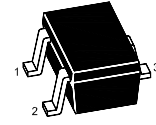


PNP Silicon Epitaxial Planar Transistor

The transistor is subdivided into three groups Q, R and S according to its DC current gain.



1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

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	$-V_{EBO}$	6	V
Collector Current	$-I_C$	150	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

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	Q	h_{FE}	120	-	270	-
	R	h_{FE}	180	-	390	-
	S	h_{FE}	270	-	560	-
Collector Base Cutoff Current at $-V_{CB} = 60\text{ V}$	$-I_{CBO}$	-	-	0.1	μA	
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$	$-I_{EBO}$	-	-	0.1	μA	
Collector Base Breakdown Voltage at $-I_C = 50\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	60	-	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	50	-	-	V	
Emitter Base Breakdown Voltage at $-I_E = 50\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	6	-	-	V	
Collector Emitter Saturation Voltage at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$	$-V_{CE(sat)}$	-	-	0.5	V	
Transition Frequency at $-V_{CE} = 12\text{ V}$, $-I_E = 2\text{ mA}$, $f = 30\text{ MHz}$	f_T	-	140	-	MHz	
Collector Output Capacitance at $-V_{CB} = 12\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	-	5	pF	

CLASSIFICATION OF $h_{FE(1)}$

RANK	Q	R	S
RANGE	120 - 270	180 - 390	270 - 560
MARKING	FQ	FR	FS

Fig.1 Grounded emitter propagation characteristics

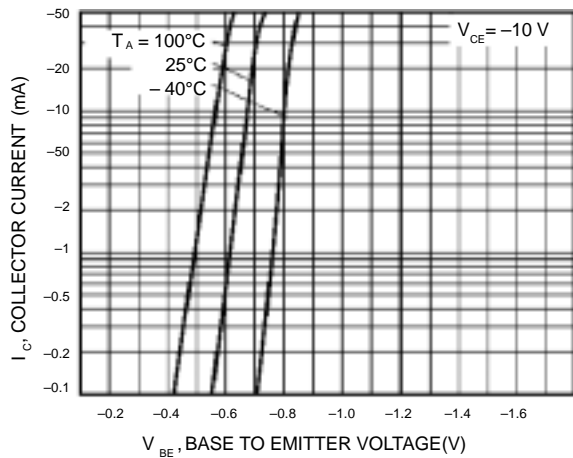


Fig.2 Grounded emitter output characteristics(I)

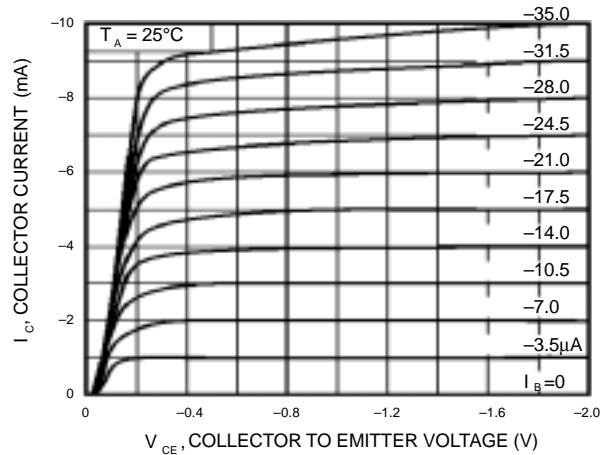


Fig.3 Grounded emitter output characteristics(II)

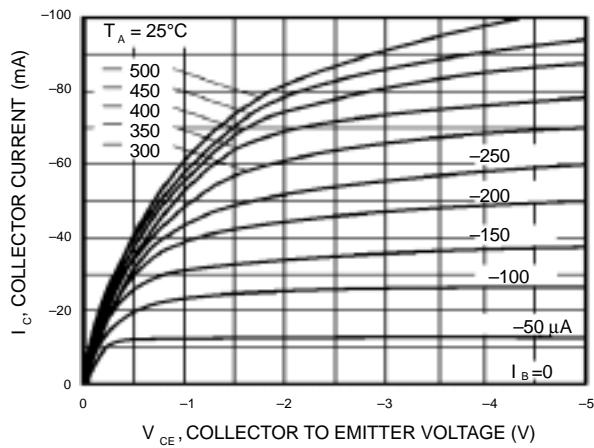


Fig.4 DC current gain vs. collector current (I)

