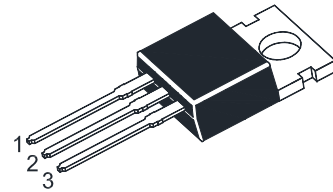


2SD880-HAF

NPN Silicon Epitaxial Planar Power Transistor

Features

- Halogen and Antimony Free(HAF), RoHS compliant



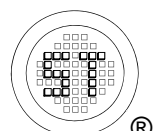
TO-220FB Plastic Package
1.Base 2.Collector 3.Emitter

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	7	V
Collector Current	I_C	3	A
Base Current	I_B	0.3	A
Power Dissipation $T_c = 25^\circ\text{C}$	P_D	30	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

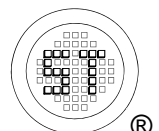
Parameter	Symbol	Max.	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	4.16	$^\circ\text{C/W}$



2SD880-HAF

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 0.5\text{ A}$	O	h_{FE}	60	-	120	-
	Y	h_{FE}	100	-	200	-
	G	h_{FE}	150	-	300	-
		h_{FE}	20	-	-	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	I_{CBO}	-	-	100	μA	
Emitter Base Cutoff Current at $V_{EB} = 7\text{ V}$	I_{EBO}	-	-	100	μA	
Collector Emitter Breakdown Voltage at $I_C = 50\text{ mA}$	$V_{(BR)CEO}$	60	-	-	V	
Collector Emitter Saturation Voltage at $I_C = 3\text{ A}$, $I_B = 0.3\text{ A}$	$V_{CE(sat)}$	-	-	1	V	
Base Emitter Turn-on Voltage at $V_{CE} = 5\text{ V}$, $I_C = 0.5\text{ A}$	$V_{BE(on)}$	-	-	1	V	
Gain Bandwidth Product at $V_{CE} = 5\text{ V}$, $I_C = 0.5\text{ A}$	f_T	-	3	-	MHz	
Output Capacitance at $V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{ob}	-	70	-	pF	
Turn-On Time at $I_C = 1\text{ A}$, $I_{B1} = -I_{B2} = 0.2\text{ A}$, $V_{CC} = 30\text{ V}$, $R_L = 30\ \Omega$	t_{on}	-	0.8	-	μs	
Storage Time at $I_C = 1\text{ A}$, $I_{B1} = -I_{B2} = 0.2\text{ A}$, $V_{CC} = 30\text{ V}$, $R_L = 30\ \Omega$	t_{stg}	-	1.5	-	μs	
Fall Time at $I_C = 1\text{ A}$, $I_{B1} = -I_{B2} = 0.2\text{ A}$, $V_{CC} = 30\text{ V}$, $R_L = 30\ \Omega$	t_f	-	0.8	-	μs	



