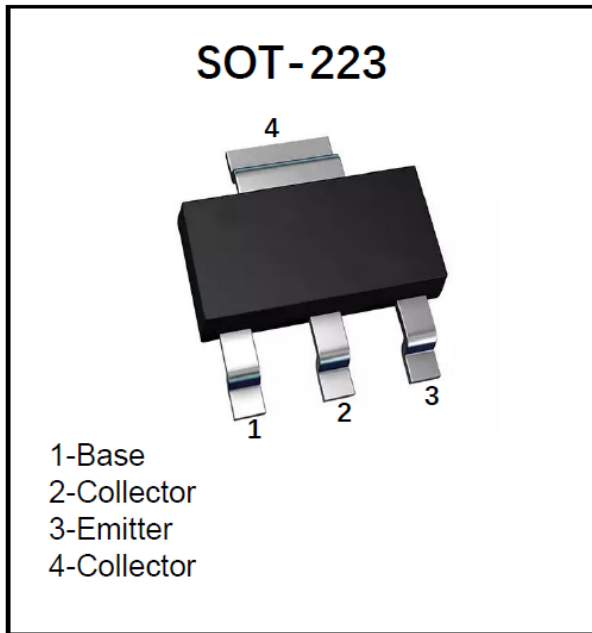


PNP Plastic-Encapsulate Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High power dissipation capability
- Part no. with suffix "Q" means AEC-Q101 qualified

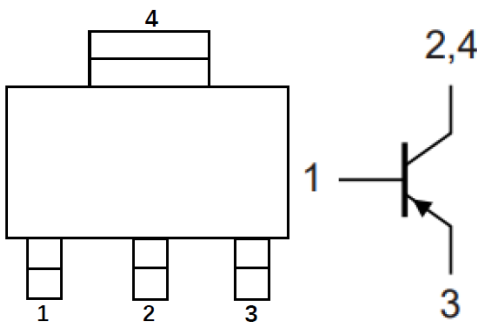
Application

- Linear voltage regulators、 Low-side switches
- Battery-driven devices、 MOSFET drivers
- Amplifiers

Mechanical Data

- **Package:** SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** BCP51-16

■Equivalent circuit



■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BCP51-16Q	F2	Approximate 0.11	2500	5000	25000	13" reel



BCP51-16Q

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

Item	Symbol	Unit	Value
Collector-Emitter Voltage	V_{CEO}	V	-45
Collector-Base Voltage	V_{CBO}	V	-45
Emitter-Base Voltage	V_{EBO}	V	-5
Collector Current	I_C	A	-1
Power Dissipation (*)	P_D	W	1.5
Thermal Resistance From Junction To Ambient (*)	$R_{\theta JA}$	°C/W	83.3
Thermal Resistance From Junction To Solder Point	$R_{\theta JS}$	°C/W	16
Operation Junction Temperature	T_j	°C	-55 to +150
Storage Temperature	T_{stg}	°C	-55 to +150

(*) Device mounted on FR-4 PCB 1.575 x 1.575 x 0.0625 inch; mounting pad for collector =0.93 sq in

■Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	V_{CBO}	V	$I_C = -100\mu A, I_E = 0$	-45	-	-
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = -10mA, I_B = 0$	-45	-	-
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = -100\mu A, I_C = 0$	-5	-	-
Collector-base cut-off current	I_{CBO}	nA	$V_{CB} = -30V, I_E = 0$	-	-	-100
Collector-emitter cut-off current	I_{EBO}	nA	$V_{EB} = -5V, I_C = 0$	-	-	-100
DC current gain	h_{FE}		$V_{CE} = -2V, I_C = -5mA$	63	-	-
	h_{FE}		$V_{CE} = -2V, I_C = -150mA$	100	-	250
	h_{FE}		$V_{CE} = -2V, I_C = -500mA$	40	-	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -500mA, I_B = -50mA$	-	-	-0.5
Base-Emitter Voltage	V_{BE}	V	$V_{CE} = -2V, I_C = -500mA$	-	-	-1
Collector-Base Capacitance	C_{ob}	pF	$V_{CB} = -10V, I_E = 0, f = 1MHz$	-	15	-
Transition frequency	fT	MHz	$V_{CE} = -10V, I_C = -50mA, f = 30MHz$	100	-	-



■ Characteristics (Typical)

