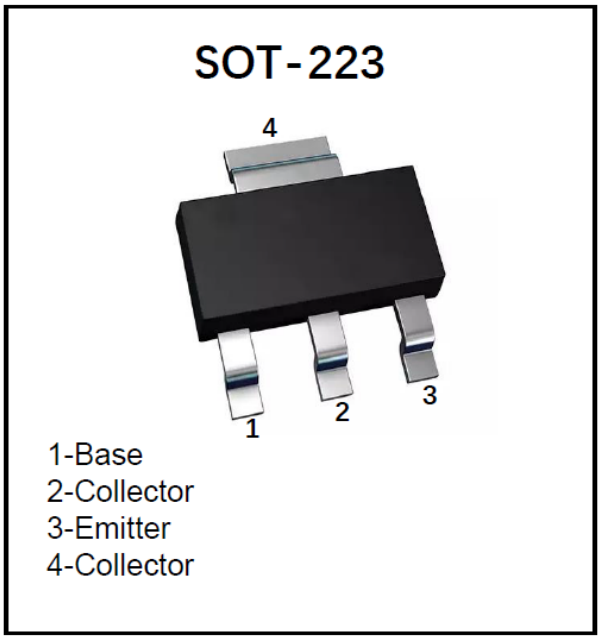
PNP Transistor



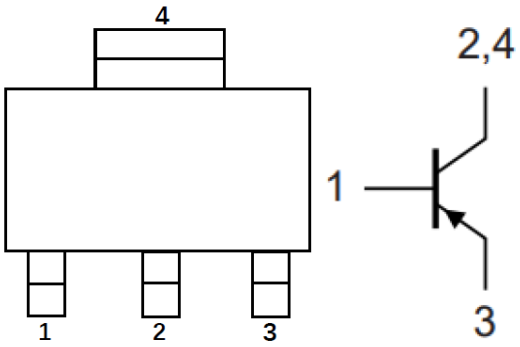
Features

- Epoxy meets UL-94 V-0 flammability rating
- Halogen free available upon request by adding suffix ”HF”
- Moisture Sensitivity Level 1

Mechanical Data

- **Package**: SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** S304PZ

■Equivalent circuit



■Maximum Ratings (Ta=25℃ unless otherwise noted)

Item	Symbol	Unit	Conditions	Value
Minimum Collector-Emitter Voltage	V_{CEO}	V	I_C=-10mA, I_B=0	-60
Minimum Collector-Base Voltage	V_{CBO}	V	I_C=-100uA, I_E=0	-60
Minimum Emitter-Base Voltage	V_{EBO}	V	I_E=-100uA, I_C=0	-5
Collector Current	I_C	A		-4.5
Power Dissipation	P_D	W		1
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	℃/W		125
Operation Junction Temperature	T_j	℃		-55 to +150
Storage Temperature	T_{stg}	℃		-55 to +150

■Electrical Characteristics (Ta=25℃ unless otherwise noted)

