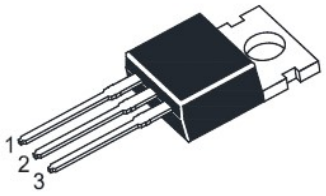
2SA1010-HAF

PNP Silicon Epitaxial Planar Power Transistor



1.Base 2.Collector 3.Emitter

TO-220FB Plastic Package

Features

- Low collector saturation voltage
- Fast switching speed
- Halogen and Antimony Free(HAF), RoHS compliant

Absolute Maximum Ratings (T_a = 25℃)

Parameter		Symbol	Value	Unit
Collector Base Voltage		$-V_{CBO}$	100	V
Collector Emitter Voltage		$-V_{CEO}$	100	V
Emitter Base Voltage		$-V_{EBO}$	7	V
Collector Current		$-I_C$	7	A
Peak Collector Current		$-I_{CM}$	15	A
Base Current		$-I_B$	3.5	A
Total Power Dissipation	T_a = 25℃ T_c = 25℃	P_{tot}	1.5 41.7	W
Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	3	℃/W
Thermal Resistance - Junction to Ambient	$R_{\theta JA}$	83.3	℃/W

Dated: 19/04/2021 Rev: 01

Characteristics at T_j = 25℃

Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain							
at $-V_{CE}$ = 5 V, $-I_C$ = 5 A			h_{FE}	20	-	-	-
at $-V_{CE}$ = 5 V, $-I_C$ = 3 A	Current Gain Group	M	h_{FE}	40	-	80	-
		L	h_{FE}	60	-	120	-
		K	h_{FE}	100	-	200	-
Collector Base Cutoff Current at $-V_{CB}$ = 100 V			$-I_{CBO}$	-	-	10	µA
Emitter Base Cutoff Current at $-V_{EB}$ = 5 V			$-I_{EBO}$	-	-	10	µA
Collector Emitter Saturation Voltage at $-I_C$ = 5 A, $-I_B$ = 0.5 A			$-V_{CE(sat)}$	-	-	0.6	V
Base Emitter Saturation Voltage at $-I_C$ = 5 A, $-I_B$ = 0.5 A			$-V_{BE(sat)}$	-	-	1.5	V
Turn-On Time at $-I_C$ = 5 A, $I_{B1} = -I_{B2}$ = - 0.5 A, $-V_{CC}$ = 50 V, R_L = 10 Ω			t_{on}	-	-	0.5	µs
Storage Time at $-I_C$ = 5 A, $I_{B1} = -I_{B2}$ = - 0.5 A, $-V_{CC}$ = 50 V, R_L = 10 Ω			t_{stg}	-	-	1.5	µs
Fall Time at $-I_C$ = 5 A, $I_{B1} = -I_{B2}$ = - 0.5 A, $-V_{CC}$ = 50 V, R_L = 10 Ω			t_f	-	-	0.5	µs
Collector Output Capacitance at V_{CB} = 10 V, f = 1 MHz			C_{ob}	-	-80	-	pF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

