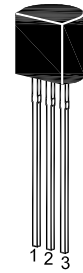


2SC1815-HAF

NPN Silicon Epitaxial Planar Transistor

Features

- The transistor is subdivided into four groups, O, Y, G 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

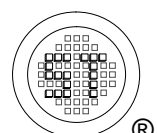
- For switching and AF amplifier applications

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

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
Base Current	I_B	50	mA
Power Dissipation	P_{tot}	400	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

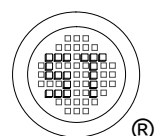
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	312	$^\circ\text{C/W}$



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 6\text{ V}$, $I_C = 2\text{ mA}$ at $V_{CE} = 6\text{ V}$, $I_C = 150\text{ mA}$	Current Gain Group O Y G L	h_{FE}	70	-	140	-
		h_{FE}	120	-	240	-
		h_{FE}	200	-	400	-
		h_{FE}	350	-	700	-
		h_{FE}	25	-	-	-
		h_{FE}	25	-	-	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	I_{CBO}	-	-	0.1	μA	
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	0.1	μA	
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	V		
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	50	-	V		
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	V		
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	-	0.25	V	
Base Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$	$V_{BE(sat)}$	-	-	1	V	
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	f_T	80	-	-	MHz	
Collector Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	2	-	pF	



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Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

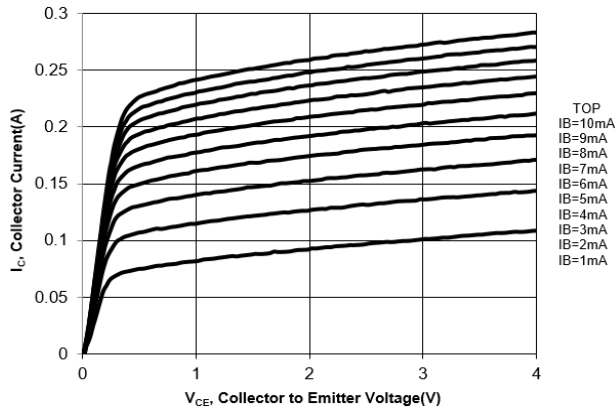


Fig. 2 Collector Current vs. V_{BE}

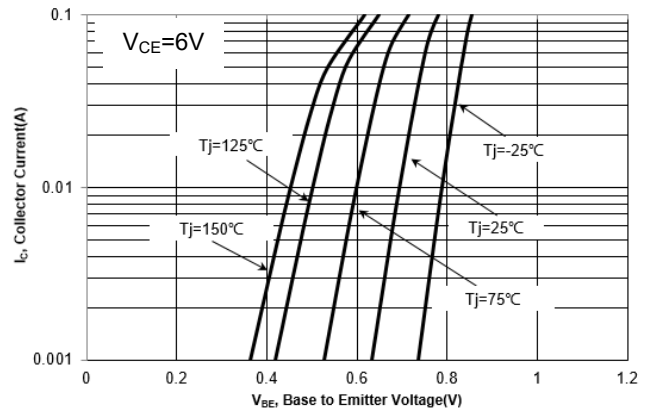


Fig. 3 h_{FE} vs. Collector Current

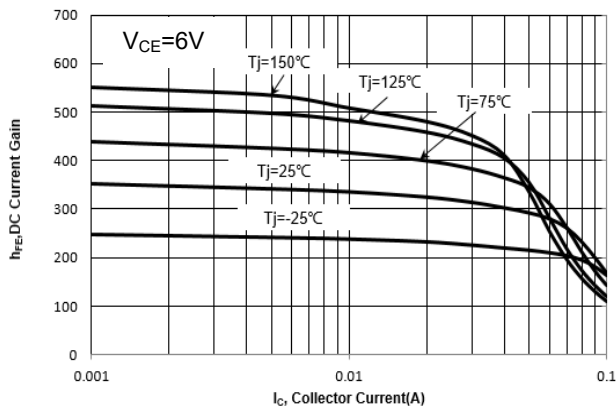
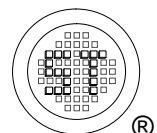
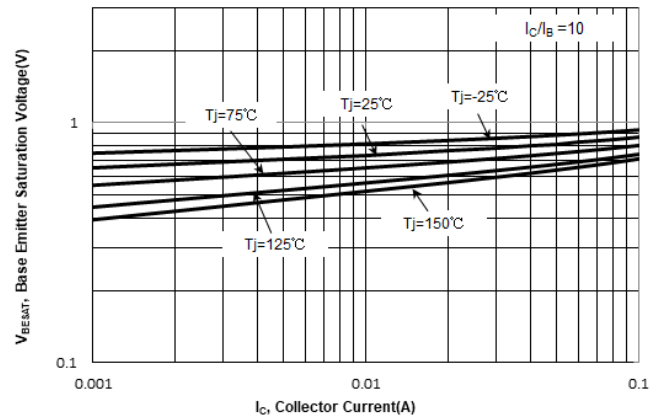


Fig. 4 $V_{BE(sat)}$ vs. Collector Current



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Electrical Characteristics Curves

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

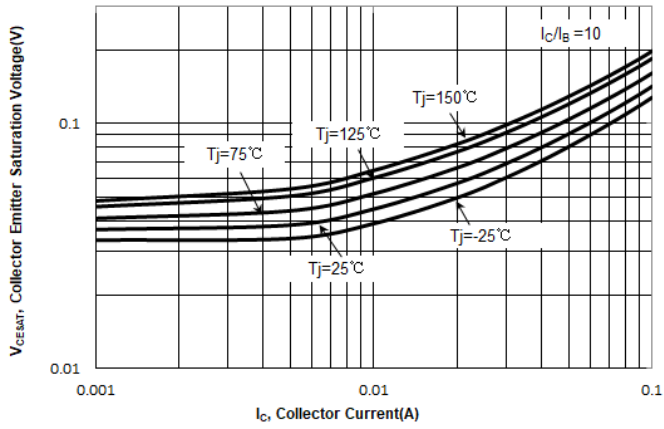


Fig 6. Output Capacitance

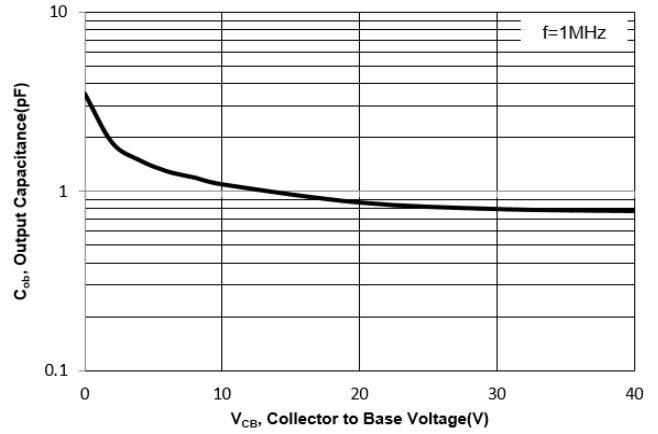


Fig. 7 Power Derating Curve

