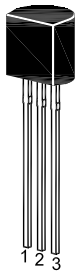
9014-HAF

NPN Silicon Epitaxial Planar Transistor

The transistor is subdivided into four groups, A, B, C and D, according to its DC current gain. As complementary type the PNP transistor 9015 is recommended.



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

Features

- On special request, these transistors can be
- manufactured in different pin configurations
- Halogen and Antimony Free(HAF), RoHS compliant

Applications

- For switching and AF amplifier

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	50	V
Collector Emitter Voltage	V_{CEO}	45	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	100	mA
Power Dissipation	P_{tot}	450	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	278	℃/W

Dated：25/05/2022 Rev：03

Characteristics at T_a = 25 °C

Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 5 V, I_C = 1 mA	Current Gain Group	A	h_{FE}	60	-	150	-
		B	h_{FE}	100	-	300	-
		C	h_{FE}	200	-	600	-
		D	h_{FE}	400	-	1000	-
Collector Base Cutoff Current at V_{CB} = 50 V			I_{CBO}	-	-	50	nA
Emitter Base Cutoff Current at V_{EB} = 5 V			I_{EBO}	-	-	50	nA
Collector Base Breakdown Voltage at I_C = 100 µA			$V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA			$V_{(BR)CEO}$	45	-	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA			$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at I_C = 100 mA, I_B = 10 mA			$V_{CE(sat)}$	-	-	0.25	V
Gain Bandwidth Product at V_{CE} = 5 V, I_C = 10 mA			f_T	-	300	-	MHz
Output Capacitance at V_{CB} = 10 V, f = 1 MHz			C_{ob}	-	-	6	pF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

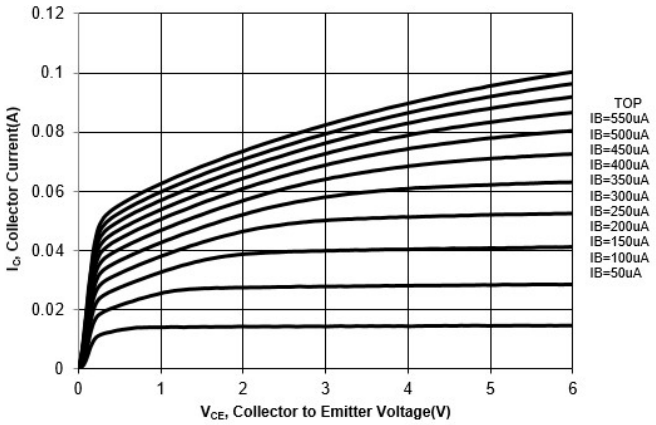


Fig. 2 Collector Current vs. Base to Emitter Voltage

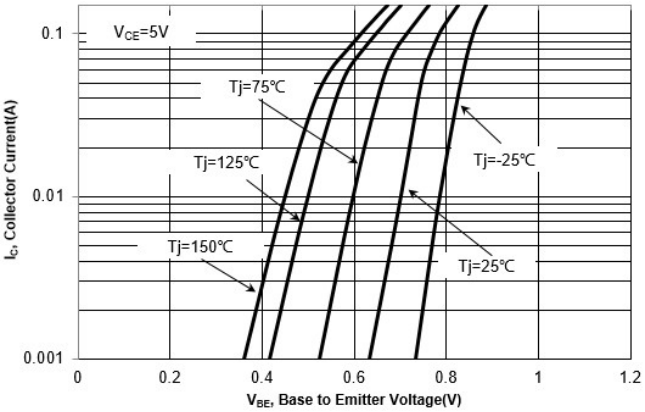


Fig. 3 DC Current Gain vs. Collector Current

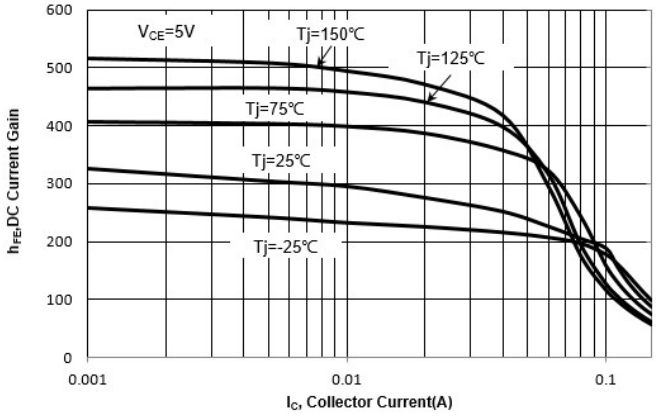
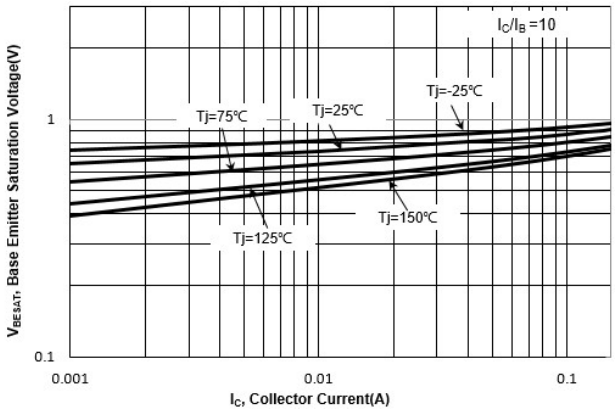


