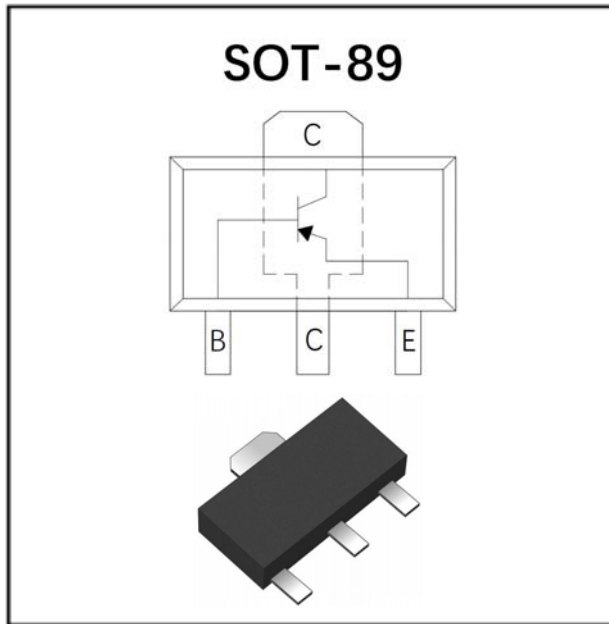


PNP Plastic-Encapsulate Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High power dissipation capability
- Exposed heatsink for excellent thermal and electrical conductivity
- 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-89
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** AL

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

Item	Symbol	Unit	Value
Minimum Collector-Emitter Voltage	V_{CEO}	V	-80
Minimum Collector-Base Voltage	V_{CBO}	V	-100
Minimum Emitter-Base Voltage	V_{EBO}	V	-5
Collector Current	I_C	A	-1
Collector Power Dissipation ⁽¹⁾	P_C	mW	500
Collector Power Dissipation ⁽²⁾	P_C	mW	950
Collector Power Dissipation ⁽³⁾	P_C	mW	1350
Thermal Resistance From Junction To Ambient ⁽¹⁾	$R_{\theta JA}$	°C/W	250
Thermal Resistance From Junction To Ambient ⁽²⁾	$R_{\theta JA}$	°C/W	132
Thermal Resistance From Junction To Ambient ⁽³⁾	$R_{\theta JA}$	°C/W	93
Operation Junction Temperature	T_j	°C	-55 to +150
Storage Temperature	T_{stg}	°C	-55 to +150

(1) Device mounted on FR-4 PCB, with standard footprint

(1) Device mounted on FR-4 PCB, with 1cm² copper collector pad area

(1) Device mounted on FR-4 PCB, with 1inch² copper collector pad area



BCX53-16Q

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	V_{CEO}	V	$I_C = -10\text{mA}$, $I_B = 0$	-80		
Collector-Base Voltage	V_{CBO}	V	$I_C = -100\mu\text{A}$, $I_E = 0$	-100		
Emitter-Base Voltage	V_{EBO}	V	$I_E = -100\mu\text{A}$, $I_C = 0$	-5		
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB} = -30\text{V}$			-100
Emitter-Base cut-off current	I_{EBO}	nA	$V_{EB} = -5\text{V}$			-100
DC Current Gain	h_{FE}		$V_{CE} = -2\text{V}$, $I_C = -5\text{mA}$	63		
	h_{FE}		$V_{CE} = -2\text{V}$, $I_C = -150\text{mA}$	100		250
	h_{FE}		$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$	40		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C = -500\text{mA}$, $I_B = -50\text{mA}$			-0.5
Base-Emitter Voltage	V_{BE}	V	$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$			-1
Transition Frequency	f_T	MHz	$I_C = -10\text{mA}$, $V_{CE} = -5\text{V}$, $f = 100\text{MHz}$		50	

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BCX53-16Q	F2	Approximate 0.055	1000	8000	32000	7" reel

■Characteristics (Typical)

