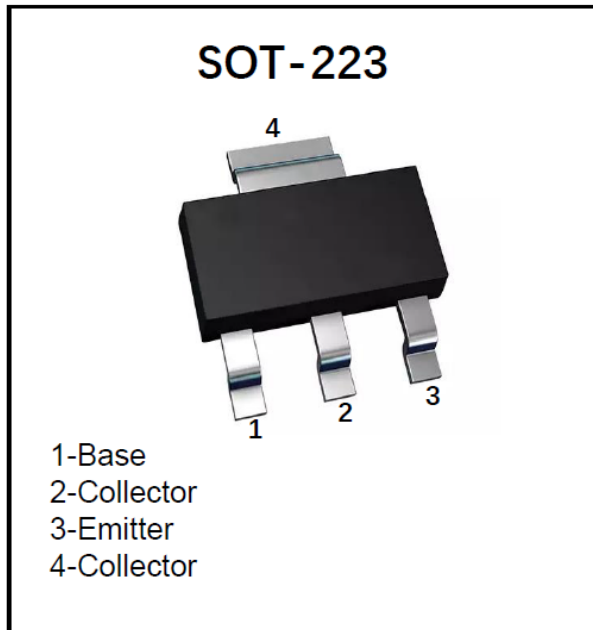


PNP Low Vcesat Transistor



Features

- Moisture Sensitivity Level 1
- Low collector-emitter saturation voltage
- Part no. with suffix "Q" means AEC-Q101 qualified

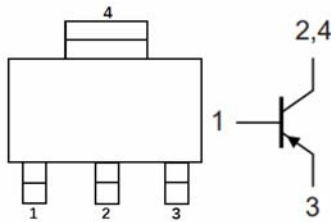
Application

- DC/DC converters; MOSFET gate driving
- Motor control; Power switches

Mechanical Data

- **Package:** SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** S306PZ.

■Equivalent circuit



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

Item	Symbol	Unit	Value
Minimum Collector-Emitter Voltage	V_{CEO}	V	-100
Minimum Collector-Base Voltage	V_{CBO}	V	-100
Minimum Emitter-Base Voltage	V_{EBO}	V	-5
Collector Current	I_C	A	-4.1
Power Dissipation (Note1)	P_D	W	0.7
Power Dissipation (Note2)	P_D	W	1
Operation Junction Temperature	T_j	°C	-55 to +150
Storage Temperature	T_{stg}	°C	-55 to +150



PBSS306PZQ

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	V_{CBO}	V	$I_C = -100\mu A, I_E = 0$	-100		
Collector-Base Voltage	V_{CEO^*}	V	$I_C = -10mA, I_B = 0$	-100		
Emitter-Base Voltage	V_{EBO}	V	$I_E = -100\mu A, I_C = 0$	-5		
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB} = -80V, I_E = 0$			-100
Collector-Emitter cut-off current	I_{EBO}	nA	$V_{EB} = -5V, I_C = 0$			-100
DC Current Gain	h_{FE}		$V_{CE} = -2V, I_C = -0.5A$	200		
	h_{FE}		$V_{CE} = -2V, I_C = -1A$	150		
	h_{FE}		$V_{CE} = -2V, I_C = -2A$	100		
	h_{FE}		$V_{CE} = -2V, I_C = -4A$	25		
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	mV	$I_C = -0.5A, I_B = -50mA$			-65
	$V_{CE(sat)2}$	mV	$I_C = -1A, I_B = -50mA$			-130
	$V_{CE(sat)3}$	mV	$I_C = -4A, I_B = -400mA$			-320
	$V_{CE(sat)4}$	mV	$I_C = -4.1A, I_B = -410mA$			-325
Equivalent On-resistance	R_{CEsat}	mΩ	$I_C = -4A, I_B = -400mA$			80
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$	V	$I_C = -1A, I_B = -100mA$			-0.9
	$V_{BE(sat)2}$	V	$I_C = -4A, I_B = -400mA$			-1.05
Base-Emitter Turn-on Voltage	$V_{BE(on)}$	V	$V_{CE} = -2V, I_C = -2A$			-0.85
Transition Frequency	f_T	MHz	$I_C = -100mA, V_{CE} = -10V, f = 100MHz$		100	

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
PBSS306PZQ	F2	Approximate 0.11	2500	5000	25000	13" reel

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	°C/W	179
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(2)}$	°C/W	125

Note:

- (1) Thermal resistance from junction to ambient, mounted on FR4 P.C.B. with standard footprint.
- (2) Thermal resistance from junction to ambient, mounted on FR4 P.C.B. with 1cm² copper collector pad area.