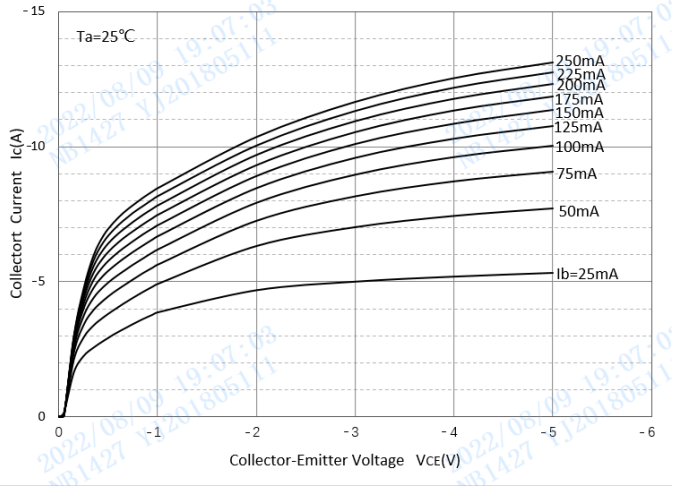
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V_{CBO}	V	IC=-100uA,IE=0	-60	-	-
Collector-emitter breakdown voltage	V_{CEO*}	V	IC =-10mA,IB=0	-60	-	-
Emitter-base breakdown voltage	V_{EBO}	V	IE=-100μA,IC=0	-5	-	-
Collector-base cut-off current	I_{CBO}	nA	VCB=-60V, IE =0	-	-	-100
Emitter-base cut-off current	I_{EBO}	nA	VEB=-5V, IC =0	-	-	-100
DC current gain	h_{FE}		VCE=-2V,IC=-0.5A	200	-	-
	h_{FE}		VCE=-2V,IC=-1A	200	-	-
	h_{FE}		VCE=-2V,IC=-2A	150	-	-
	h_{FE}		VCE=-2V,IC=-4A	120		
	h_{FE}		VCE=-2V,IC=-6A	60	-	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	IC=-0.5A,IB=-50mA	-	-	-50
			IC=-1A,IB=-50mA	-	-	-90
			IC=-1A,IB=-10mA	-	-	-190
			IC=-2A,IB=-40mA	-	-	-230
			IC=-4A,IB=-200mA	-	-	-300
			IC=-4A,IB=-400mA	-	-	-230
			IC=-4.5A,IB=-225mA	-	-	-375
Base-emitter saturation voltage	$V_{BE(sat)}$	V	IC=-1A,IB=-100mA	-	-	-0.9
			IC=-4A,IB=-400mA	-	-	-1.05
Base-Emitter Voltage	V_{BE}	V	V_{CE}=-2V I_C=-2A	-	-	-0.85
Delay time	t_d	ns	V_{CC}=-12.5V，I_C=-3A； I_{Bon}=-0.15A I_{Boff}=-0.15A		70	
Rise time	t_r	ns			20	
Turn-on time	t_{on}	ns			90	
Storage time	t_s	ns			345	
Fall time	t_f	ns			25	
Turn-off time	t_{off}	ns			370	
Output Capacitance	Cob	pF	VCB=-10V, IE=0, f=1MHz	-	-	120

■Ordering Information (Example)

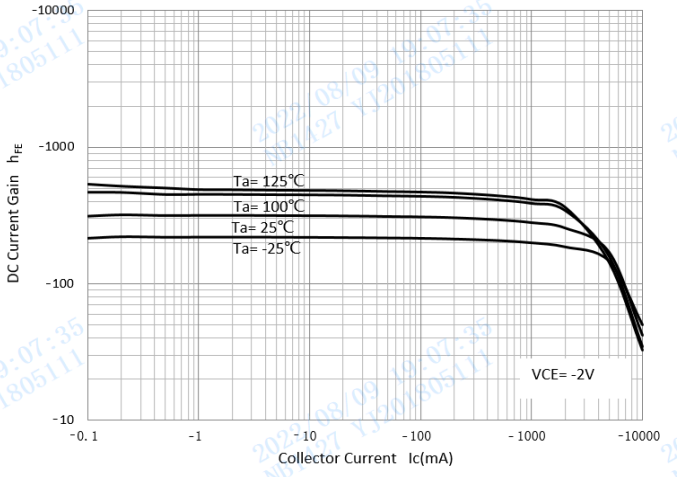
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
PBSS304PZ	F2	Approximate 0.11	2500	5000	25000	13” reel

■Characteristics (Typical)