Fig.1 - Static characteristic

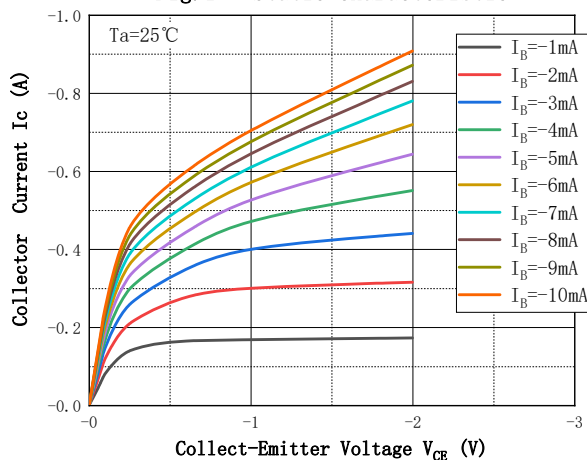


Fig.2 - DC Current Gain

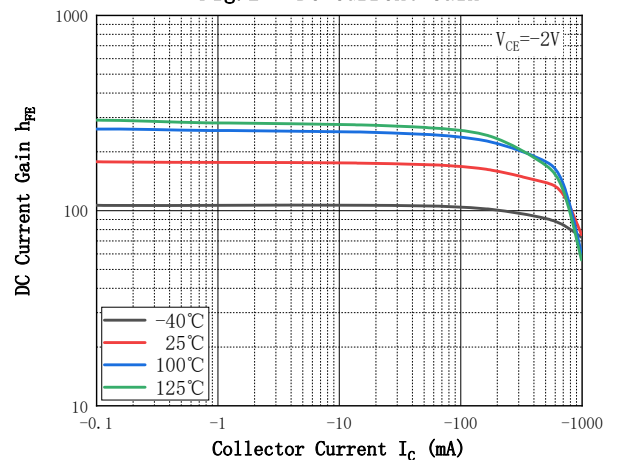




Fig.3 - Collect-Emmitter Saturation Voltage

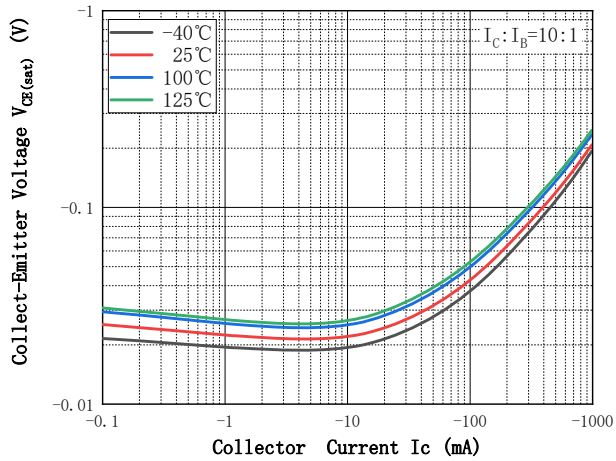


Fig.4 - Base-Emmitter Voltage

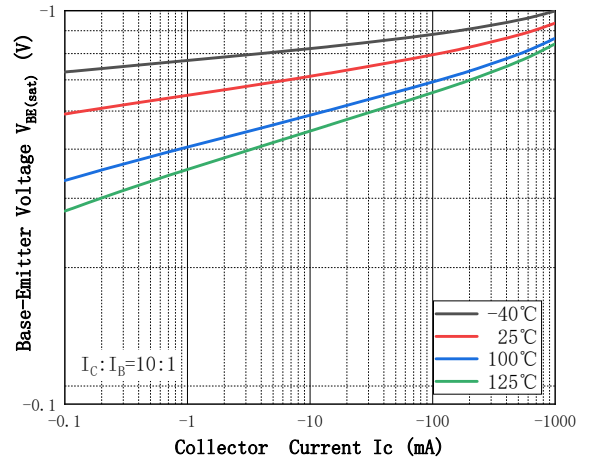


Fig.5 - Base-Emmitter On Voltage

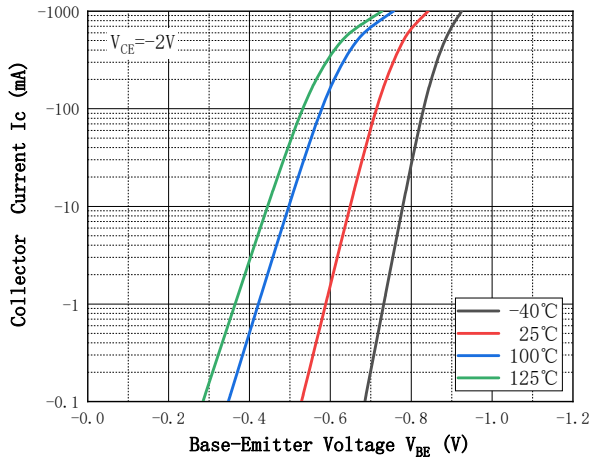


Fig.6 - Cob/Cib—VCB/VEB

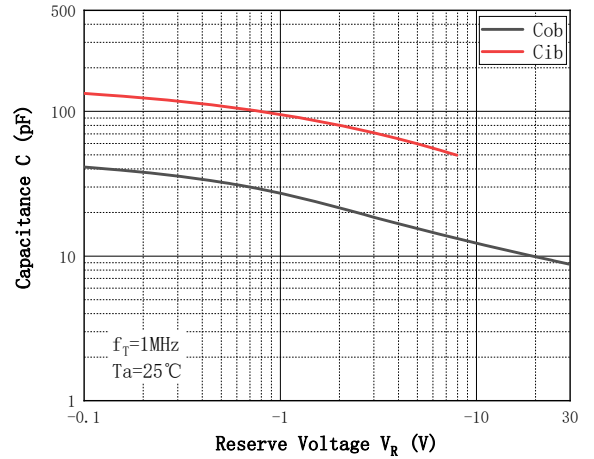
