

# Medium Power Transistor (-32V, -0.5A)

## 2SA1577FRA

### ●Features

- 1) Large  $I_C$ .  
 $I_{C\text{MAX.}} = -500\text{mA}$
- 2) Low  $V_{CE(\text{sat})}$ . Ideal for low-voltage operation.
- 3) Complements the 2SC4097FRA

### ●Structure

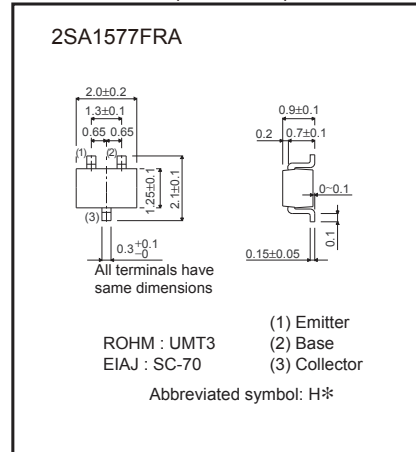
Epitaxial planer type  
PNP silicon transistor

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	-40	V
Collector-emitter voltage	$V_{CEO}$	-32	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-0.5	A *
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

\*  $P_{C\text{MAX.}}$  must not be exceeded.

### ●Dimensions (Unit : mm)



\* Denotes  $h_{FE}$

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-40	-	-	V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	-32	-	-	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	-5	-	-	V	$I_E = -100\mu\text{A}$
Collector cutoff current	$I_{CBO}$	-	-	-1	$\mu\text{A}$	$V_{CB} = -20\text{V}$
Emitter cutoff current	$I_{EBO}$	-	-	-1	$\mu\text{A}$	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	-	-	-0.6	V	$I_C/I_B = -300\text{mA}/-30\text{mA}$
DC current transfer ratio	$h_{FE}$	120	-	390	-	$V_{CE} = -3\text{V}$ , $I_C = -100\text{mA}$
Transition frequency	$f_T$	-	200	-	MHz	$V_{CE} = -5\text{V}$ , $I_E = 20\text{mA}$ , $f = 100\text{MHz}$
Output capacitance	$C_{ob}$	-	7	-	pF	$V_{CB} = -10\text{V}$ , $I_E = 0\text{A}$ , $f = 1\text{MHz}$

### ●Packaging specifications

Type	$h_{FE}$	Package	Taping
		Code	T106
		Basic ordering unit (pieces)	3000
2SA1577FRA	QR		○

$h_{FE}$  values are classified as follows.

Item	Q	R
$h_{FE}$	120 to 270	180 to 390

●Electrical characteristic curves

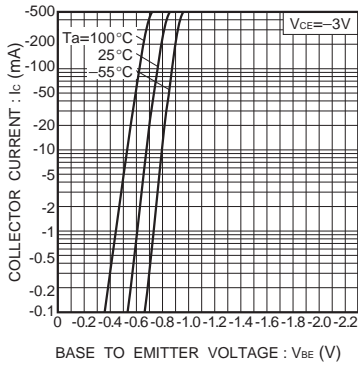


Fig.1 Grounded emitter propagation

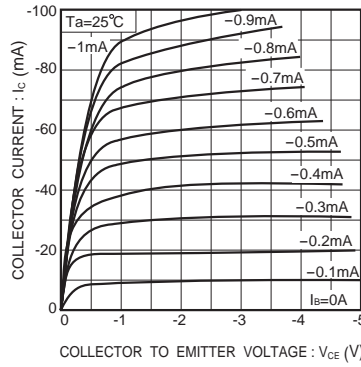


Fig.2 Grounded emitter output characteristics (I)

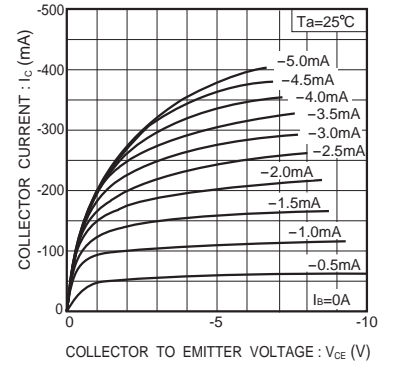


Fig.3 Ground emitter output characteristics (II)

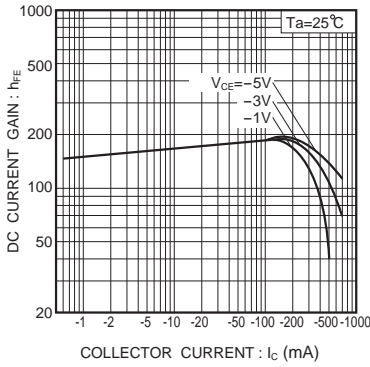


Fig.4 DC current gain vs. collector current (I)

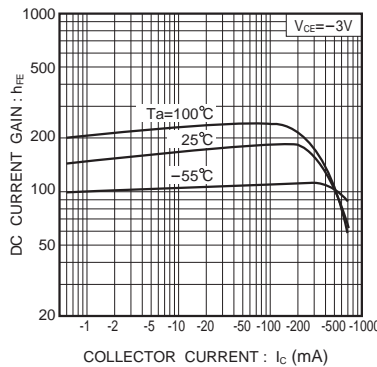


Fig.5 DC current gain vs. collector current (II)

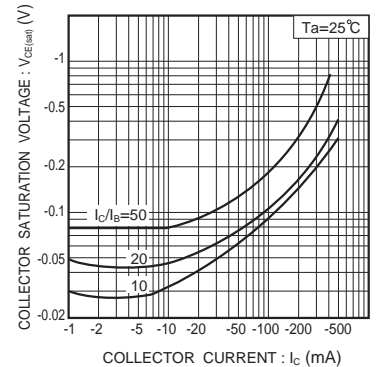


Fig.6 Collector emitter saturation voltage vs. collector current (I)

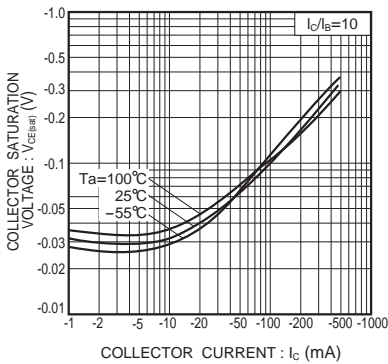


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

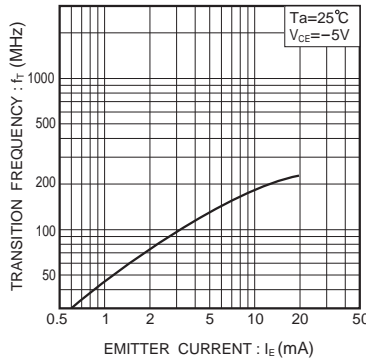


Fig.8 Gain bandwidth product vs. emitter current

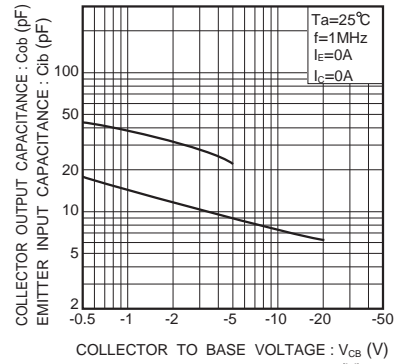


Fig.9 Collector output capacitance vs. collector-base voltage. Emitter input capacitance vs. emitter-base voltage

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