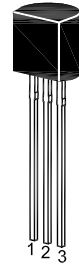


2SD965-HAF

NPN Silicon Epitaxial Planar Transistor

Features

- The transistor is subdivided into Four groups P, Q, R and S, according to its DC current gain
- On special request, these transistors can be manufactured in different pin configurations.
- Halogen and Antimony Free(HAF), RoHS compliant



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

Applications

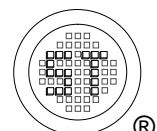
- Low-frequency power and stroboscope applications.

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	42	V
Collector Emitter Voltage	V_{CEO}	22	V
Emitter Base Voltage	V_{EBO}	7	V
Collector Current	I_C	5	A
Peak Collector Current	I_{CP}	8	A
Power Dissipation	P_{tot}	750	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

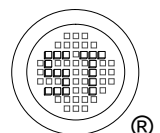
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	167	$^\circ\text{C/W}$



2SD965-HAF

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 2\text{ V}$, $I_C = 0.5\text{ A}$ Current Gain Group at $V_{CE} = 2\text{ V}$, $I_C = 1\text{ A}$	P	h_{FE}	120	-	250	-
	Q	h_{FE}	230	-	380	-
	R	h_{FE}	340	-	600	-
	S	h_{FE}	560	-	950	-
		h_{FE}	150	-	-	-
Collector Base Cutoff Current at $V_{CB} = 10\text{ V}$	I_{CBO}	-	-	0.1	μA	
Collector Emitter Cutoff Current at $V_{CE} = 10\text{ V}$	I_{CEO}	-	-	1.0	μA	
Emitter Base Cutoff Current at $V_{EB} = 7\text{ V}$	I_{EBO}	-	-	0.1	μA	
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{BR(CEO)}$	22	-	-	V	
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{BR(EBO)}$	7	-	-	V	
Collector Emitter Saturation Voltage at $I_C = 3\text{ A}$, $I_B = 0.1\text{ A}$	$V_{CE(sat)}$	-	-	1	V	
Current Gain Bandwidth Product at $V_{CB} = 6\text{ V}$, $I_E = -50\text{ mA}$, $f = 200\text{ MHz}$	f_T	-	150	-	MHz	
Collector Output Capacitance at $V_{CB} = 20\text{ V}$, $f = 1\text{ MHz}$ (Common base, input open circuited)	C_{ob}	-	-	50	pF	