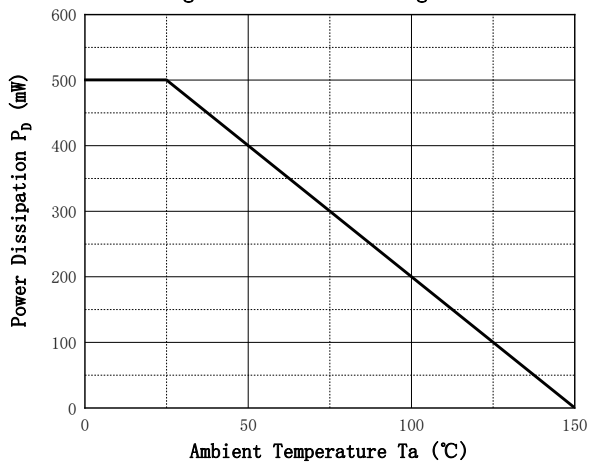


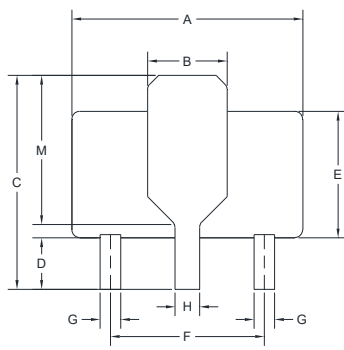
Fig.7 - Power Derating Curve



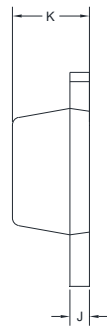


BCX53-16Q

■SOT-89 Package Outline Dimensions



BOTTOM VIEW



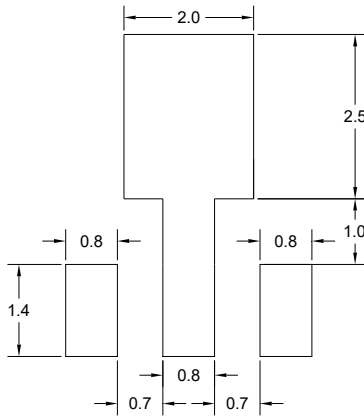
SIDE VIEW



SIDE VIEW

DIM	DIMENSIONS			
	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

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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