

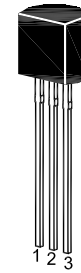
# 2SC945-HAF

## NPN Silicon Epitaxial Planar Transistor

As complementary type the PNP transistor 2SA733 is recommended

### Features

- The transistor is subdivided into five groups, R, O, Y, P and L, 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

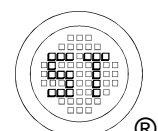
- For switching and AF amplifier

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	60	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	150	mA
Power Dissipation	$P_{tot}$	250	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Thermal Characteristics

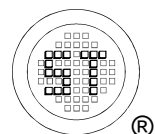
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C/W}$



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 6\text{ V}$ , $I_C = 1\text{ mA}$ Current Gain Group	R	$h_{FE}$	40	-	80	-
	O	$h_{FE}$	70	-	140	-
	Y	$h_{FE}$	120	-	240	-
	P	$h_{FE}$	200	-	400	-
	L	$h_{FE}$	350	-	700	-
Collector Base Cutoff Current at $V_{CB} = 40\text{ V}$	$I_{CBO}$	-	-	100	nA	
Emitter Base Cutoff Current at $V_{EB} = 3\text{ V}$	$I_{EBO}$	-	-	100	nA	
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	-	V	
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	50	-	-	V	
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V	
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	-	0.3	V	
Gain Bandwidth Product at $V_{CE} = 6\text{ V}$ , $I_C = 10\text{ mA}$	$f_T$	-	300	-	MHz	
Output Capacitance at $V_{CB} = 6\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	1.5	-	pF	



## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

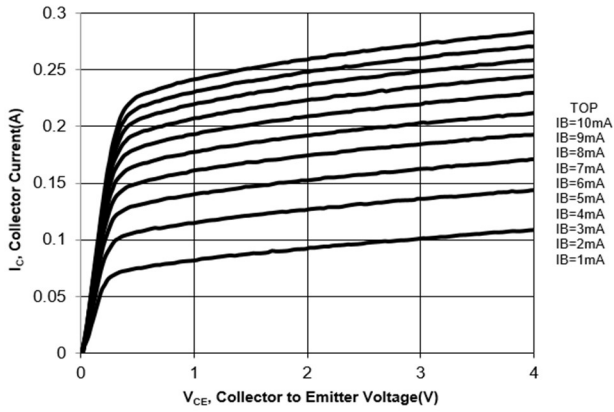


Fig. 2 Collector Current vs.  $V_{BE}$

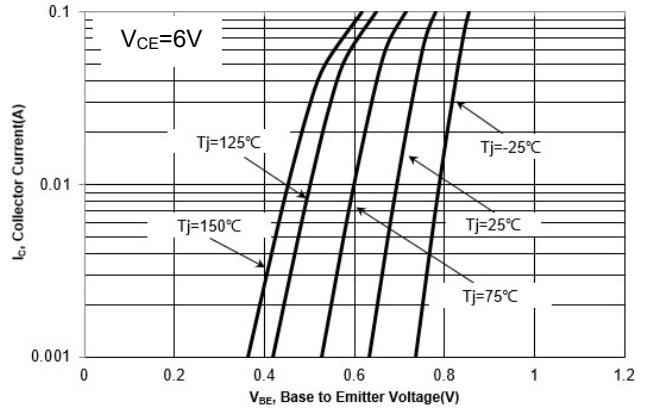


Fig. 3  $h_{FE}$  vs. Collector Current

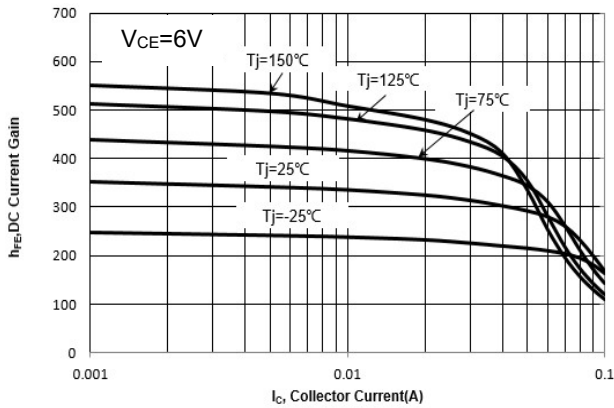
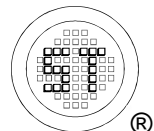
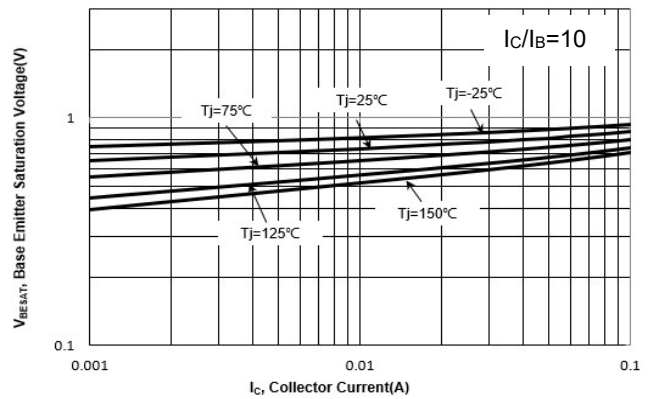


Fig. 4  $V_{BE(sat)}$  vs. Collector Current



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## Electrical Characteristics Curves

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

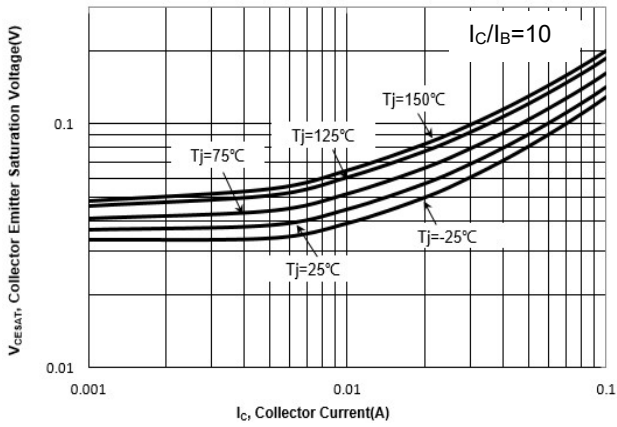


Fig 6. Output Capacitance

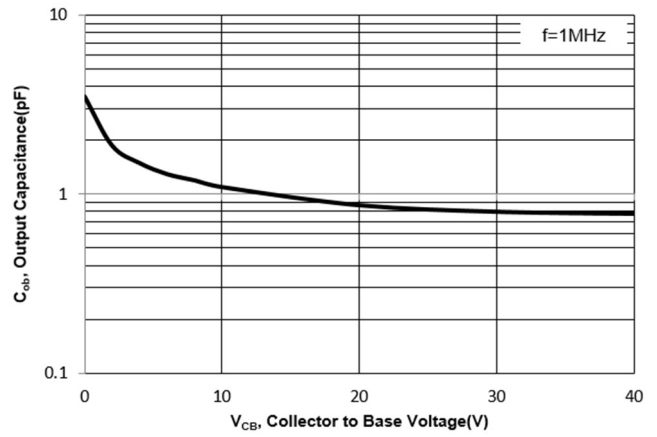


Fig. 7 Power Derating Curve

