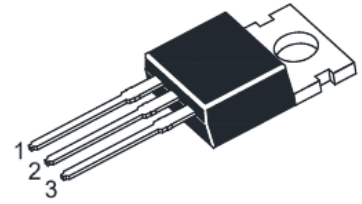


2SA1012-HAF

PNP Silicon Epitaxial Planar Transistor

for high current switching applications.

The transistor is subdivided into two group, O and Y, according to its DC current gain.



1.Base 2.Collector 3.Emitter
TO-220FB Plastic Package

Features

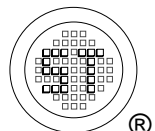
- Halogen and Antimony Free(HAF), RoHS compliant

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CB0}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	5	A
Power Dissipation $T_C = 25^\circ\text{C}$	P_{tot}	25	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

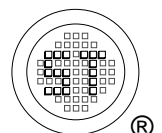
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	60	$^\circ\text{C/W}$



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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE} = 1\text{ V}$, $-I_C = 1\text{ A}$ at $-V_{CE} = 1\text{ V}$, $-I_C = 3\text{ A}$	O Y h _{FE}	70	-	140	-
	h _{FE}	120	-	240	-
	h _{FE}	30	-	-	-
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	$-V_{(BR)CEO}$	50	-	-	V
Collector Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	-	1	μA
Emitter Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	1	μA
Collector Emitter Saturation Voltage at $-I_C = 3\text{ A}$, $-I_B = 0.15\text{ A}$	$-V_{CE(sat)}$	-	-	0.4	V
Base Emitter Saturation Voltage at $-I_C = 3\text{ A}$, $-I_B = 0.15\text{ A}$	$-V_{BE(sat)}$	-	-	1.2	V
Transition Frequency at $-V_{CE} = 4\text{ V}$, $-I_C = 1\text{ A}$	f_T	-	60	-	MHz
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	170	-	pF