■Characteristics (Typical)

Fig.1 - Static characteristic

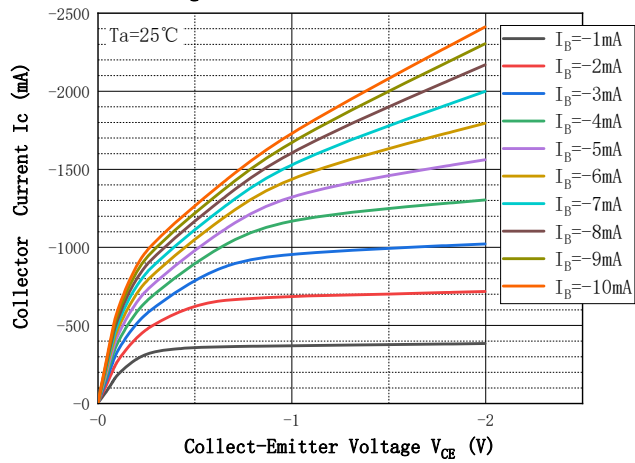


Fig.2 - DC Current Gain

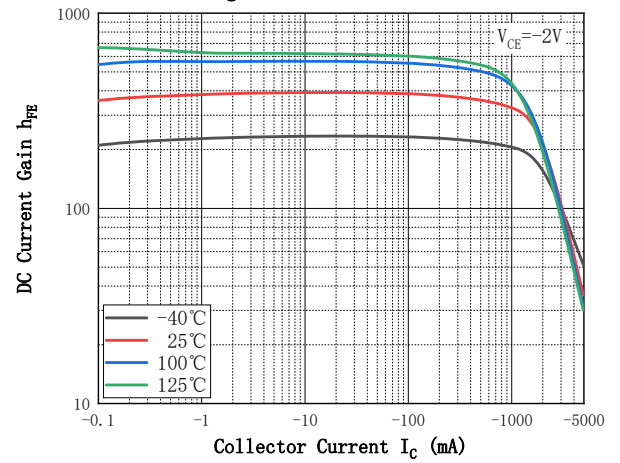


Fig.3 - Collect-Emittor Saturation Voltage

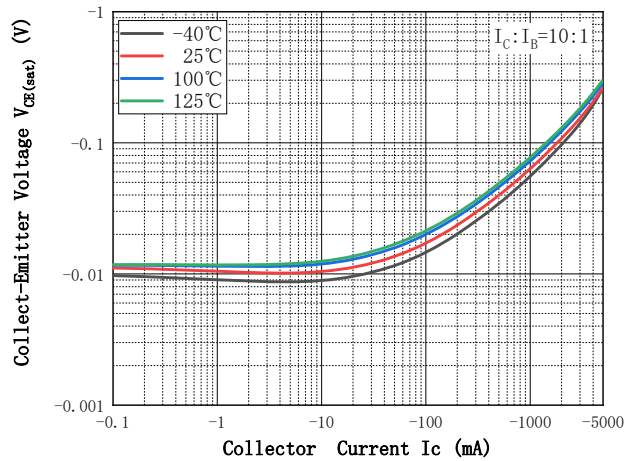


Fig.4 - Collect-Emittor Saturation Voltage

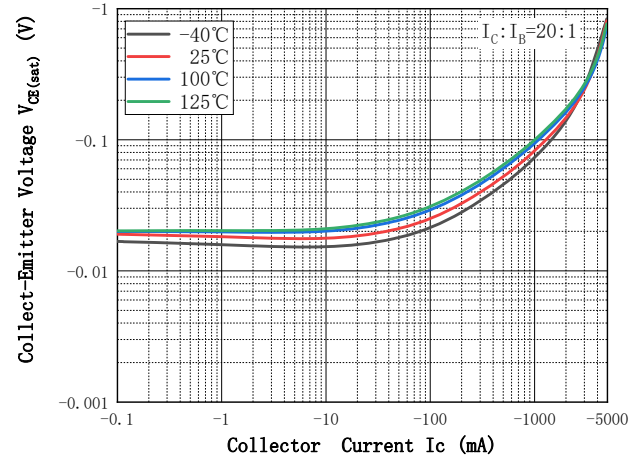


Fig.5 - Base-Emittor Voltage

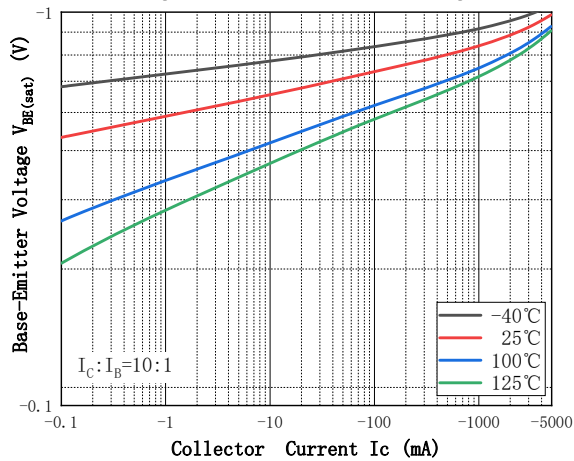


Fig.6 - Base-Emittor Voltage

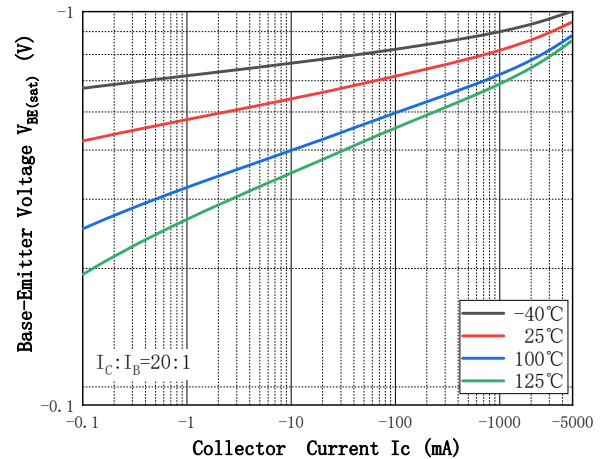