Fig.1 - Static characteristic

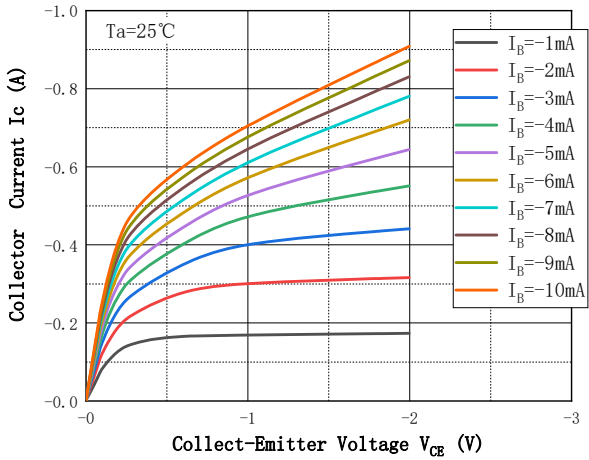


Fig.2 - DC Current Gain

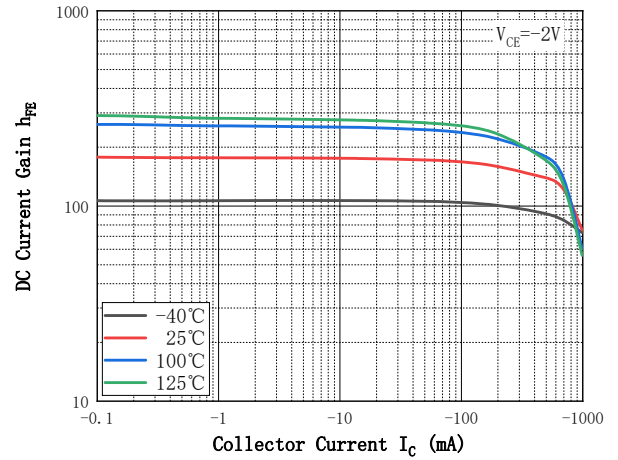


Fig.3 - Collect-Emittor Saturation Voltage

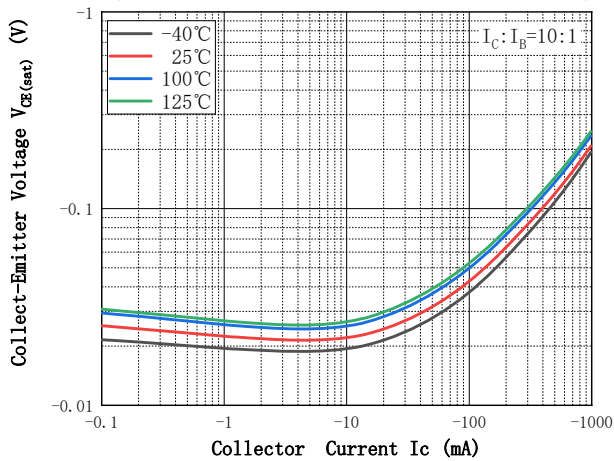


Fig.4 - Base-Emittor Voltage

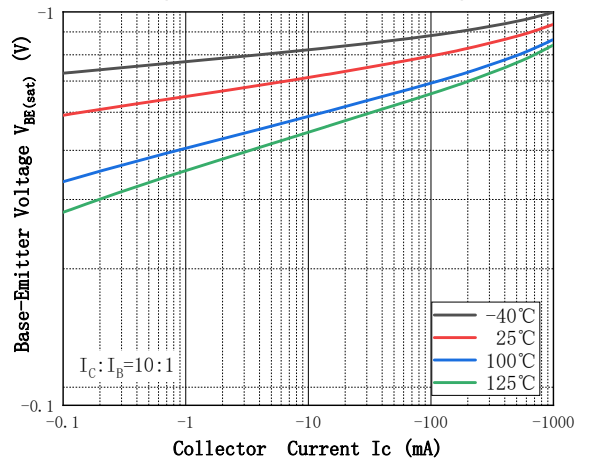


Fig.5 - Base-Emittor On Voltage

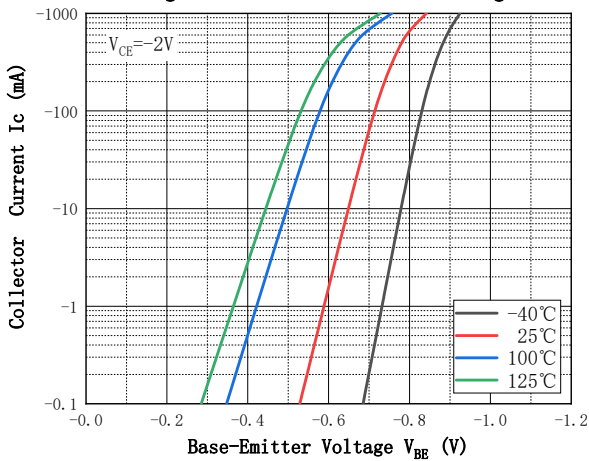


Fig.6 - Cob/Cib—VCB/VEB

