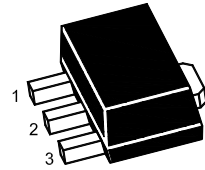


2SB1386U

PNP Silicon Epitaxial Planar Transistor

Features

- Low frequency transistor



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	30	V
Collector Emitter Voltage	$-V_{CEO}$	20	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current - DC	$-I_C$	5	A
Collector Current - Pulse ¹⁾	$-I_{CP}$	10	A
Collector Power Dissipation	P_C	0.5 ²⁾ 2 ³⁾	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

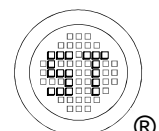
Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250 ²⁾ 62.5 ³⁾	$^\circ\text{C/W}$

¹⁾Single pulse, PW = 10 ms.

²⁾Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

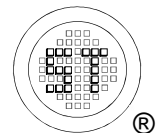
³⁾When mounted on a 40 x 40 x 0.7 mm ceramic board.



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Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	Current Gain Group P Q R	h_{FE}	82	-	180	-
		h_{FE}	120	-	270	-
		h_{FE}	180	-	390	-
Collector Base Cutoff Current at $-V_{CB} = 20\text{ V}$	$-I_{CBO}$	-	-	500	nA	
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	500	nA	
Collector Base Breakdown Voltage at $-I_C = 50\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	30	-	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	20	-	-	V	
Emitter Base Breakdown Voltage at $-I_E = 50\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	6	-	-	V	
Collector Emitter Saturation Voltage at $-I_C = 4\text{ A}$, $-I_B = 100\text{ mA}$	$-V_{CE(sat)}$	-	-	1	V	
Transition Frequency at $-V_{CE} = 6\text{ V}$, $I_E = 50\text{ mA}$, $f = 100\text{ MHz}$	f_T	-	120	-	MHz	
Output Capacitance at $-V_{CB} = 20\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{ob}	-	60	-	pF	



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Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

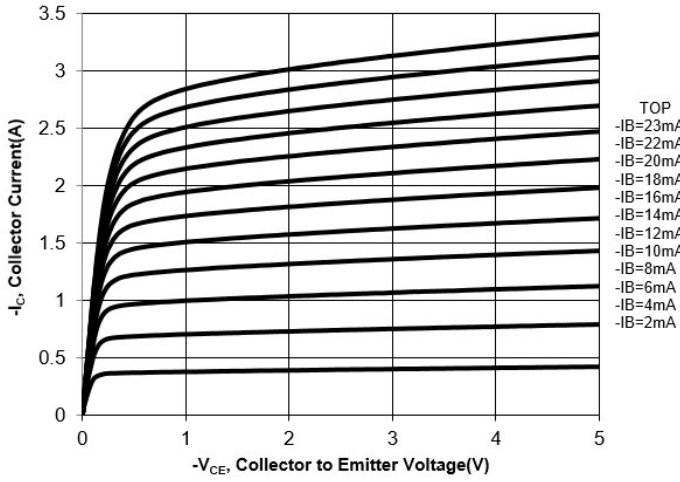


Fig. 2 Output Characteristics Curve

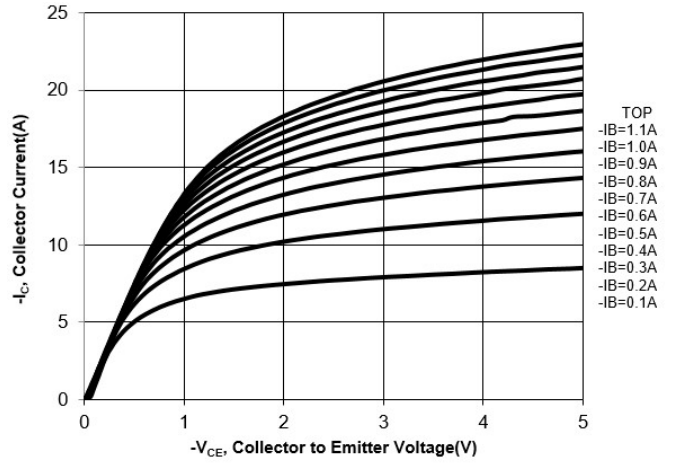


Fig. 3 Base to Emitter Voltage Vs. Collector Current

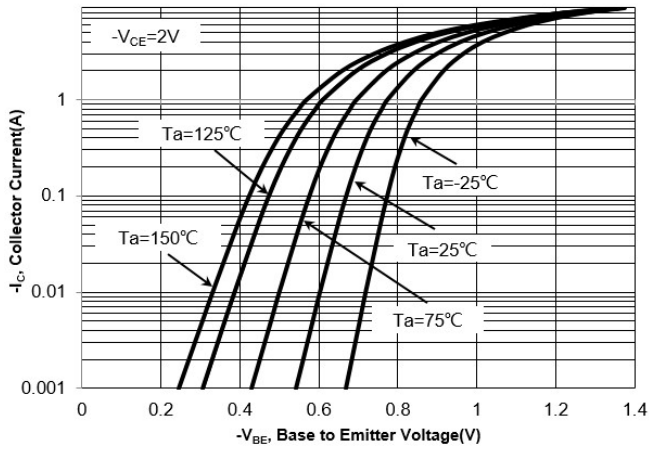
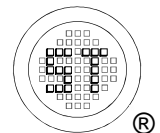
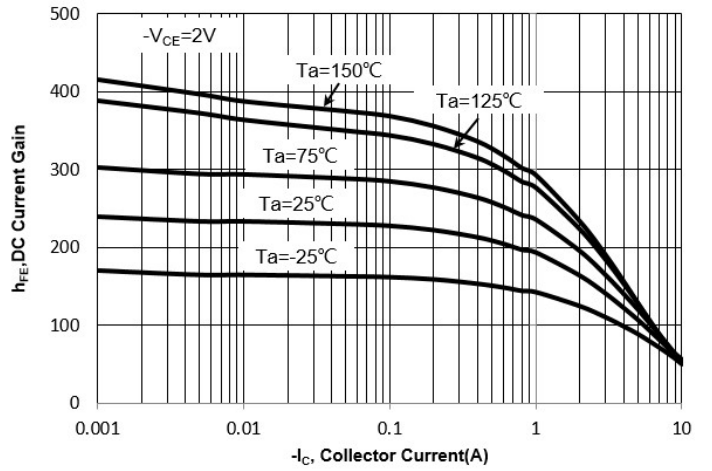