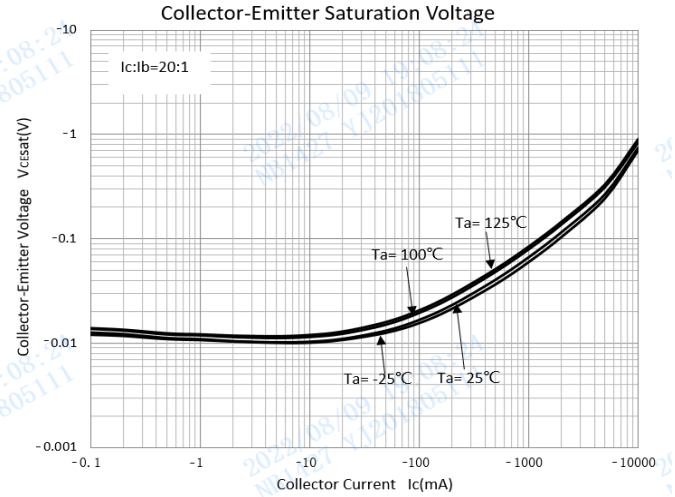
Static Characteristic



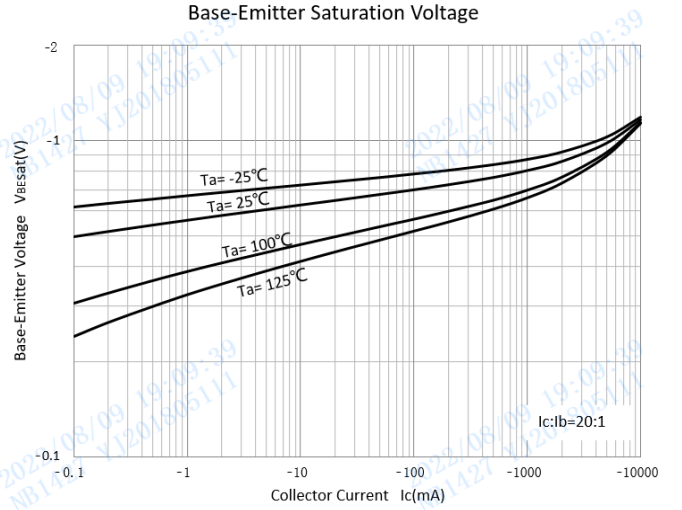
DC Current Gain



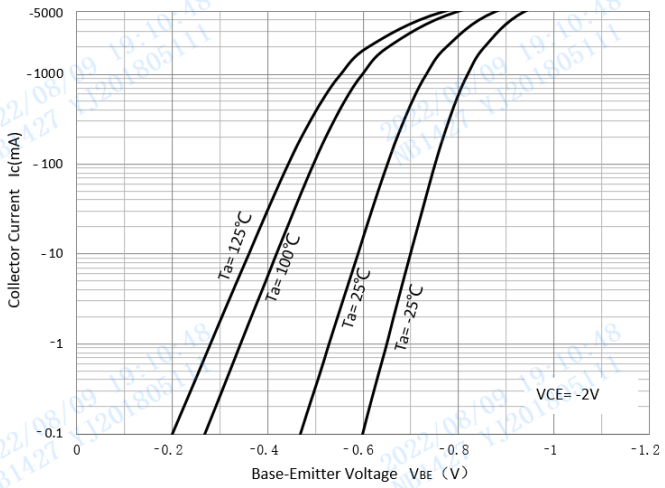
Collector-Emitter Saturation Voltage



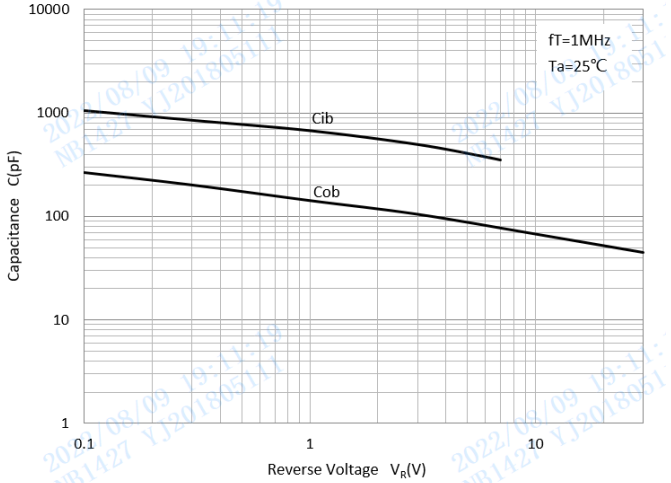
Base-Emitter Saturation Voltage



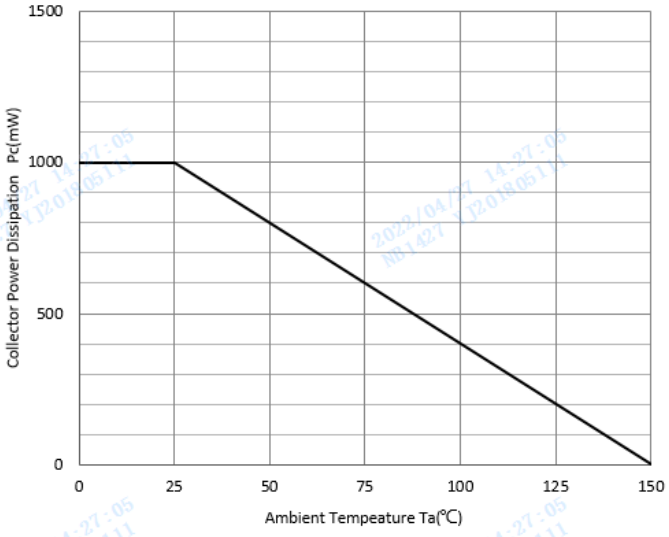
Base-Emitter On Voltage



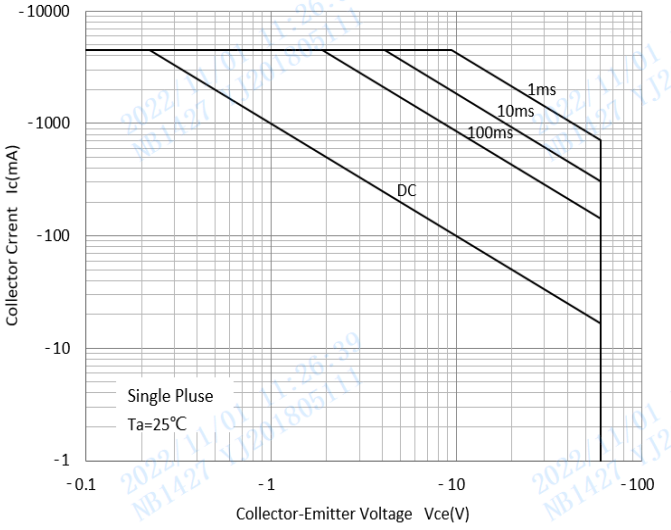
