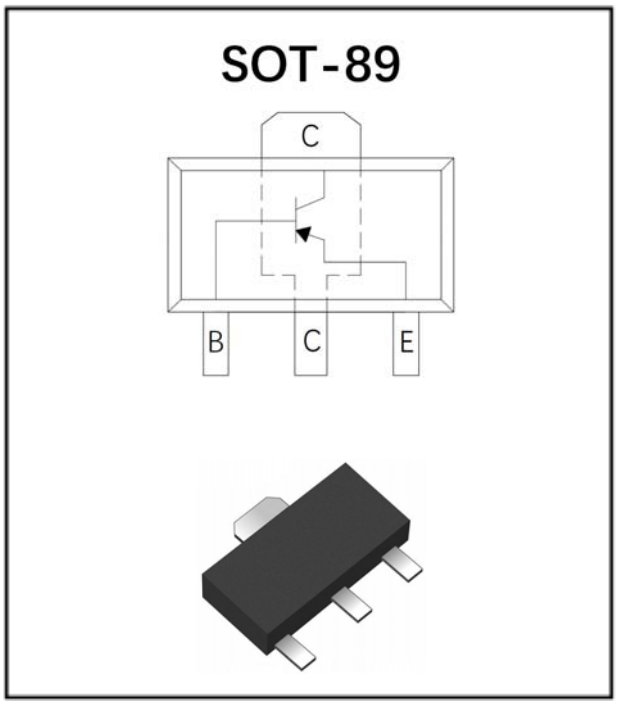
PNP Low Vcesat Transistor



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-89
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Marking: 5L.

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

Item	Symbol	Unit	Value
Minimum Collector-Emitter Voltage	V_{CEO}	V	-60
Minimum Collector-Base Voltage	V_{CBO}	V	-60
Minimum Emitter-Base Voltage	V_{EBO}	V	-5
Collector Current	I_C	A	-4.2
Collector Power Dissipation	P_C[(1)]	mW	600
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$[(1)]	℃/W	208
Operation Junction Temperature	T_j	℃	-55 to +150
Storage Temperature	T_{stg}	℃	-55 to +150

(1) Device mounted on FR4 P.C.B. with standard footprint.

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	V_{CBO}	V	I_C=-100uA,I_E=0	-60		
Collector-Base Voltage	V_{CEO}	V	I_C =-10mA,I_B=0	-60		
Emitter-Base Voltage	V_{EBO}	V	I_E=-100μA,I_C=0	-5		
Collector-Base cut-off current	I_{CBO}	nA	V_{CB}=-60V, 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	200		
	h_{FE}		V_{CE}=-2V,I_C=-2A	150		
	h_{FE}		V_{CE}=-2V,I_C=-4A	120		
	h_{FE}		V_{CE}=-2V,I_C=-6A	60		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}1$	mV	I_C=-0.5A,I_B=-50mA			-50
	$V_{CE(sat)}2$	mV	I_C=-1A,I_B=-50mA			-90
	$V_{CE(sat)}3$	mV	I_C=-1A,I_B=-10mA			-190
	$V_{CE(sat)}4$	mV	I_C=-2A,I_B=-40mA			-220
	$V_{CE(sat)}5$	mV	I_C=-4A,I_B=-200mA			-275
	$V_{CE(sat)}6$	mV	I_C=-4A,I_B=-400mA			-210
	$V_{CE(sat)}7$	mV	I_C=-4.2A,I_B=-210mA			-310
Equivalent On-resistance	R_{CEsat}	mΩ	I_C=-2A,I_B=-40mA			110
		mΩ	I_C=-4A,I_B=-200mA			69
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
PBSS304PXQ	F2	Approximate 0.055	1000	8000	32000	7” reel

■Characteristics (Typical)