2SD880-HAF

Electrical Characteristics Curves

Fig 1. Output Characteristics

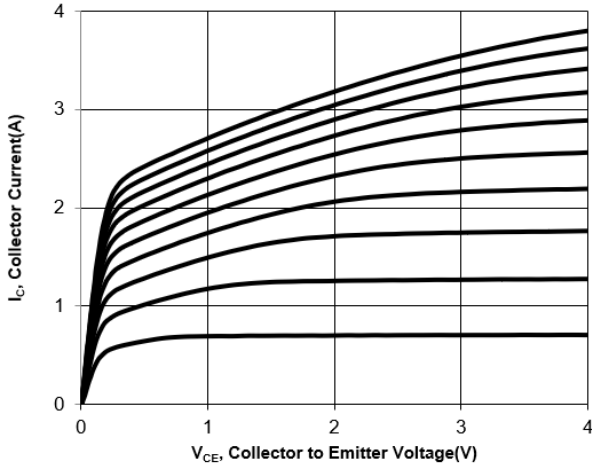


Fig 2. Output Characteristics

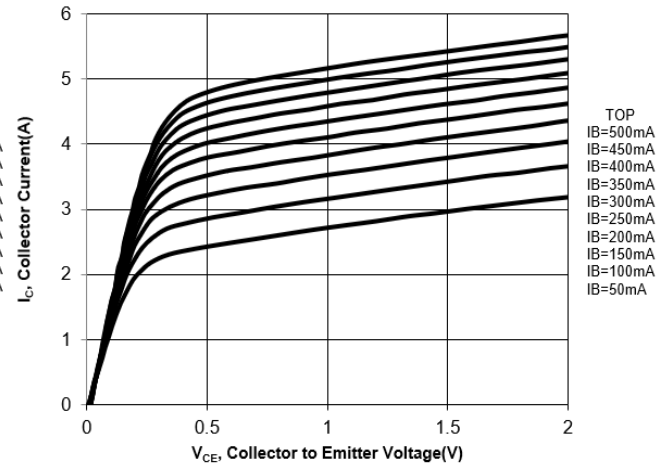


Fig 3. Collector Current vs. V_{BE}

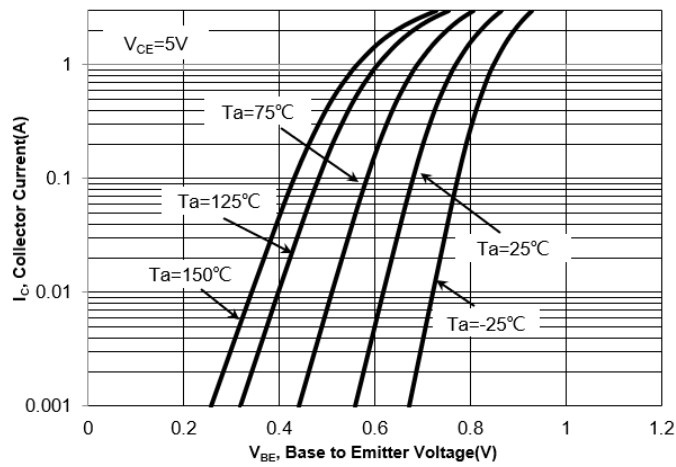
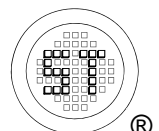
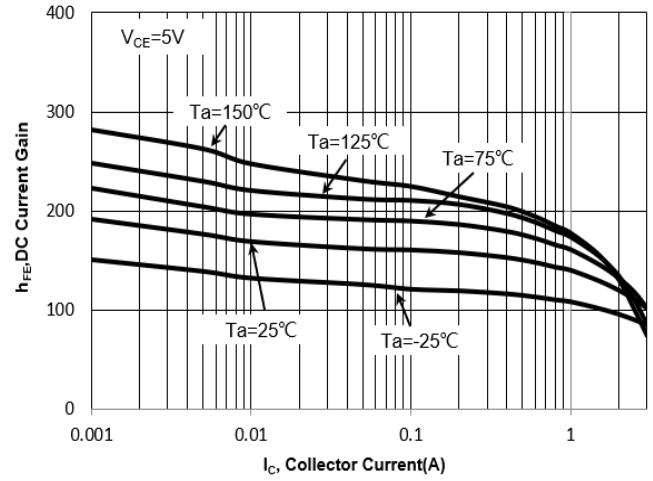


