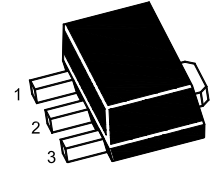


2SB1188U

PNP Silicon Epitaxial Planar Power Transistor

Medium power transistor



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

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

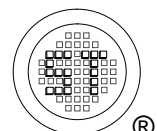
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	40	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	32	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current - DC	$-I_{\text{C}}$	2	A
Collector Current - Pulse $P_W = 100 \text{ ms}$	$-I_{\text{CP}}$	3	A
Collector Power Dissipation	P_{C}	0.5 ¹⁾ 2 ²⁾	W
Junction Temperature	T_{j}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta\text{JA}}$	250 ¹⁾ 62.5 ²⁾	$^\circ\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

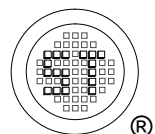
²⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $-V_{CE} = 3\text{ V}$, $-I_C = 500\text{ mA}$	Current Gain Group P Q R	h_{FE}	82	-	180	-
		h_{FE}	120	-	270	-
		h_{FE}	180	-	390	-
Collector Base Cutoff Current at $-V_{CB} = 20\text{ V}$	$-I_{CBO}$	-	-	1	μA	
Emitter Base Cutoff Current at $-V_{EB} = 4\text{ V}$	$-I_{EBO}$	-	-	1	μA	
Collector Base Breakdown Voltage at $-I_C = 50\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	40	-	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	32	-	-	V	
Emitter Base Breakdown Voltage at $-I_E = 50\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	-	V	
Collector Emitter Saturation Voltage at $-I_C = 2\text{ A}$, $-I_B = 200\text{ mA}$	$-V_{CE(sat)}$	-	-	0.8	V	
Transition Frequency at $-V_{CE} = 5\text{ V}$, $I_E = 0.5\text{ A}$, $f = 100\text{ MHz}$	f_T	-	100	-	MHz	
Output Capacitance at $-V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{ob}	-	30	-	pF	



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Electrical Characteristics Curves

Fig. 1 Power Derating Curve

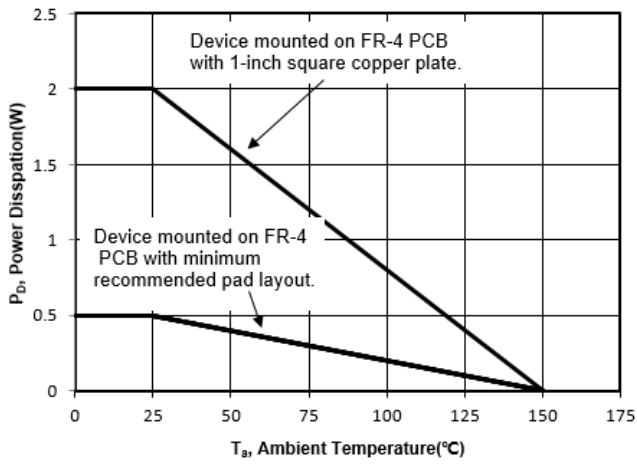


Fig. 2 Output Characteristics Curve

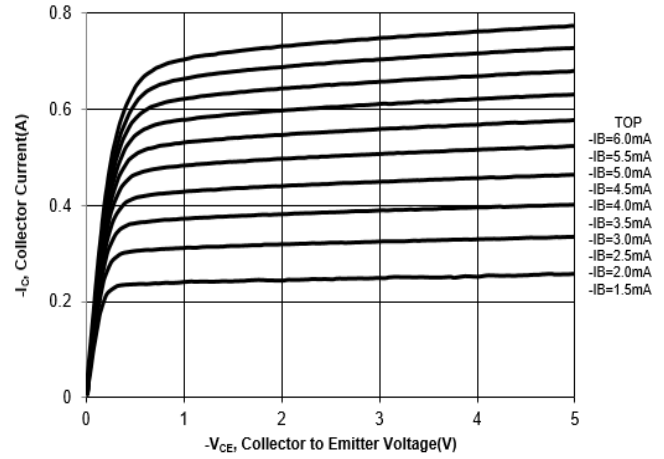


Fig. 3 Collector Current vs. V_{BE}

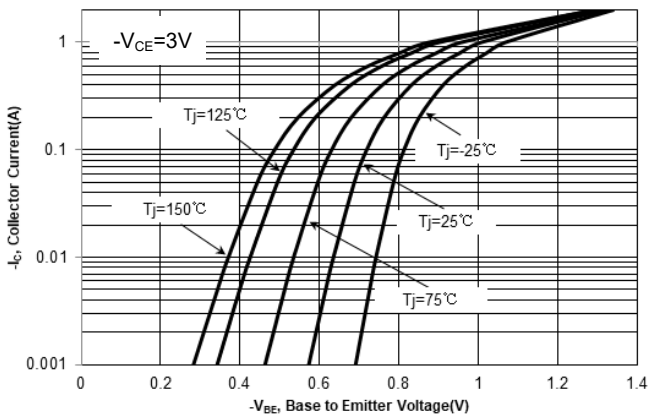
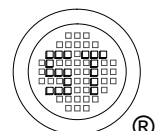
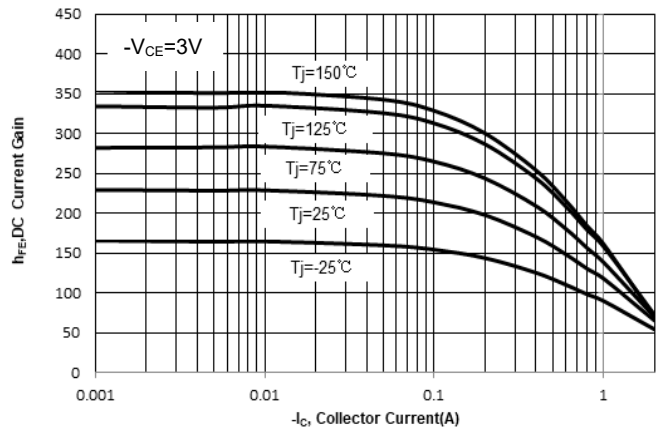