Electrical Characteristics Curves

Fig. 1 Output Characteristics

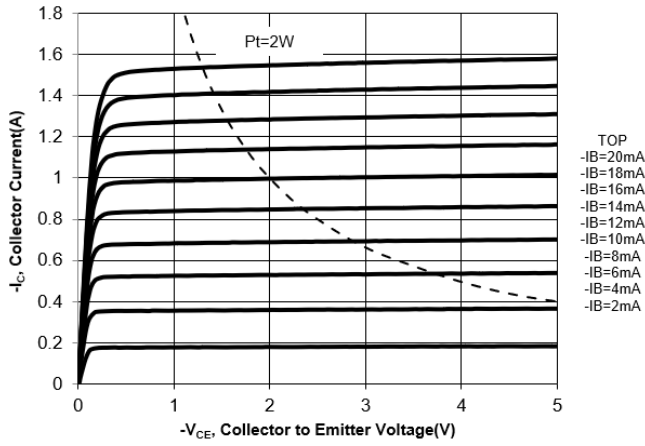


Fig. 2 Output Characteristics

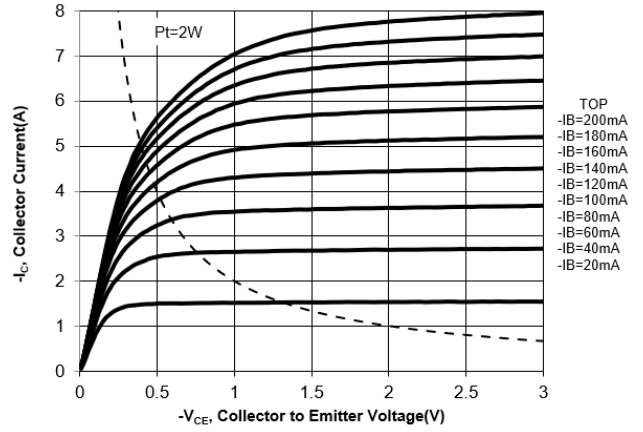


Fig. 3 Collector Current Vs Base Emitter Voltage

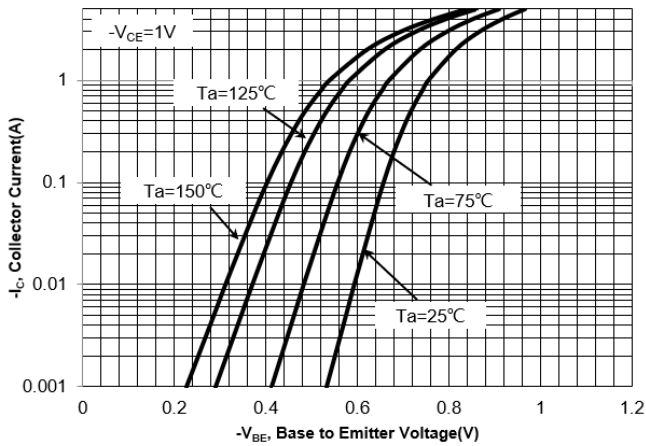
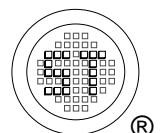
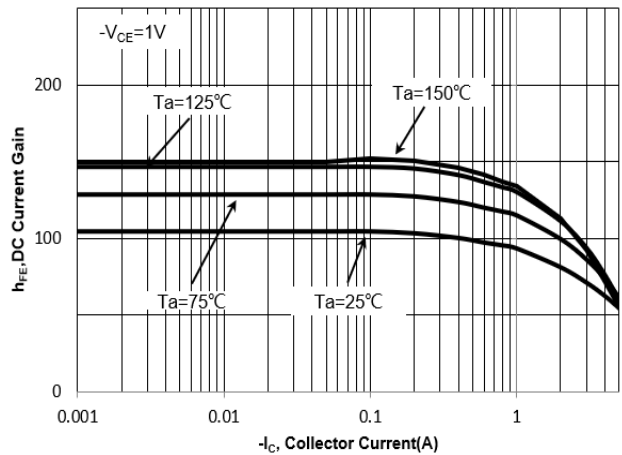


Fig. 4 DC Current Gain Vs Collector Current



Electrical Characteristics Curves

Fig. 5 V_{BESAT} Vs Collector Current

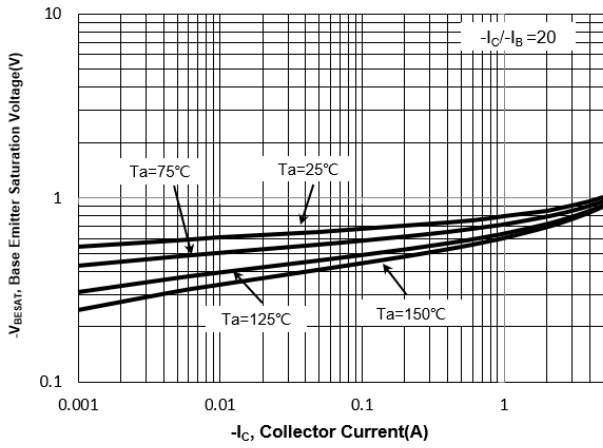


Fig. 6 V_{CESAT} Vs Collector Current

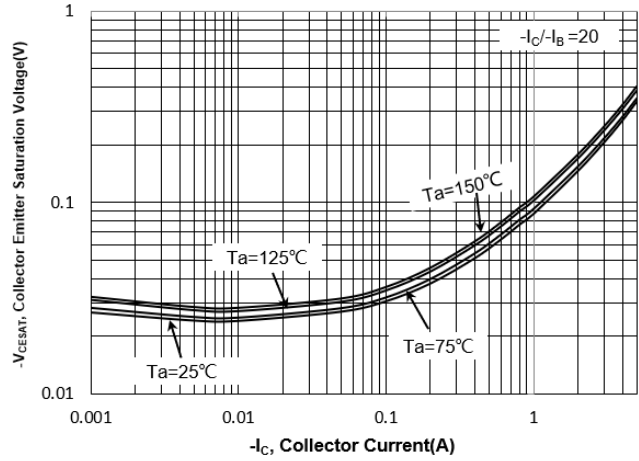
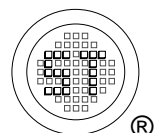
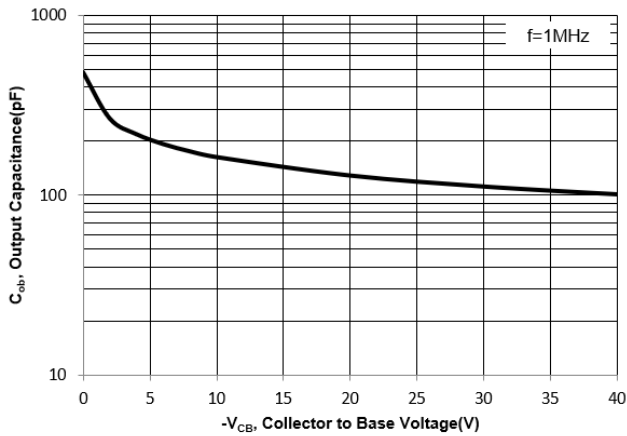