Fig 4. DC Current Gain vs. Collector Current



2SD880-HAF

Electrical Characteristics Curves

Fig 5. Power Derating Curve

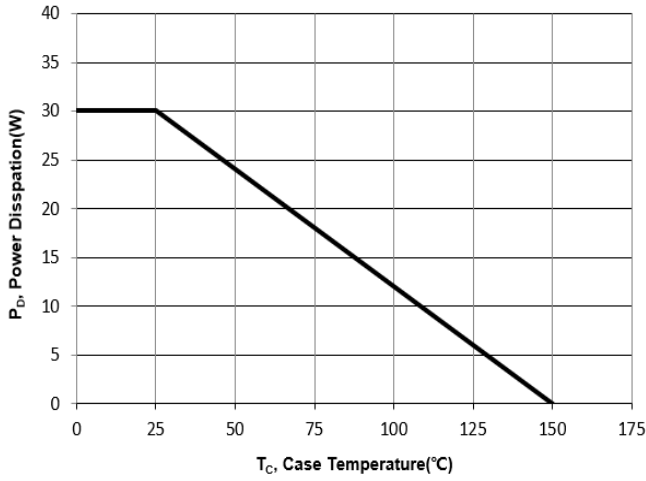


Fig 6. V_{BESAT} vs. Collector Current

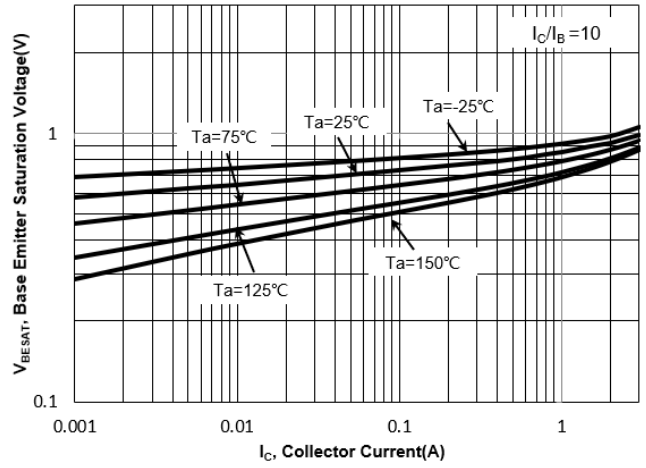


Fig 7. V_{CESAT} vs. Collector Current

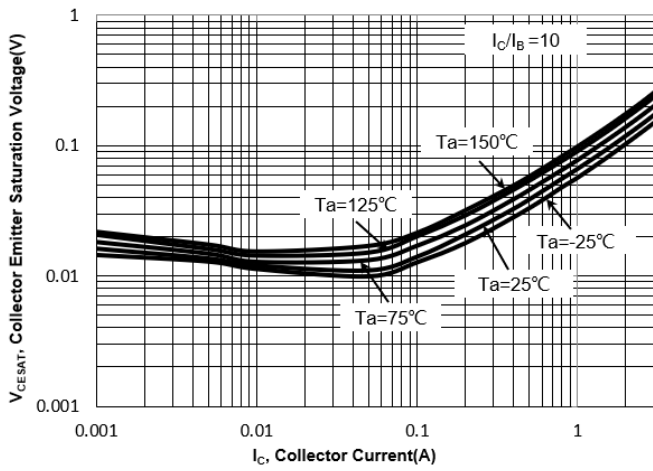
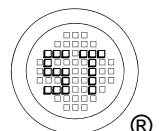
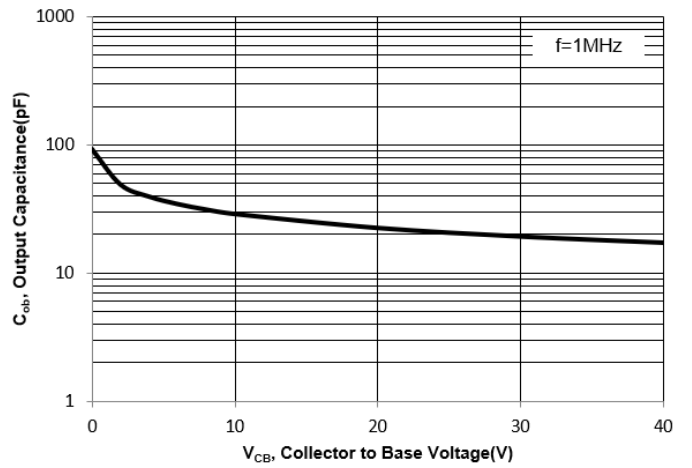


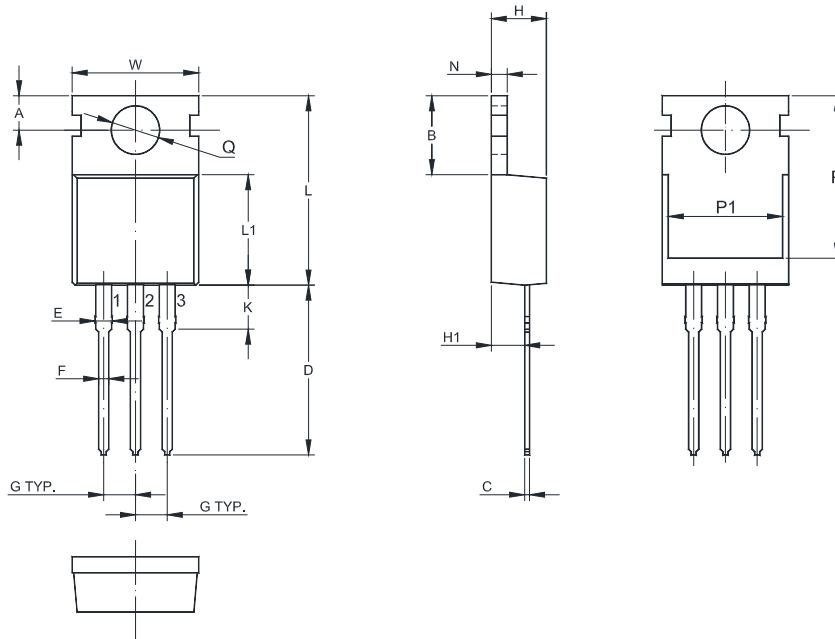
Fig 8. Output Capacitance



2SD880-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	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	TYP.	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

" 2SD880* " = Part No. (" * " = HFE grouping Code)

" ***** " = Date Code Marking

Font type: Arial

