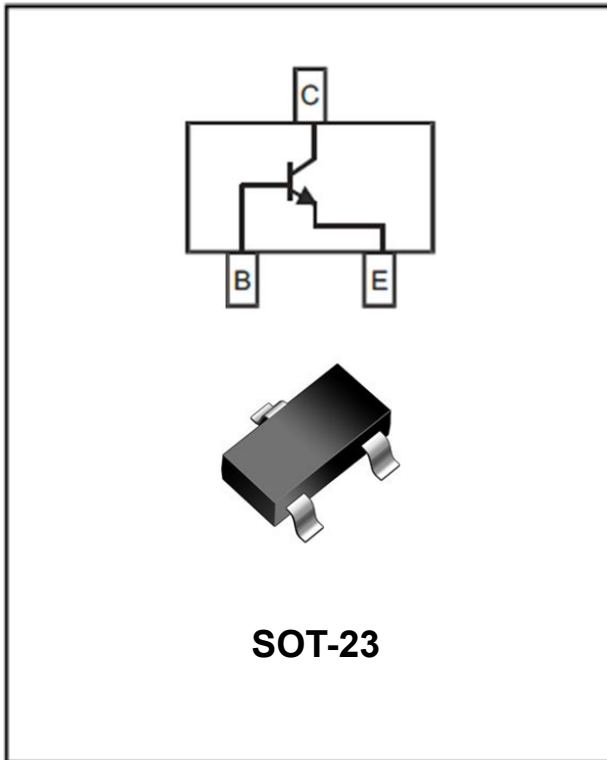


NPN Low VCEsat Transistor



Features

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

Application

- DC/DC converters
- Supply line switching
- Battery management
- Strobe flash units

Mechanical Data

- **Package:** SOT-23

Molding compound meets UL 94 V-0 flammability rating,
RoHS-compliant, halogen-free

- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** ZE.

■Maximum Ratings (Ta=25°C)

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CE0}	V	$I_C=1mA, I_B=0$	40
Collector-Base Voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	40
Emitter-Base Voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	5
Collector Current	I_C	A		2
Power Dissipation	P_D	mW		300
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	°C/W		417
Junction Temperature	T_j	°C		-55 to +150
Storage Temperature	T_{stg}	°C		-55 to +150

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
PBSS4240TQ	F2	Approximate 0.01	3000	30000	120000	7" reel



PBSS4240TQ

■Electrical Characteristics (T_a=25°C)

Item	Symbol	Unit	Conditions	Min	Max
Collector-Emitter Voltage	V _{CEO}	V	I _C =1mA, I _B =0	40	
Collector-Base Voltage	V _{CBO}	V	I _C =100uA, I _E =0	40	
Emitter-Base Voltage	V _{EBO}	V	I _E =100uA, I _C =0	5	
Collector-Base cut-off current	I _{CBO}	nA	V _{CB} =30V		100
Emitter-Base cut-off current	I _{EBO}	nA	V _{EB} =4V		100
DC Current Gain	h _{FE}		V _{CE} =2V, I _C =100mA	350	
			V _{CE} =2V, I _C =500mA	300	
			V _{CE} =2V, I _C =1A	300	
			V _{CE} =2V, I _C =2A	150	
Collector-Emitter Saturation Voltage	V _{CE(sat)1}	mV	I _C =100mA I _B =1mA		70
	V _{CE(sat)2}	mV	I _C =500mA I _B =50mA		100
	V _{CE(sat)3}	mV	I _C =750mA I _B =15mA		180
	V _{CE(sat)4}	mV	I _C =1A I _B =50mA		180
	V _{CE(sat)5}	mV	I _C =2A I _B =200mA		320
Equivalent On-resistance	R _{CE(sat)}	mΩ	I _C =500mA I _B =50mA		200
Base-Emitter Saturation Voltage	V _{BE(sat)}	V	I _C =2A I _B =200mA		1.1
Base-Emitter Turn-on Voltage	V _{BE(on)}	V	I _C =100mA V _{CE} =2V		0.75
Transition frequency	f _T	MHz	I _C =100mA, V _{CE} =10V, f=100MHz	100	
Collector Capacitance	Cob	pF	V _{CB} =10V, I _E =0, f=1MHz		20

■Characteristics (Typical)

