

# Medium Power Transistor (32V, 0.5A)

## 2SC4097

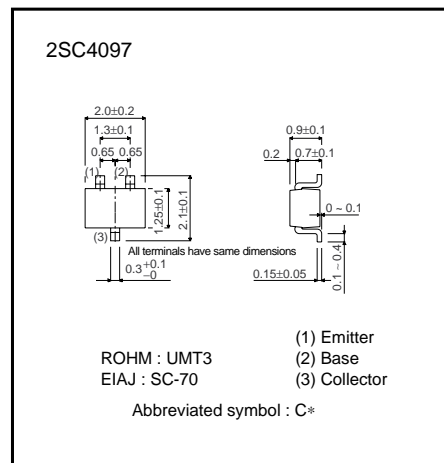
### ●Features

- 1) High  $I_{CMax.}$   
 $I_{CMax.} = 0.5A$
- 2) Low  $V_{CE(sat)}$ .  
Optimal for low voltage operation.
- 3) Complements the 2SA1577.

### ●Structure

Epitaxial planar type  
NPN silicon transistor

### ●External dimensions (Units : mm)



\* Denotes  $h_{FE}$

### ●Absolute maximum ratings ( $T_a = 25^\circ C$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	40	V
Collector-emitter voltage	$V_{CE0}$	32	V
Emitter-base voltage	$V_{EB0}$	5	V
Collector current	$I_C$	0.5	A *
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

\*  $P_C$  must not be exceeded.

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●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	40	–	–	V	I <sub>c</sub> = 100μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	32	–	–	V	I <sub>c</sub> = 1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	–	–	V	I <sub>E</sub> = 100μA
Collector cutoff current	I <sub>cBO</sub>	–	–	1	μA	V <sub>CB</sub> = 20V
Emitter cutoff current	I <sub>EBO</sub>	–	–	1	μA	V <sub>EB</sub> = 4V
DC current transfer ratio	h <sub>FE</sub>	120	–	390	–	V <sub>CE</sub> = 3V, I <sub>c</sub> = 10mA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	–	0.6	V	I <sub>c</sub> /I <sub>B</sub> = 500mA/50mA
Transition frequency	f <sub>T</sub>	–	250	–	MHz	V <sub>CE</sub> = 5V, I <sub>E</sub> = –20mA, f = 100MHz
Output capacitance	C <sub>ob</sub>	–	6.5	–	pF	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0A, f = 1MHz

●Packaging Specifications and h<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping
		Code	T106
		Basic ordering unit (pieces)	3000
2SC4097	QR		○

h<sub>FE</sub> values are classified as follows:

Item	Q	R
h <sub>FE</sub>	120 to 270	180 to 390

●Electrical characteristic curves

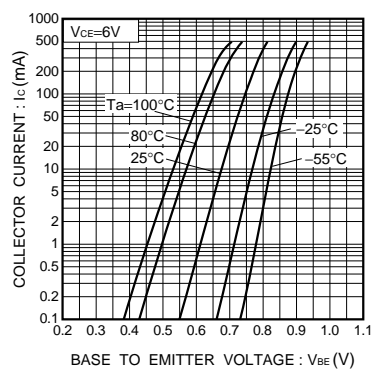


Fig.1 Grounded emitter propagation characteristics

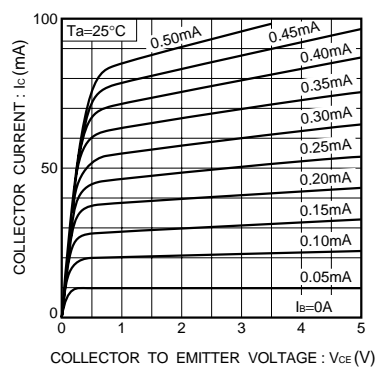


Fig.2 Grounded emitter output characteristics ( I )

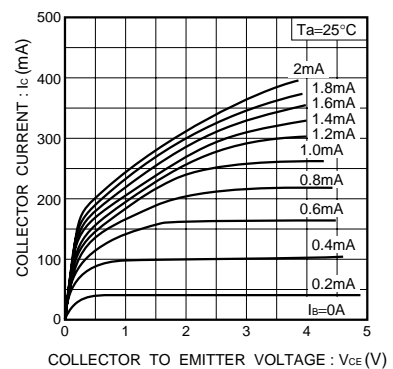


Fig.3 Grounded emitter output characteristics (II)

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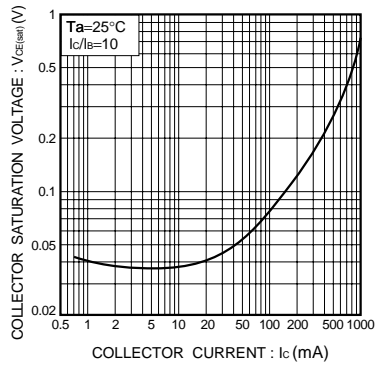


Fig.4 Collector-emitter saturation voltage vs. collector current

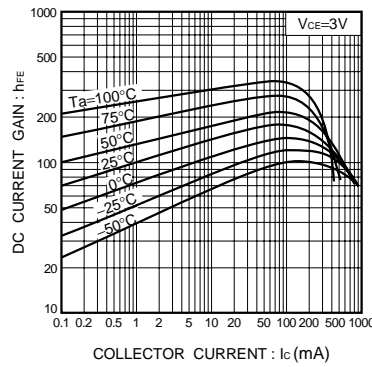


Fig.5 DC current gain vs. collector current

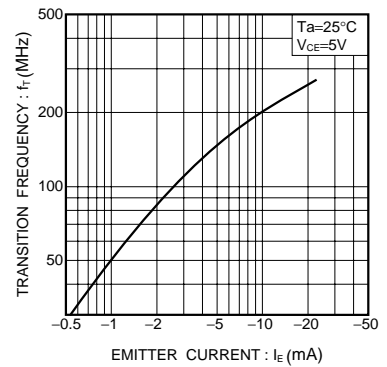


Fig.6 Gain bandwidth product vs. emitter current

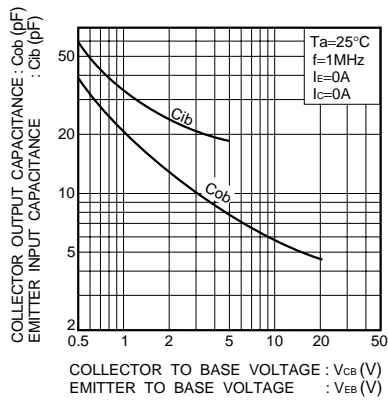


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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