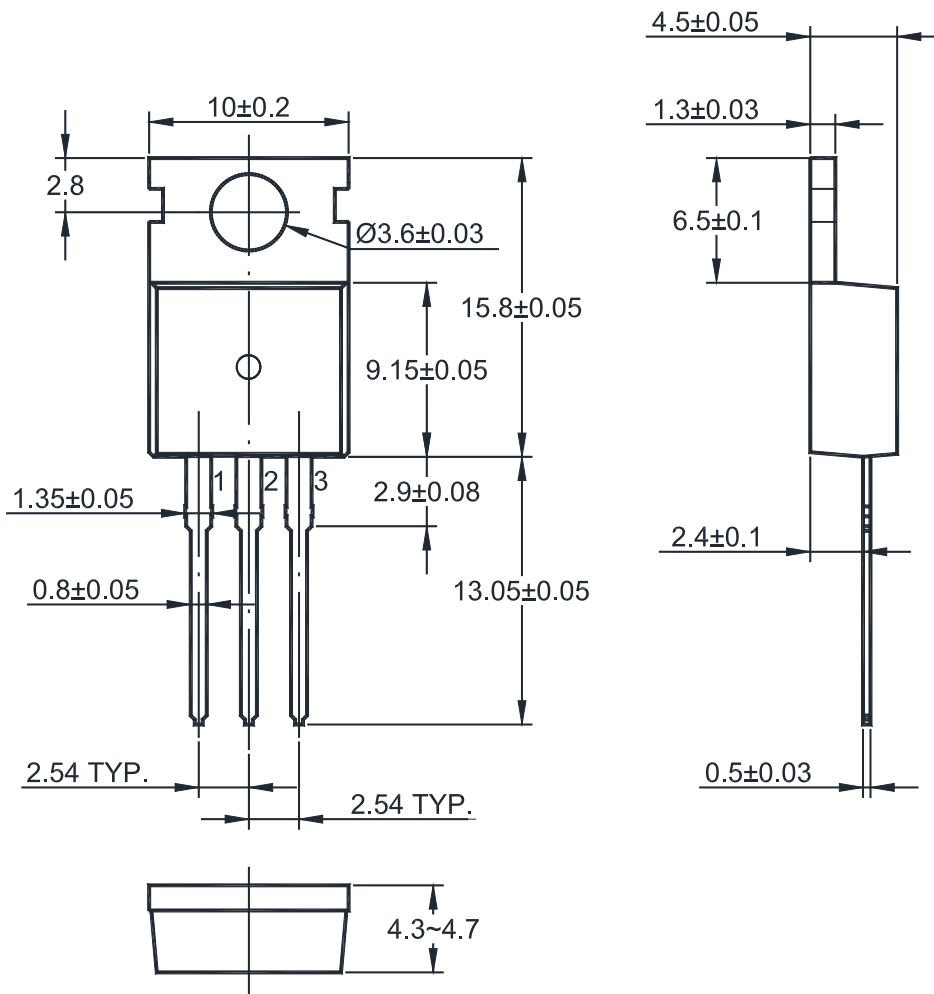
Fig. 7 Capacitance Characteristics



2SA1012-HAF

Package Outline Dimensions (Units: mm)

TO-220FB



Marking information

" 2SA1012* " = Part No. (" * " DC Current Gain Grouping)

" ***** " = Date Code Marking

Font type: Arial

