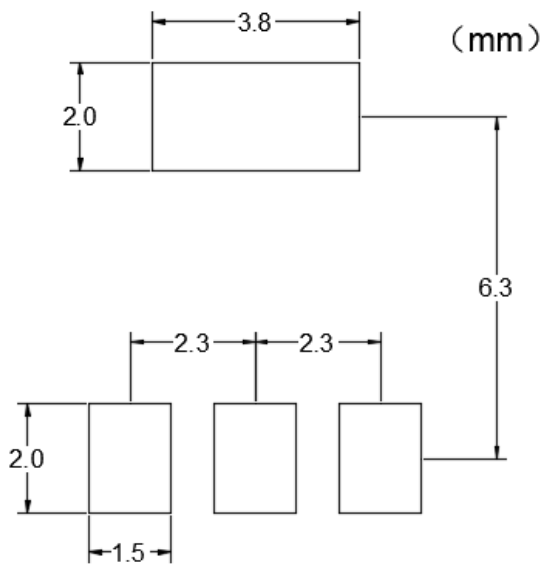


■ Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.0591	0.0670	1.5000	1.7000
A1	0.0008	0.0039	0.0200	0.1000
b	0.0259	0.0330	0.6600	0.8400
b1	0.1140	0.1220	2.9000	3.1000
c	0.0090	0.0138	0.2300	0.3500
D	0.2480	0.2640	6.3000	6.7000
E	0.2637	0.2874	6.7000	7.3000
E1	0.1290	0.1460	3.3000	3.7000
e	0.0866	0.0945	2.2000	2.4000
L	0.0295	0.0492	0.7500	1.2500
θ	0°	10°	0°	10°

■ Suggested Pad Layout





Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.