Fig.7 - Base-Emitter On Voltage

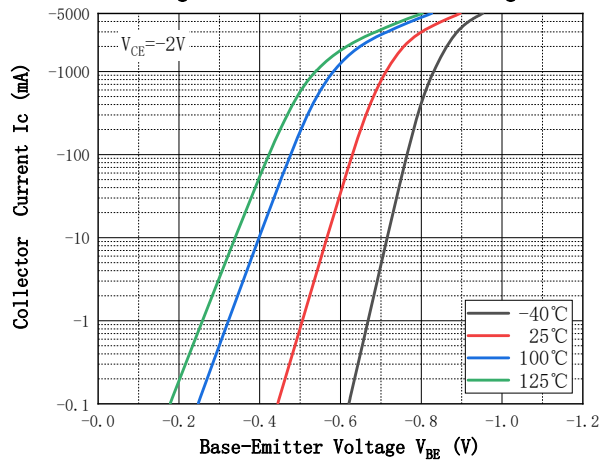


Fig.8 - Cob/Cib—VCB/VEB

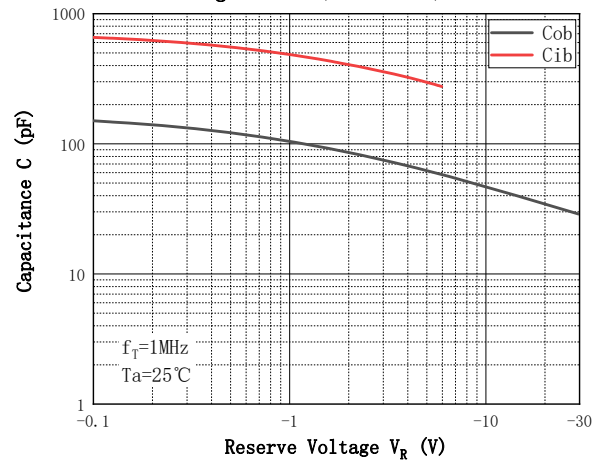
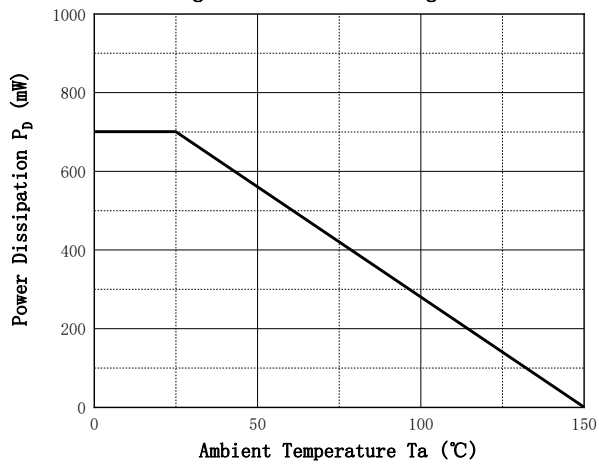


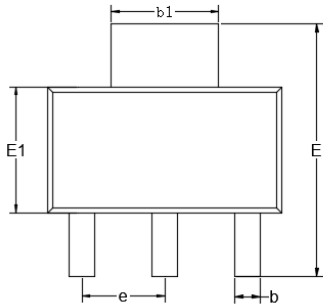
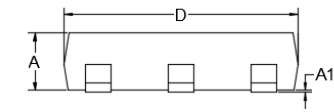
Fig.9 - Power Derating Curve





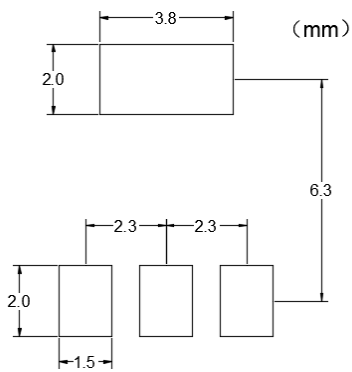
PBSS306PZQ

■SOT-223 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MM	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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