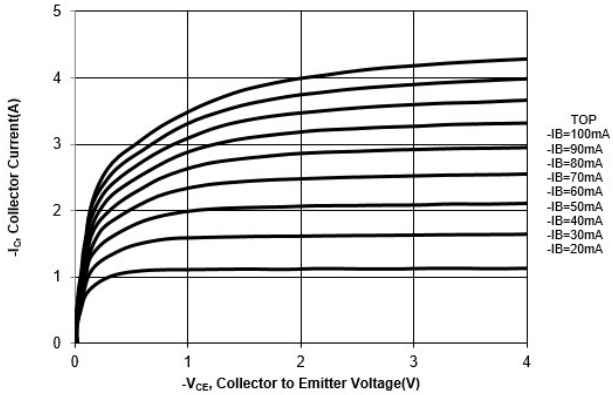


Fig. 2 Output Characteristics Curve

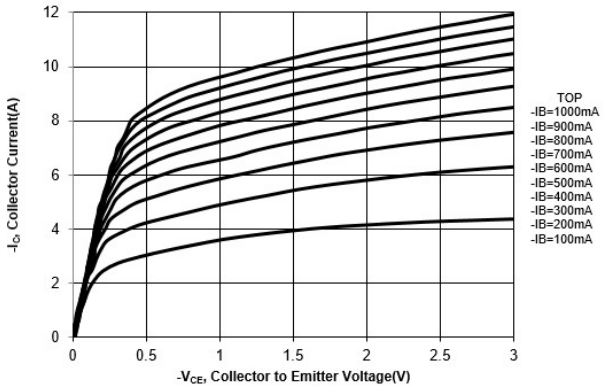


Fig. 3 Collector Curren vs. V_{BE}

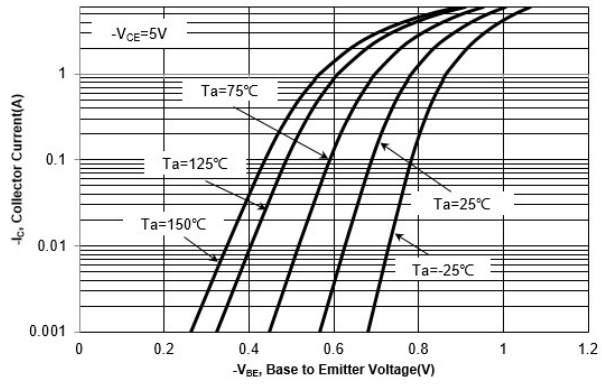
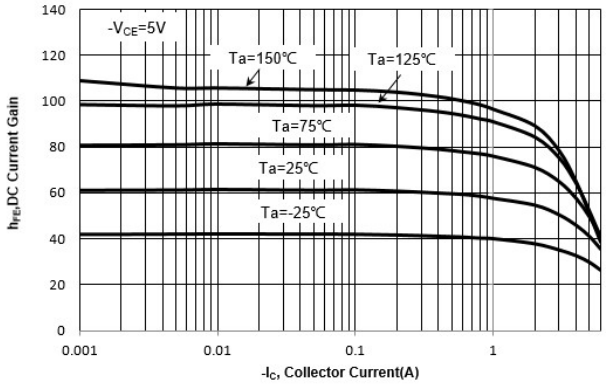