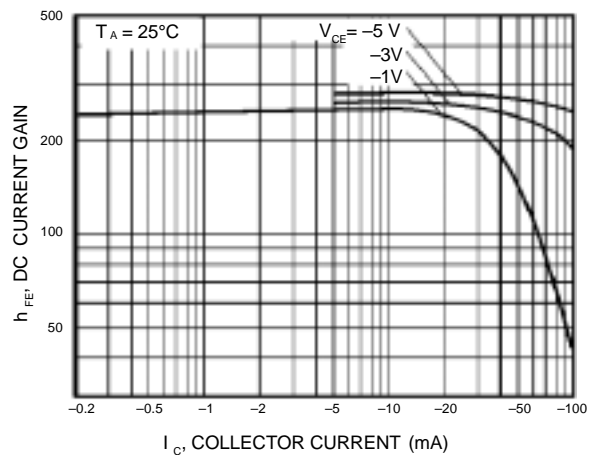


Fig.5 DC current gain vs. collector current (II)

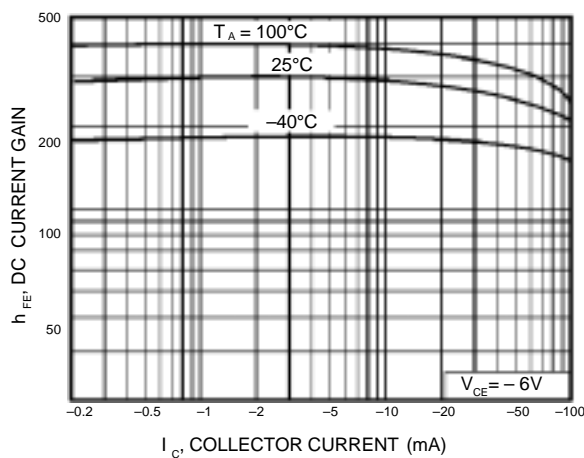


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

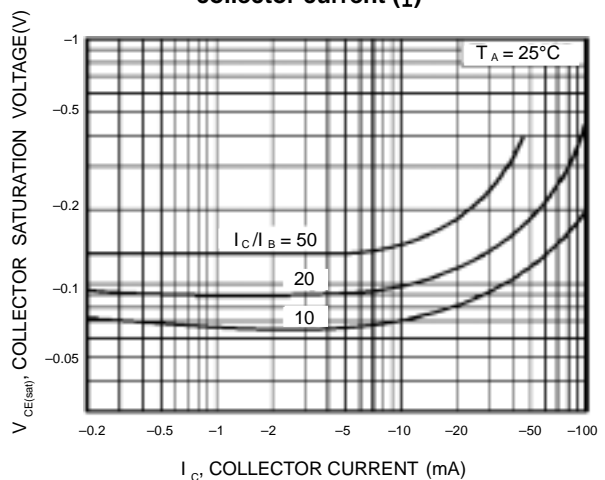


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

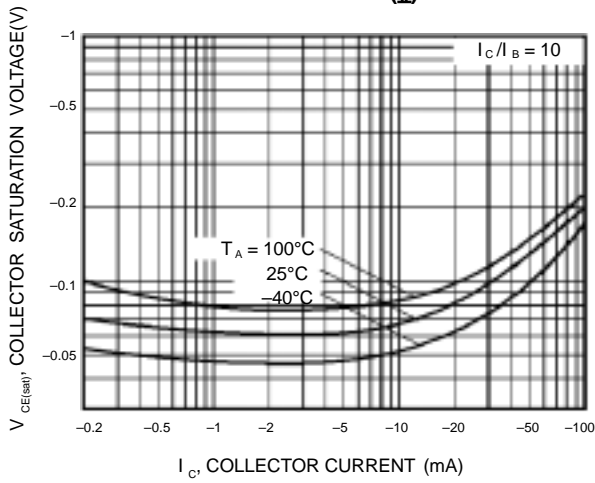