Fig. 1 – Static characteristic

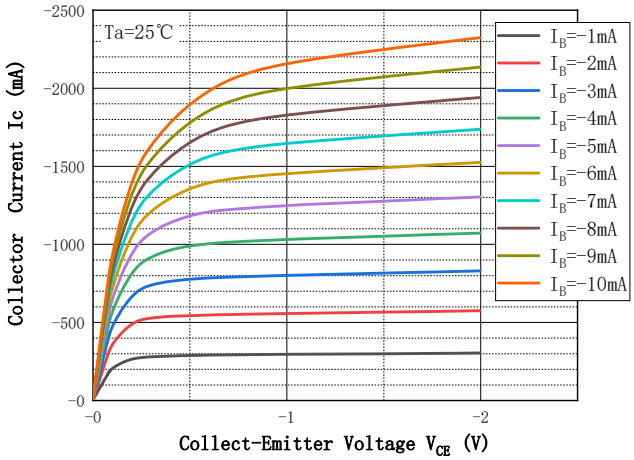


Fig. 2 – DC Current Gain

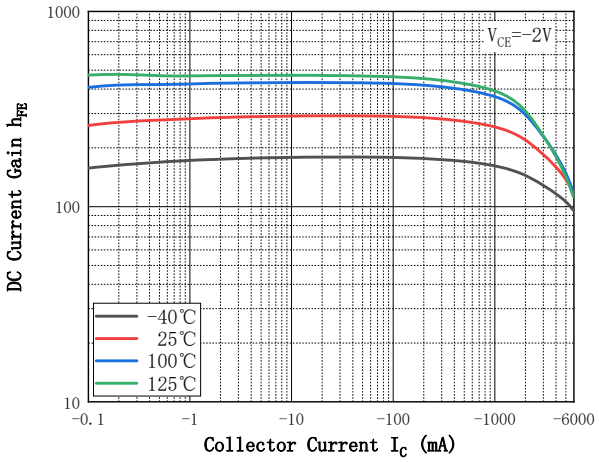


Fig. 3 – Collect-Emitter Saturation Voltage

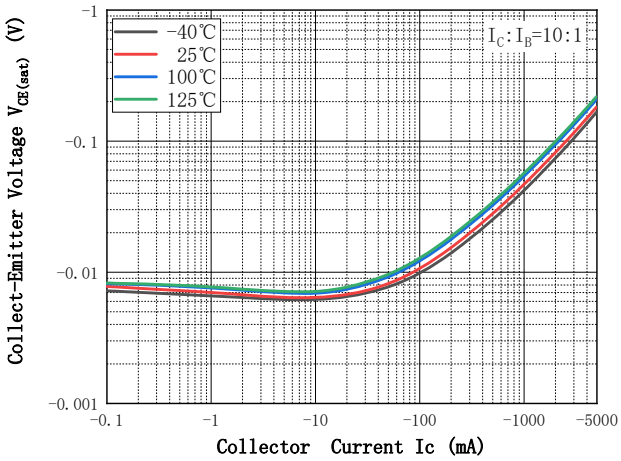


Fig. 4 – Base-Emitter Voltage

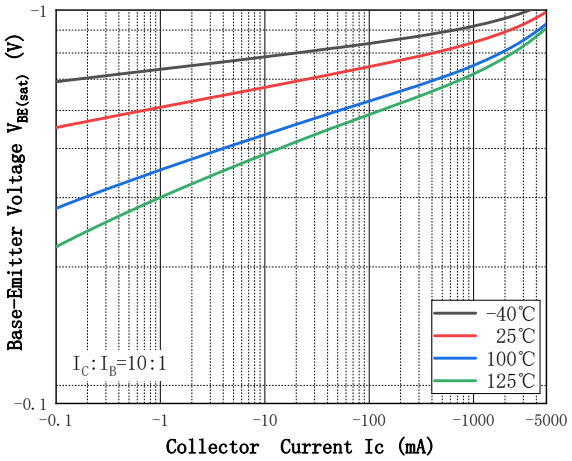


Fig. 5 – Base-Emitter On Voltage

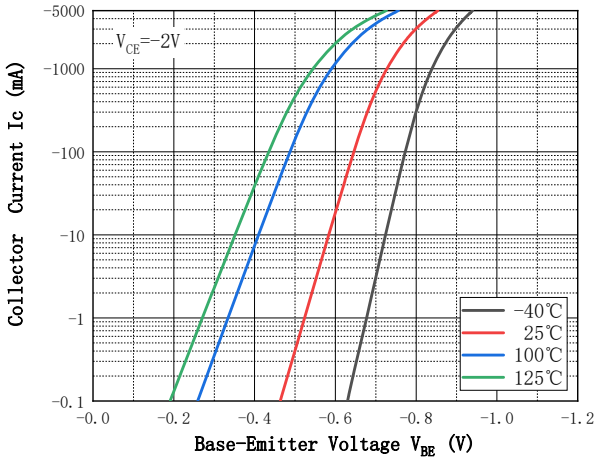


Fig. 6 – Cob/Cib—VCB/VEB

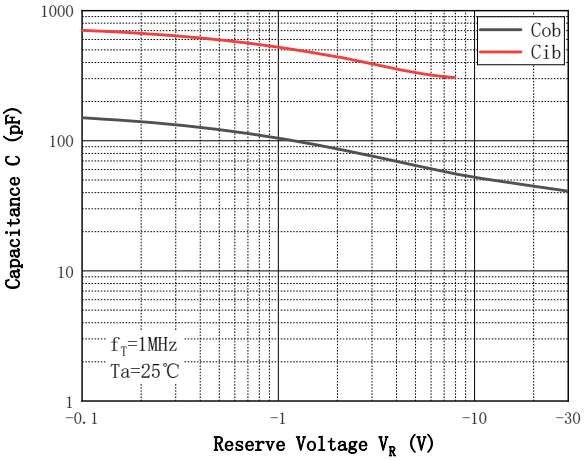
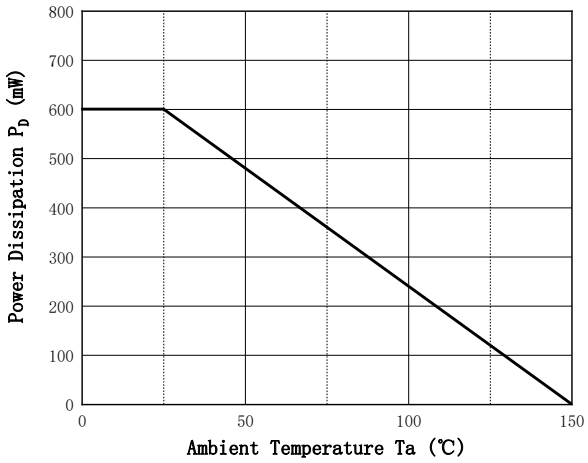
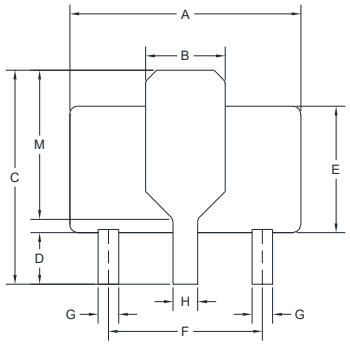


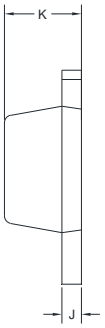
Fig.7 - Power Derating Curve



■SOT-89 Package Outline Dimensions



BOTTOM VIEW

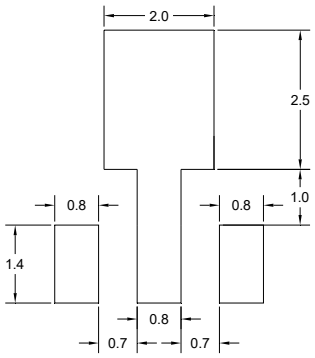


SIDE VIEW

SIDE VIEW

DIMENSIONS				
DIM	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	0.173	0.181	4.400	4.600
B	0.061 TYP.		1.550 TYP.	
C	0.155	0.167	3.940	4.250
D	0.031	0.047	0.800	1.200
E	0.094	0.102	2.400	2.600
F	0.118 TYP.		3.00 TYP.	
G	0.014	0.019	0.360	0.480
H	0.017	0.022	0.440	0.560
J	0.014	0.017	0.350	0.440
K	0.055	0.063	1.400	1.600
L	0.059 TYP.		1.500 TYP.	
M	0.108 TYP.		2.750 TYP.	

■SOT-89 Suggested Pad Layout



UNIT:MM

SUGGESTED SOLDER PAD LAYOUT

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