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

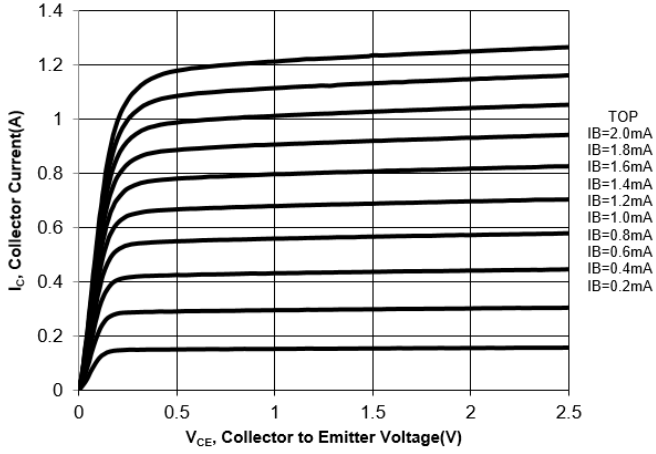


Fig. 2 Collector Current vs. Base to Emitter Voltage

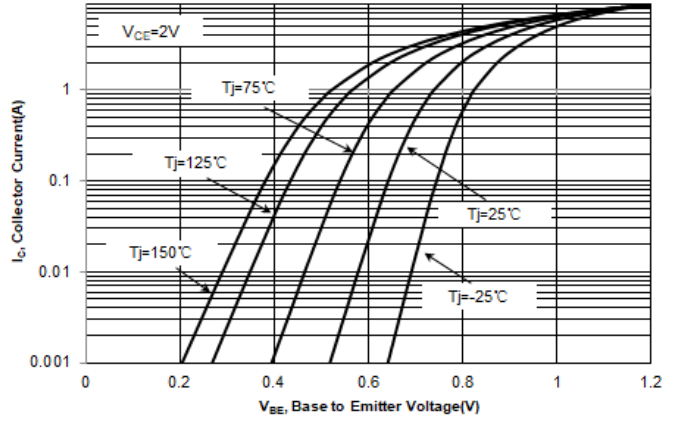


Fig. 3 DC Current Gain vs. Collector Current

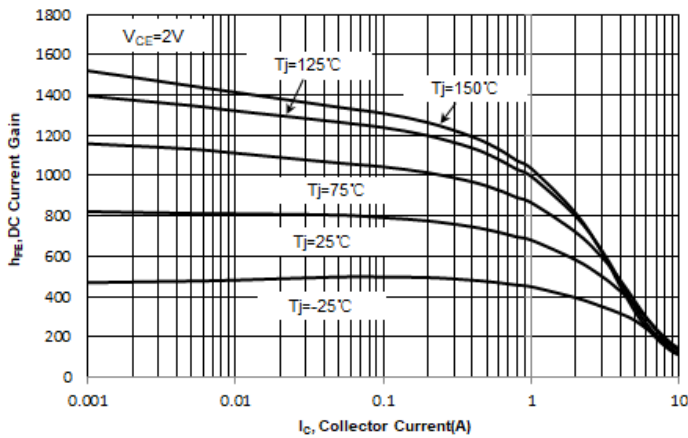
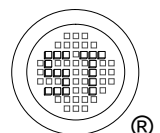
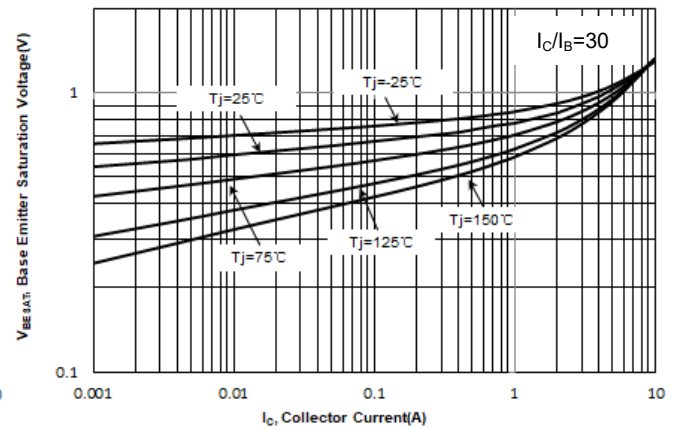