Cob/Cib-V_{CB}/V_{EB}



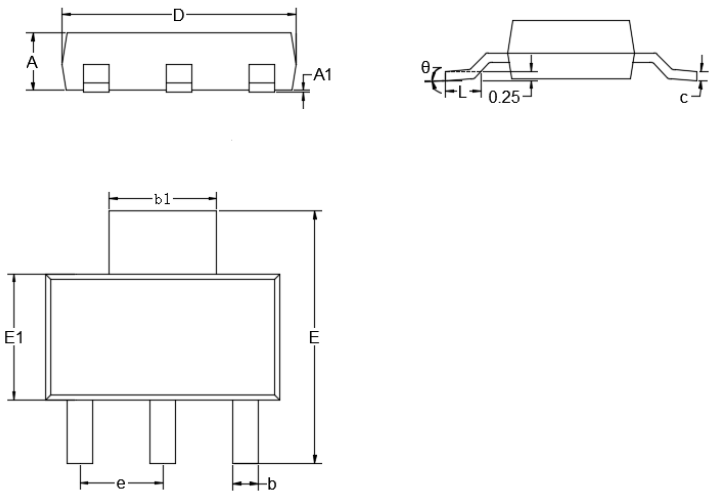
Collector Power Derating Curve



Safe Operating Area

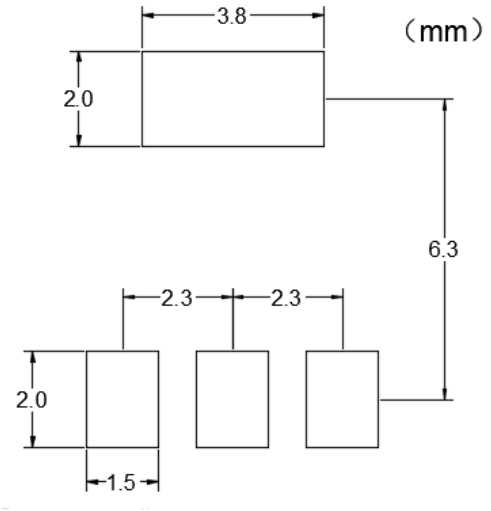


■SOT-223 Package Outline Dimensions



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	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°

■SOT-223 Suggested Pad Layout



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