Fig. 4 $h_{FE,DC}$ Current Gain vs. Collector Current



Electrical Characteristics Curves

Fig. 5 $V_{BE(SAT)}$ vs. Collector Current

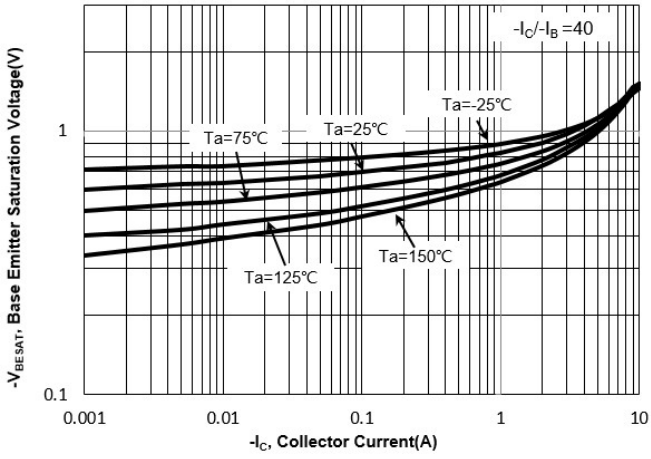


Fig. 6 $V_{CE(SAT)}$ vs. Collector Current

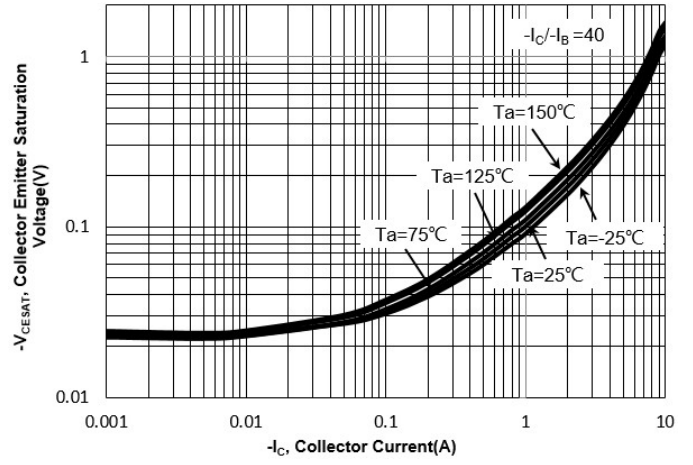
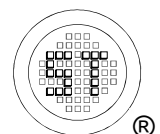
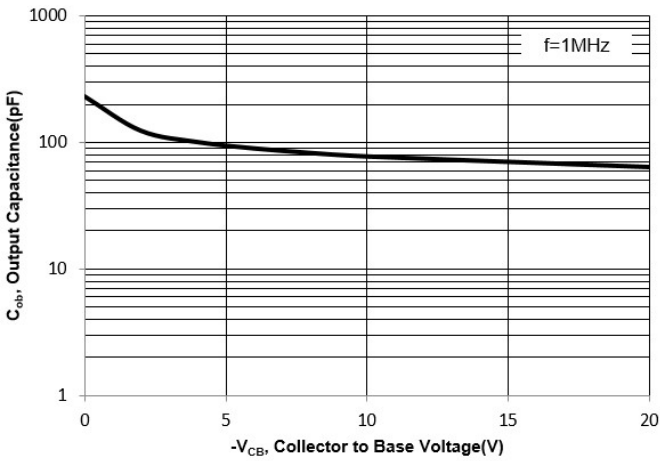


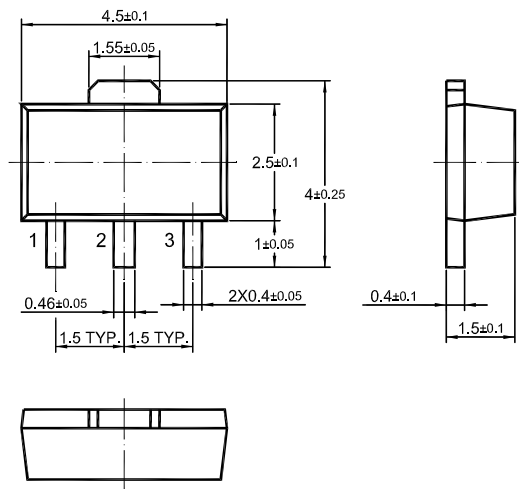
Fig. 7 Junction Capacitance



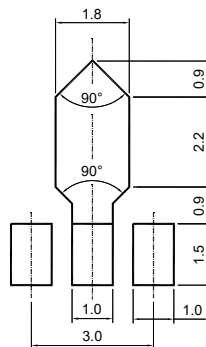
2SB1386U

Package Outline (Dimensions in mm)

SOT-89



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-89	12	8 ± 0.1	0.315 ± 0.004	178	7	1,000
				330	13	4,000

Marking information

" 2SB1386*U " = Part No. (" * " Current Gain Group)

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