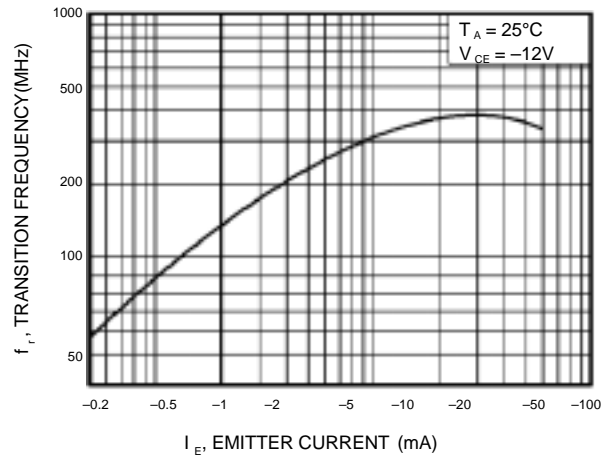
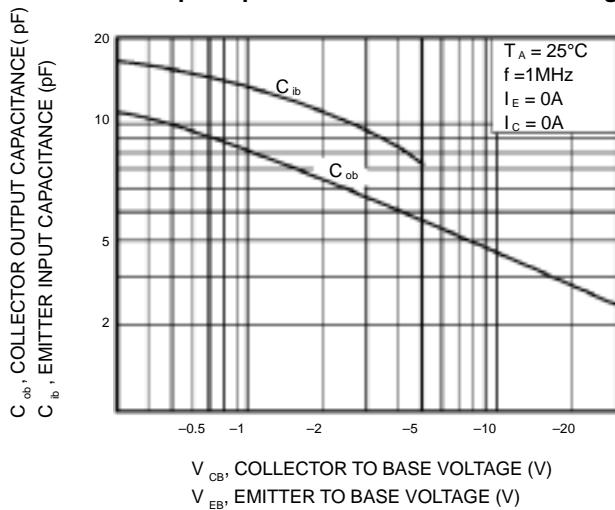


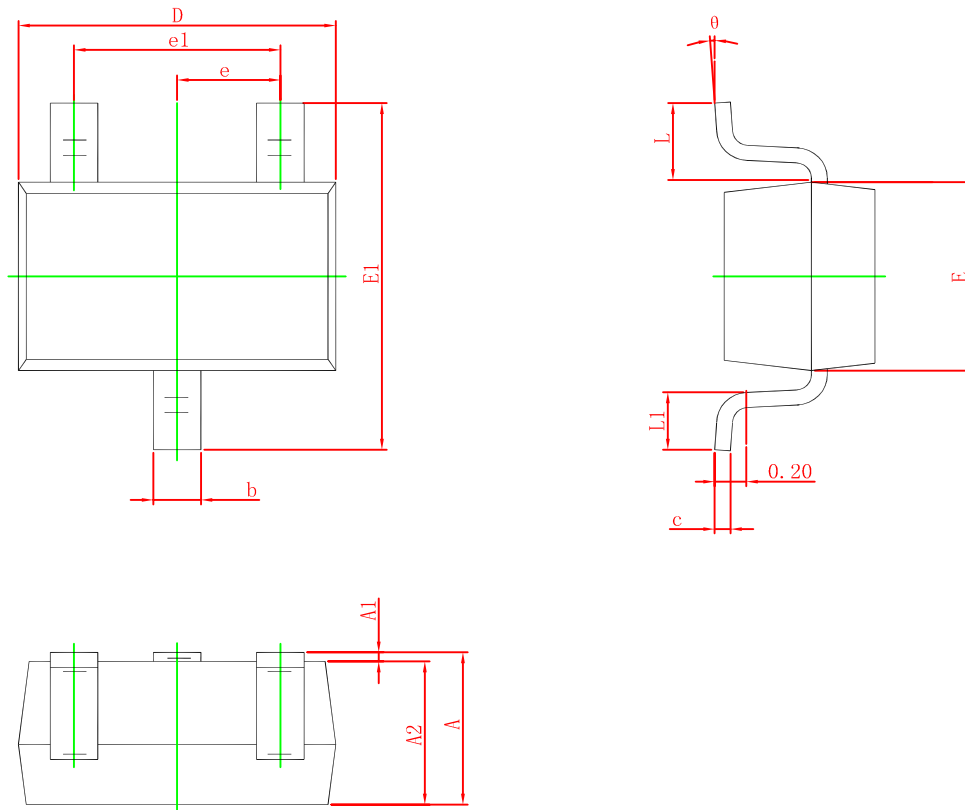
Fig.8 Gain bandwidth product vs. emitter current



**Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage**



SOT-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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