Fig. 4 h_{FE} vs. Collector Current



Electrical Characteristics Curves

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

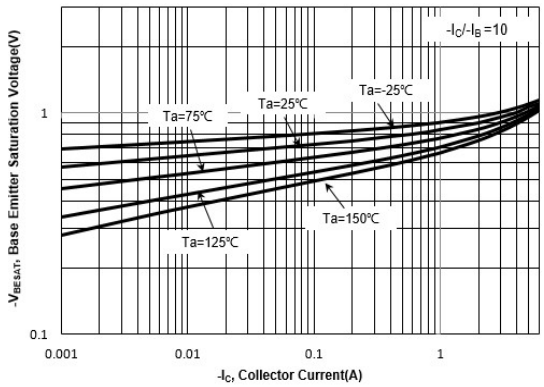


Fig. 6 $V_{CE(sat)}$ vs. Collector Current

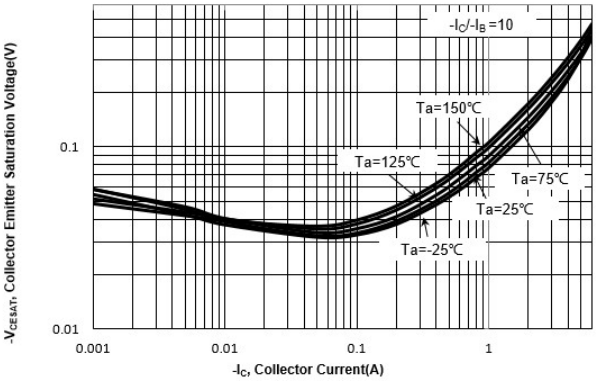


Fig. 7 Output Capacitance

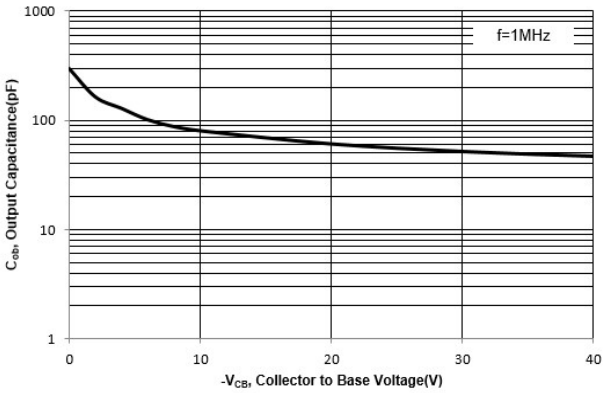
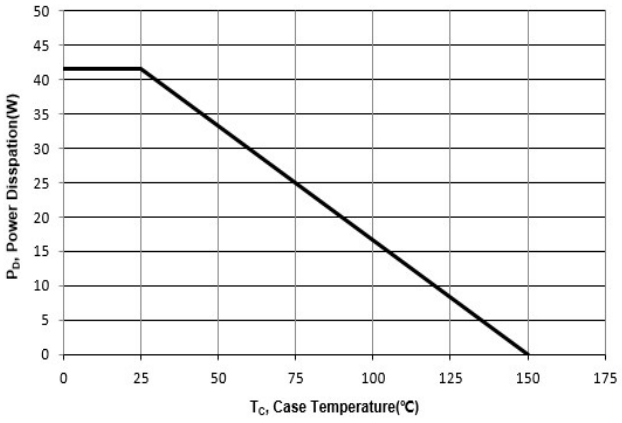
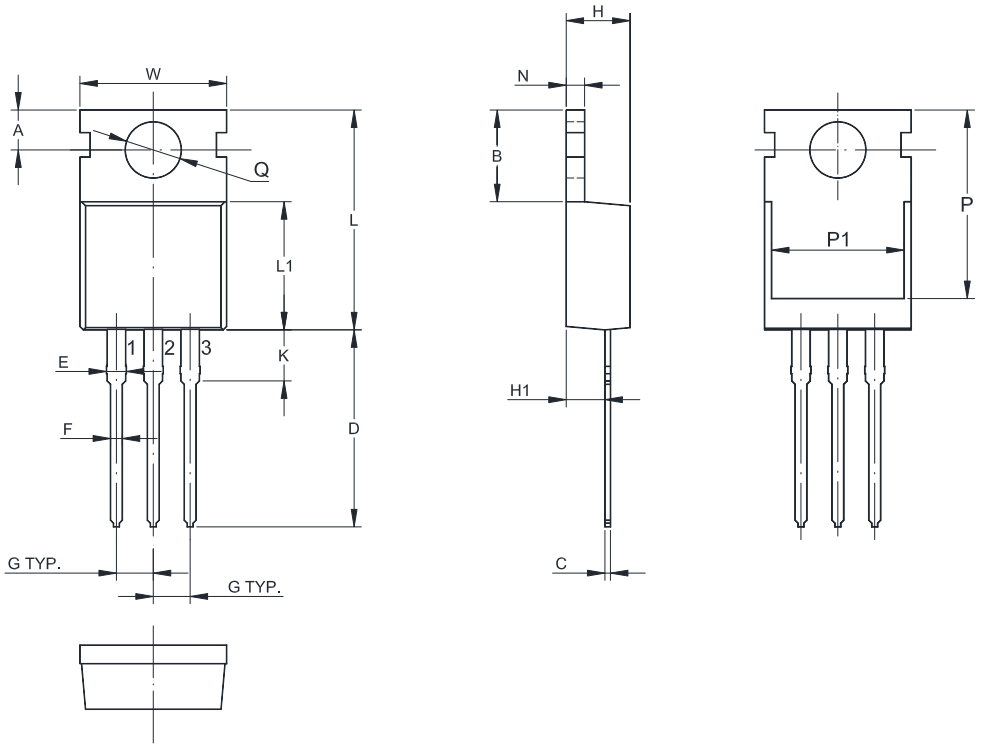


Fig. 8 Power Derating Curve



2SA1010-HAF

Package Outline Dimensions (Units: mm) **TO-220FB**



UNIT	A	B	C	D	E	F	G	W	H	H1	K	L	L1	N
mm	2.9	6.8	0.7	15	1.5	0.9	2.54 Typ.	10.2	4.7	2.5	3.1	16.8	9.4	1.4
	2.7	6.4	0.3	11	1.1	0.7		9.8	4.3	2.2	2.7	14.8	9.0	1.2

UNIT	P	P1	Q
mm	13.3	8.2	3.7
	12.7	7.6	3.5

Marking information

" 2SA1010* " = Part No. (" * " = HFE grouping Code)
" ****** " = Date Code Marking
Font type: Arial