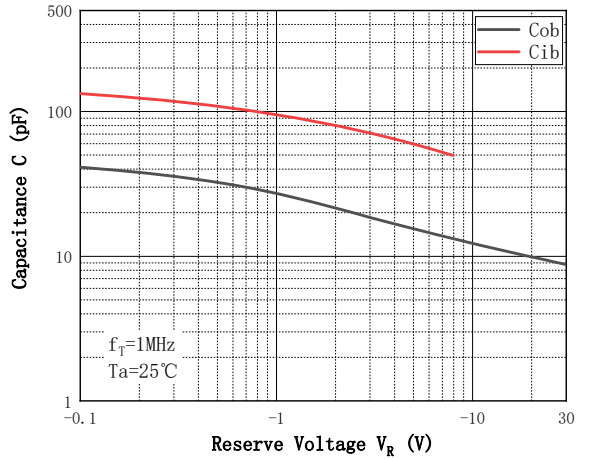
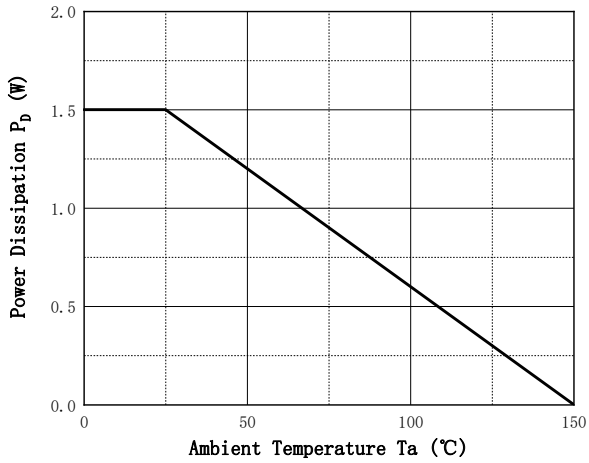
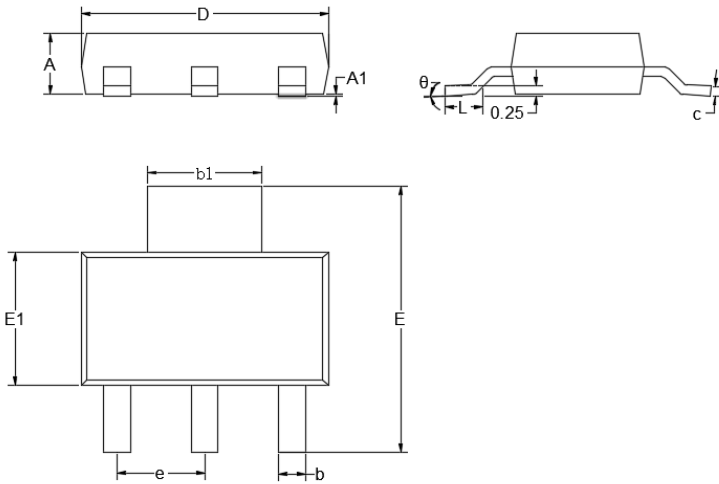


Fig.7 - Power Derating Curve

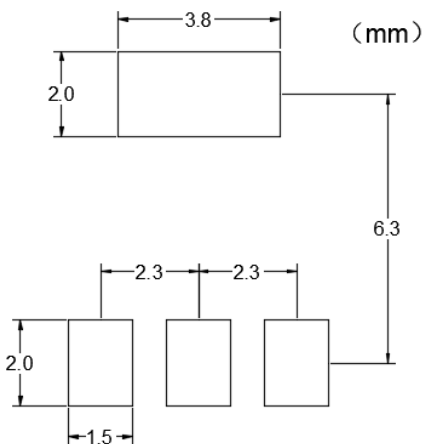


■SOT-223 Package Outline Dimensions



DIM	DIMENSIONS			
	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°

■SOT-223 Suggested Pad Layout





BCP51-16Q

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