

2SA1020-HAF

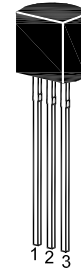
PNP Silicon Epitaxial Planar Transistor

Features

- Halogen and Antimony Free(HAF),
RoHS compliant

Applications

- Power amplifier
- Power switching



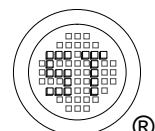
1. Emitter 2. Collector 3. Base
TO-92 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	50	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	50	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current	$-I_{\text{C}}$	2	A
Collector Power Dissipation	P_{tot}	900	mW
Junction Temperature	T_{j}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

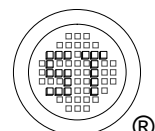
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction Ambient	$R_{\theta\text{JA}}$	139	$^\circ\text{C}/\text{W}$



2SA1020-HAF

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $-V_{CE} = 2\text{ V}$, $-I_C = 0.5\text{ A}$ at $-V_{CE} = 2\text{ V}$, $-I_C = 1.5\text{ A}$	Current Gain Group O Y	h_{FE}	70	-	140	-
		h_{FE}	120	-	240	-
		h_{FE}	40	-	-	-
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	-	1	μA	
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	1	μA	
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	50	-	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	$-V_{(BR)CEO}$	50	-	-	V	
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	-	V	
Collector Emitter Saturation Voltage at $-I_C = 1\text{ A}$, $-I_B = 0.05\text{ A}$	$-V_{CE(sat)}$	-	-	0.5	V	
Base Emitter Saturation Voltage at $-I_C = 1\text{ A}$, $-I_B = 0.05\text{ A}$	$-V_{BE(sat)}$	-	-	1.2	V	
Transition Frequency at $-V_{CE} = 2\text{ V}$, $-I_C = 0.5\text{ A}$	f_T	-	100	-	MHz	
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	30	-	pF	