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

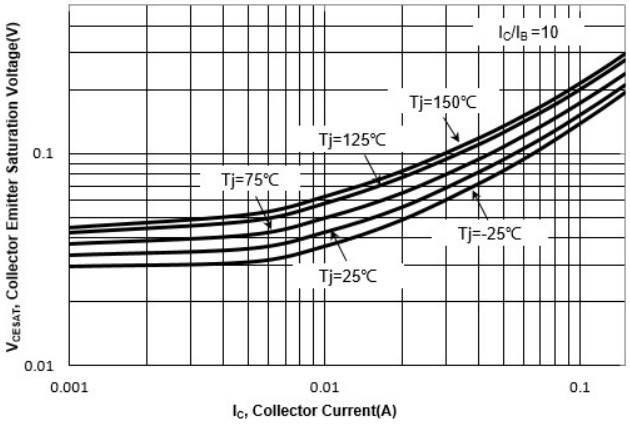


Fig. 6 Output Capacitance

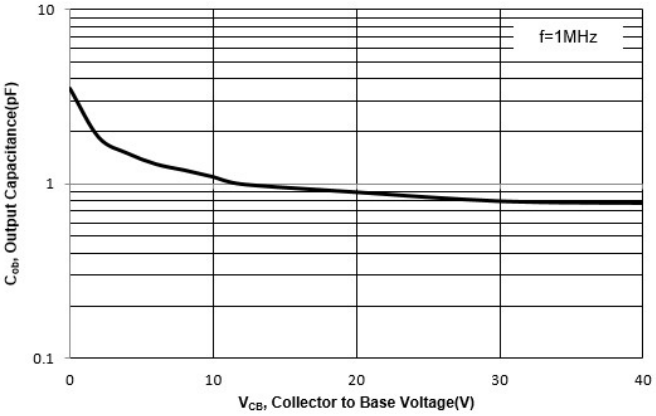
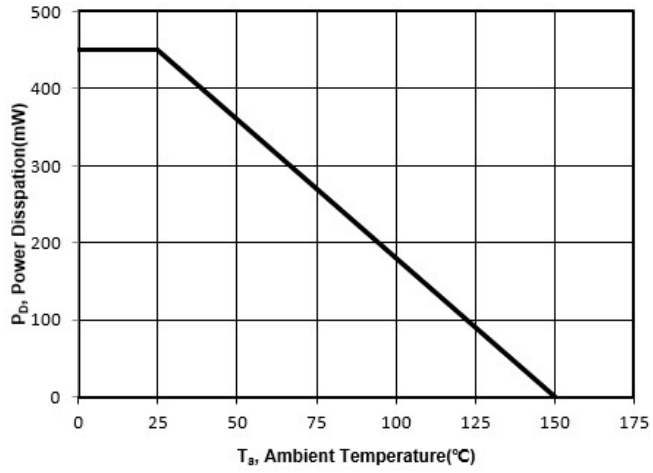
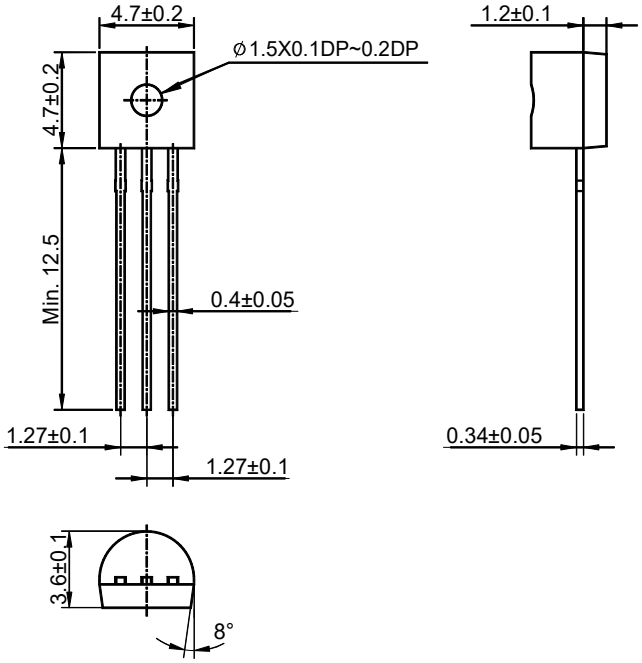


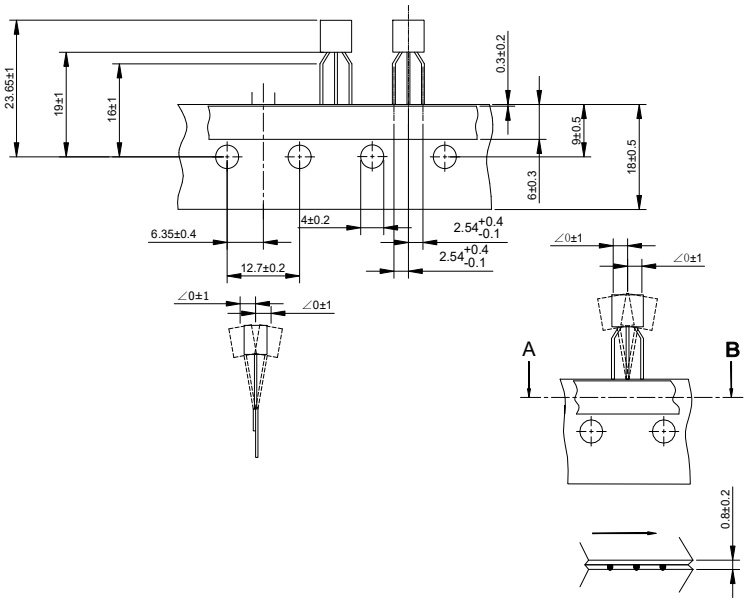
Fig. 7 Power Derating Curve



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