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

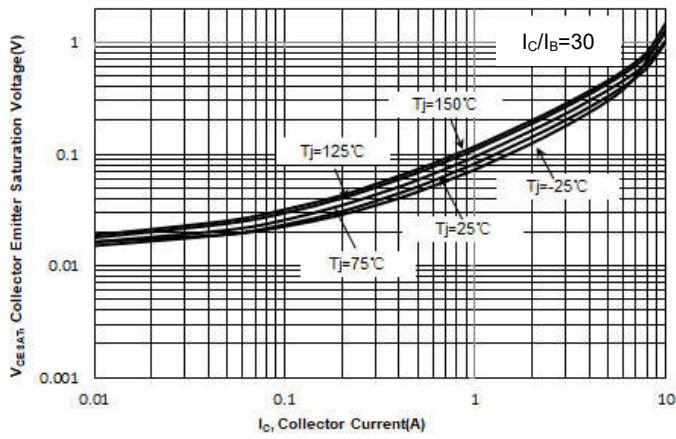


Fig. 6 Output Capacitance

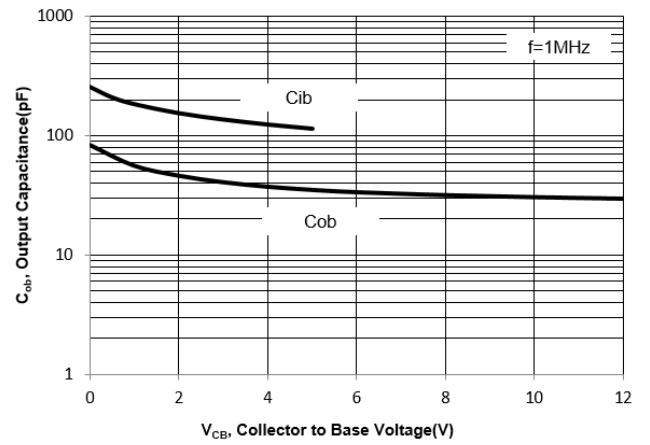
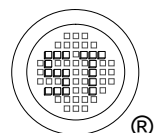
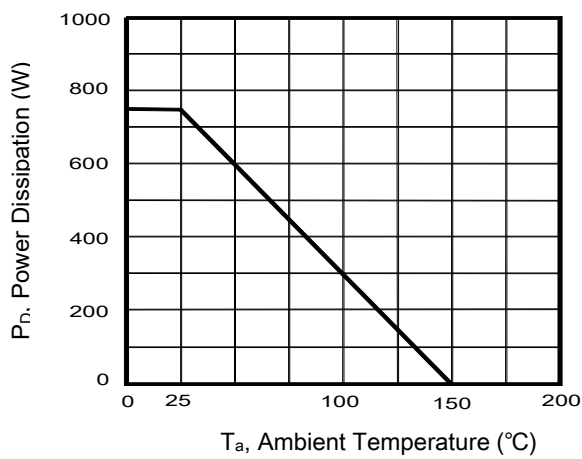
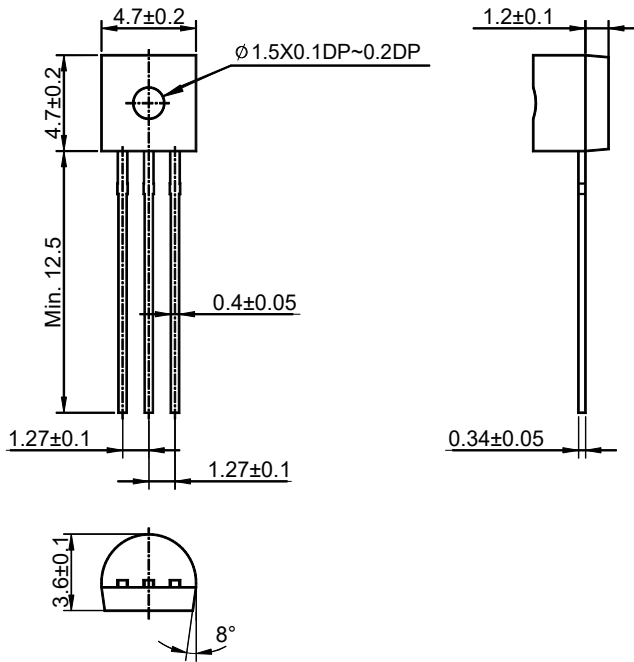


Fig. 7 Power Derating Curve

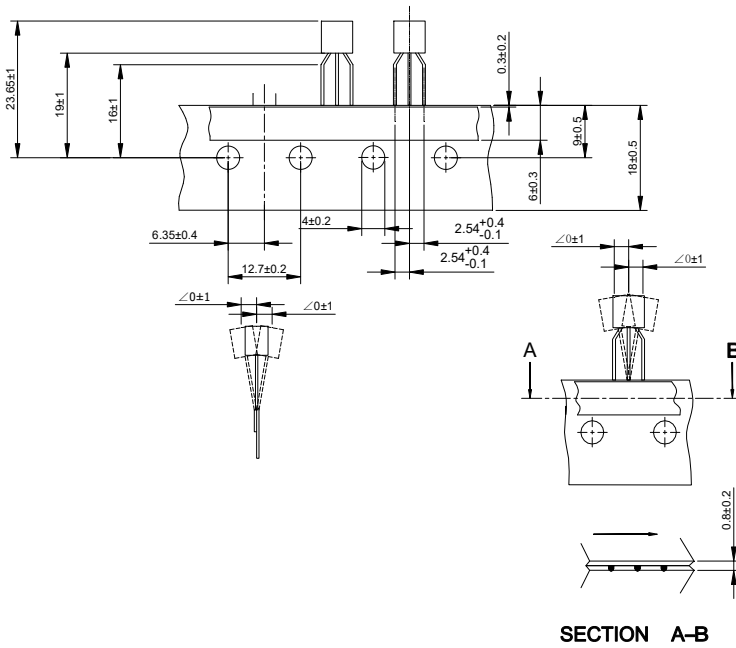


2SD965-HAF

TO-92 Package Outline (Dimensions in millimeters)



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



SECTION A-B

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