Fig.1 - Static characteristic

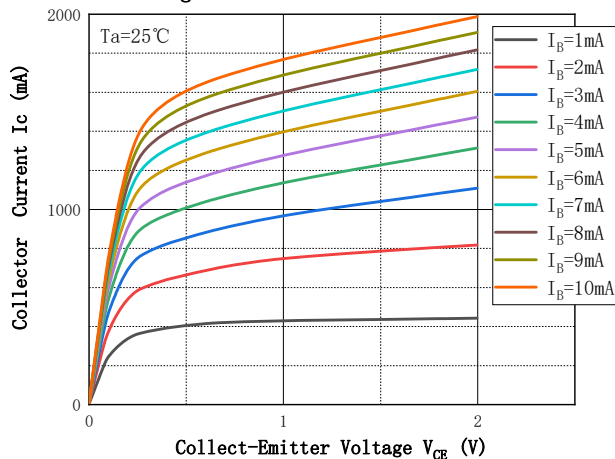


Fig.2 - DC Current Gain

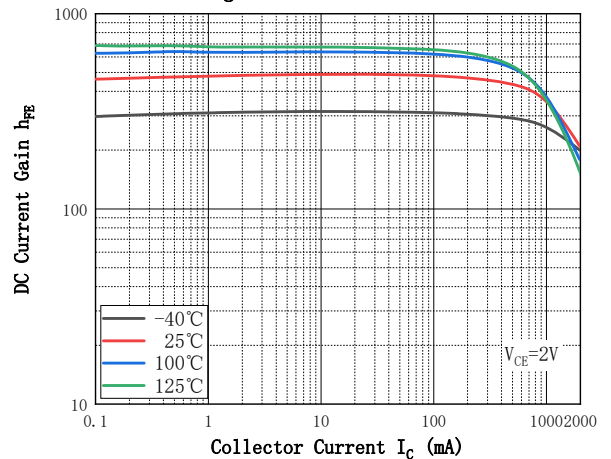


Fig.3 - Collect-Emittor Saturation Voltage

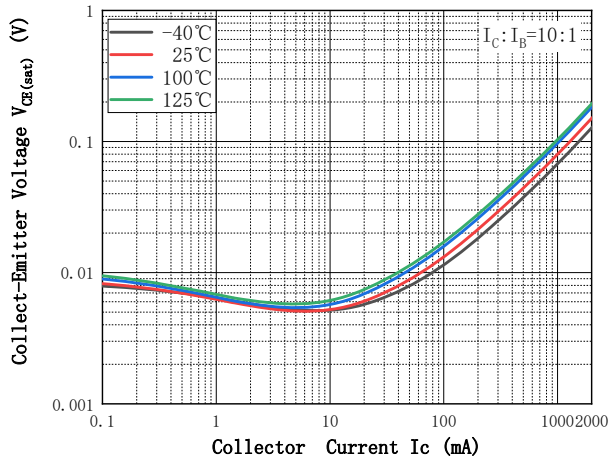


Fig.4 - Collect-Emittor Saturation Voltage

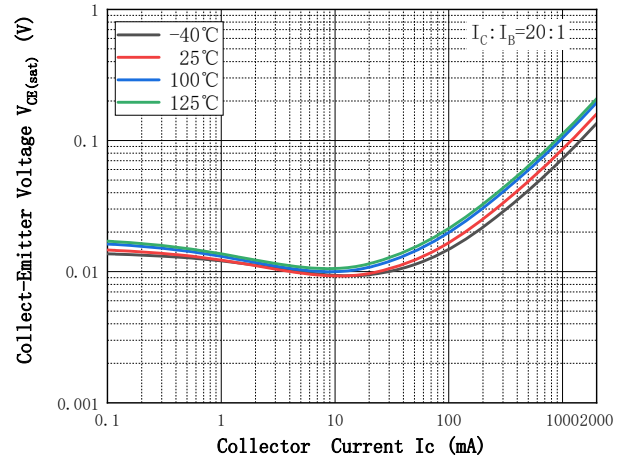


Fig.5 - Base-Emittor Voltage

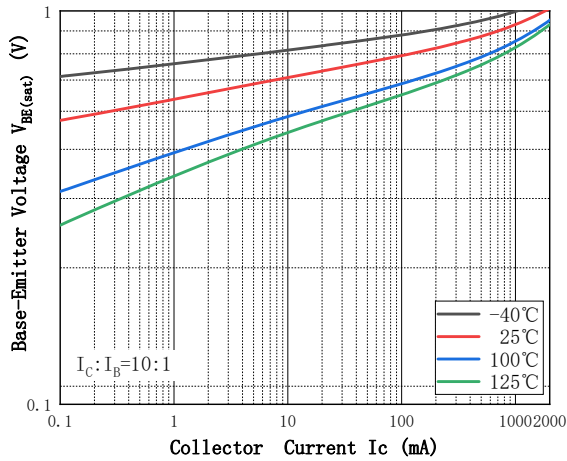


Fig.6 - Base-Emittor Voltage

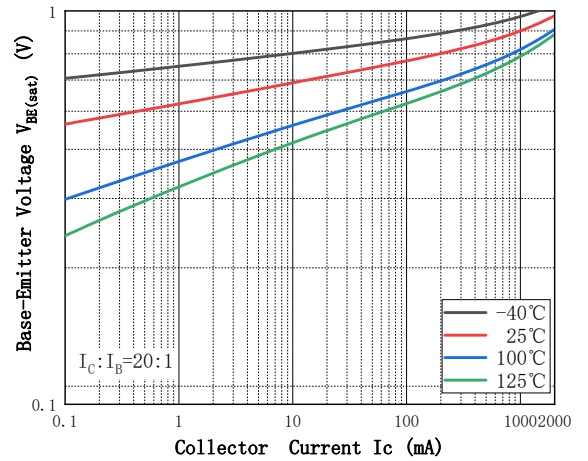


Fig.7 - Base-Emittor On Voltage

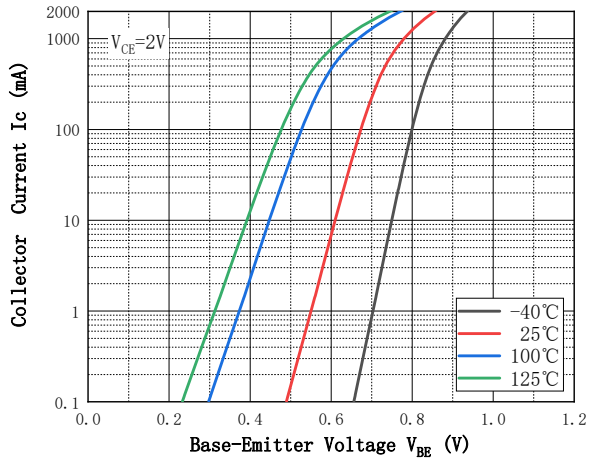


Fig.8 - Cob/Cib—VCB/VEB

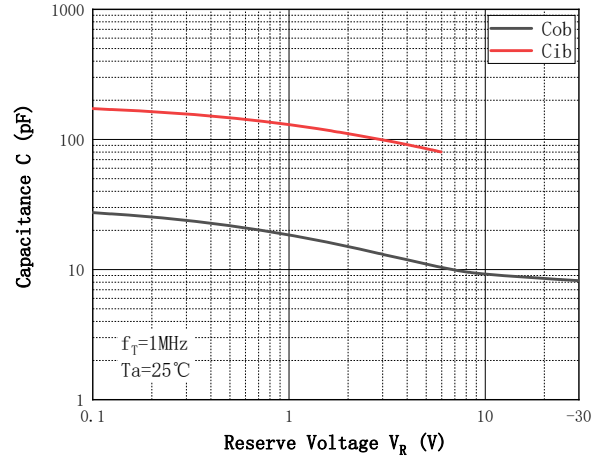