2SA1020-HAF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

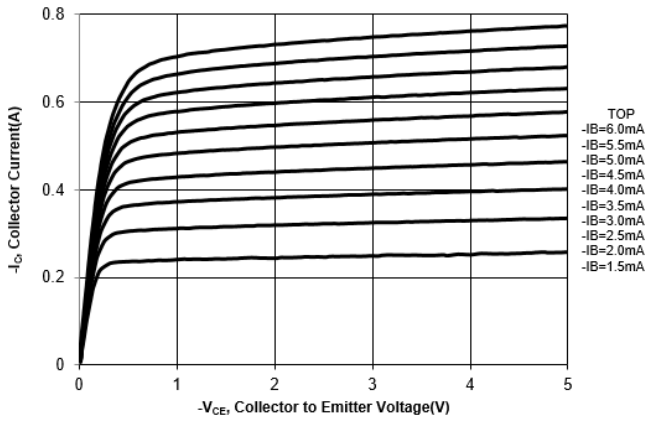


Fig. 2 Collector Current vs. V_{BE}

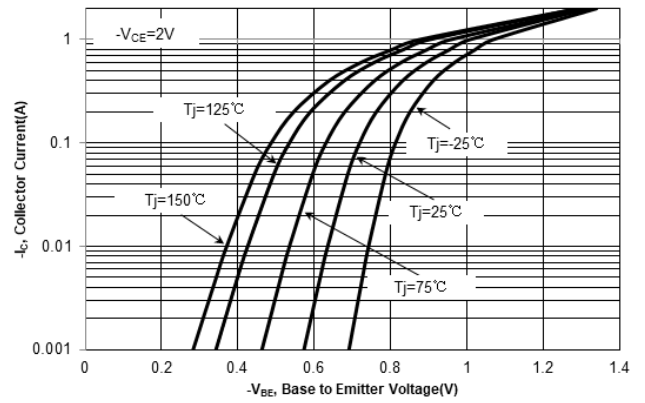


Fig. 3. DC Current Gain vs. Collector Current

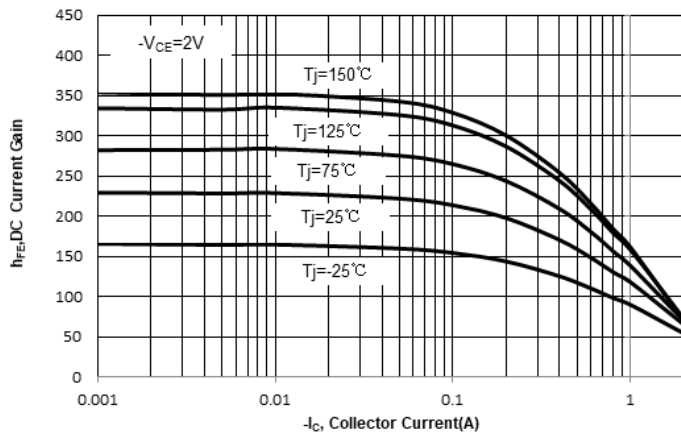
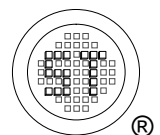
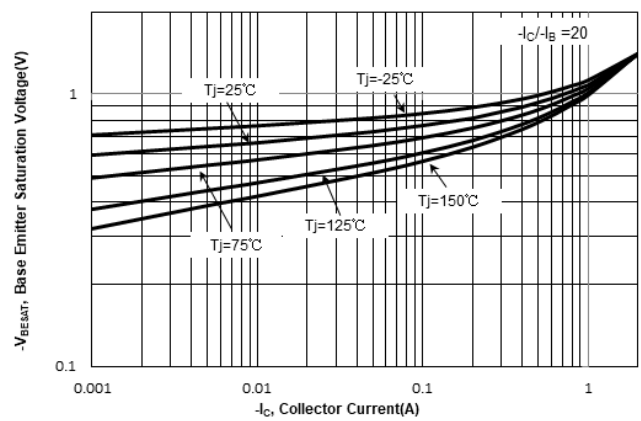