Fig. 4 DC Current Gain vs. Collector Current



Electrical Characteristics Curves

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

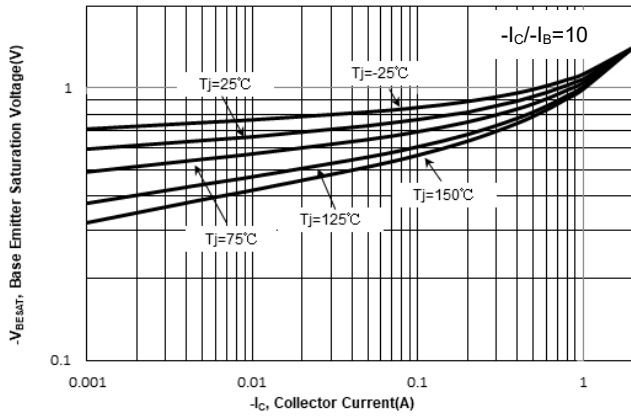


Fig 6. $V_{CE(sat)}$ vs. Collector Current

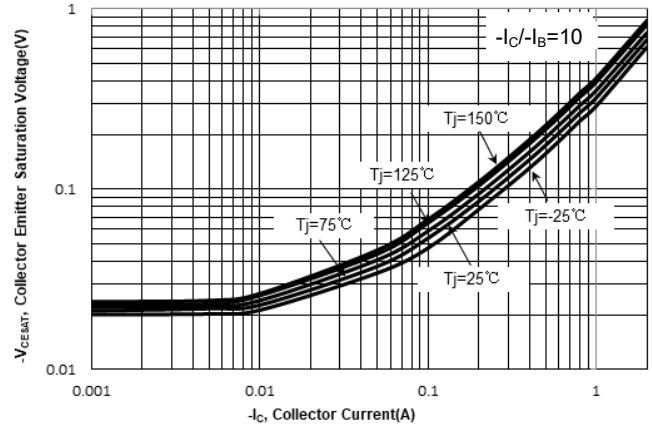
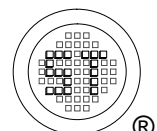
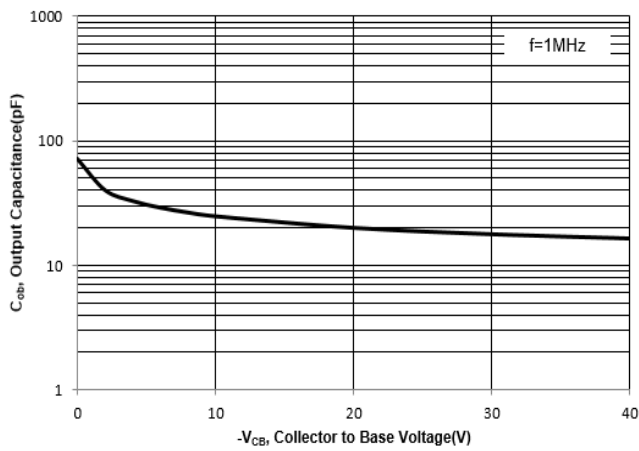


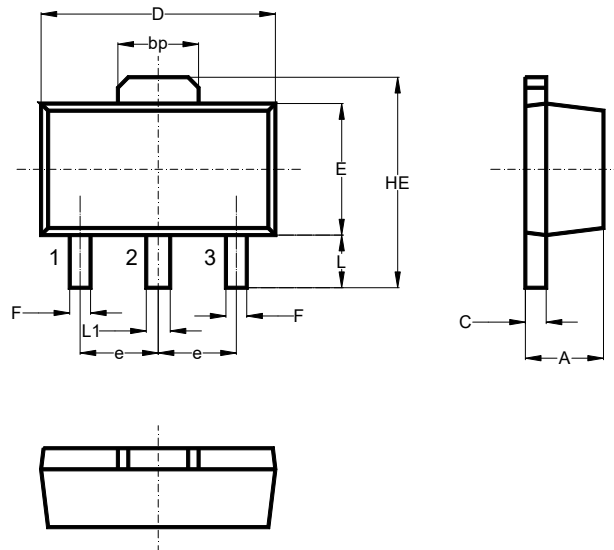
Fig 7. Capacitance Characteristics



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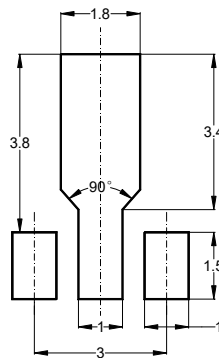
Package Outline (Dimensions in mm)

SOT-89



Unit	A	bp	C	D	E	F	HE	e	L	L1
mm	1.6	1.60	0.5	4.6	2.6	0.45	4.25	1.5	1.05	0.51
	1.4	1.50	0.3	4.4	2.4	0.35	3.75	typ.	0.95	0.41

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

" 2SB1188*U " = Part No. (" * " = HFE grouping Code)

" YM " = Date Code Marking

" Y " = Year

" M " = Month

Font type: Arial