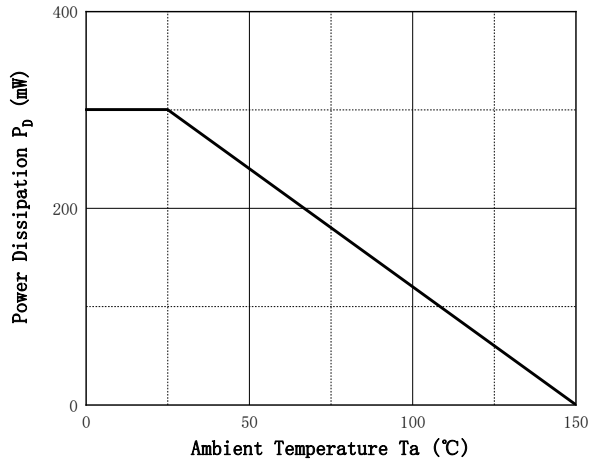
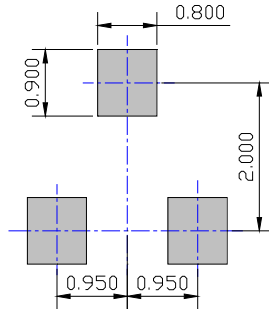
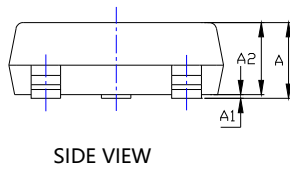
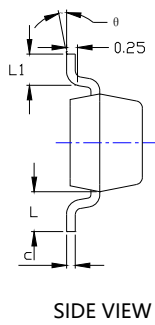
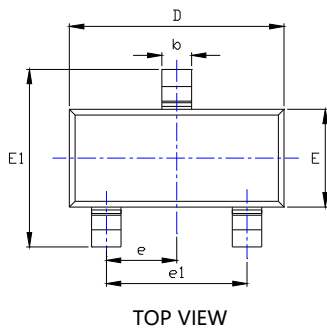


Fig.9 – Power Derating Curve



■SOT-23 Package Outline Dimensions & Suggested Pad Layout



UNIT: mm

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037 TYP		0.950 TYP	
e1	0.071	0.079	1.800	2.000
L	0.022 REF		0.550 REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

NOTE:
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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