Fig. 4. $V_{BE(sat)}$ vs. Collector Current



2SA1020-HAF

Electrical Characteristics Curves

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

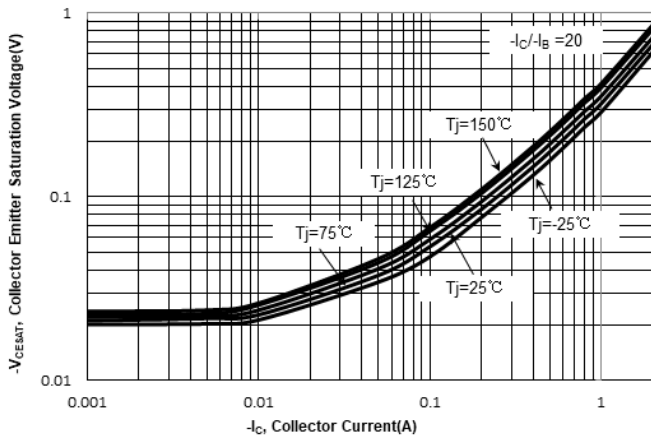


Fig 6. Capacitance Characteristics

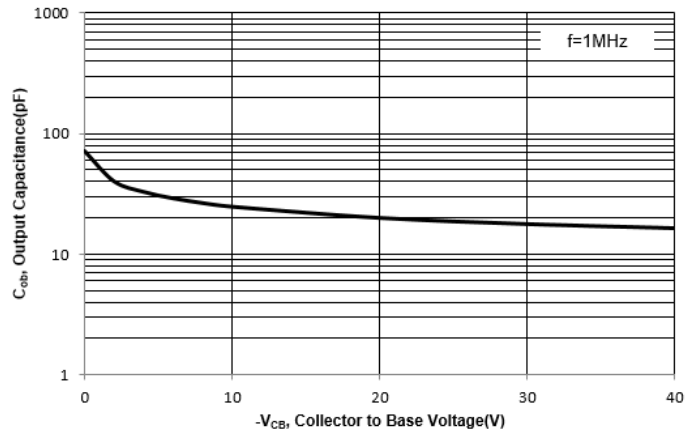
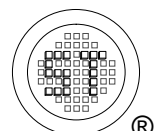
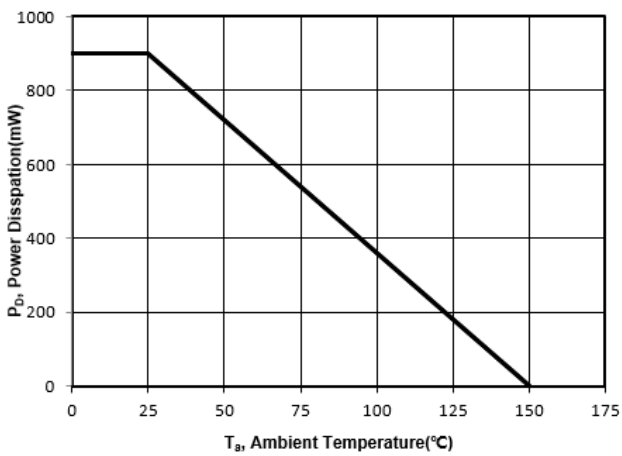
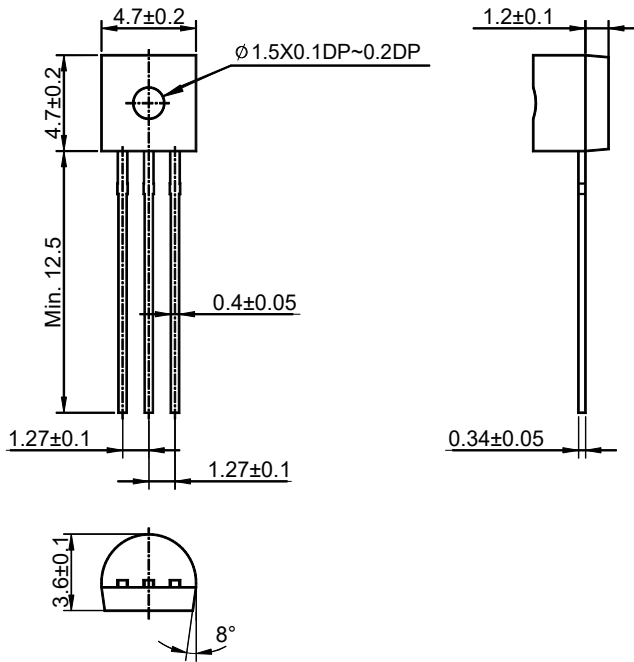


Fig 7. Power Derating Curve

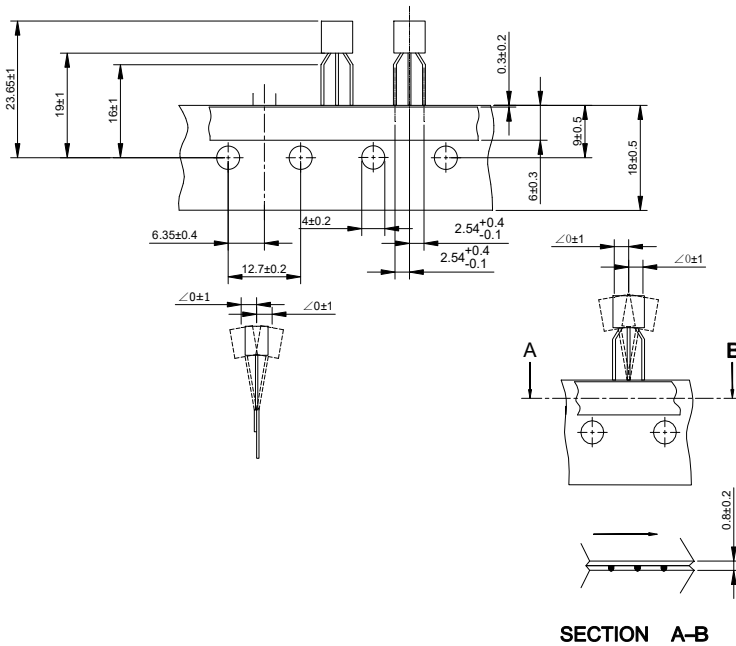


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TO-92 Package Outline (Dimensions in millimeters)



TO-92 Ammo-Pack Outline (Dimensions in millimeters)



Packing information

Package	Bulk Packing			Ammo-Packing	
	Per Bag Qty	Per Box Qty	Per Carton Qty	Per Box Qty	Per Carton Qty
TO-92	1,000	5,000	50,000	4,000	20,000

