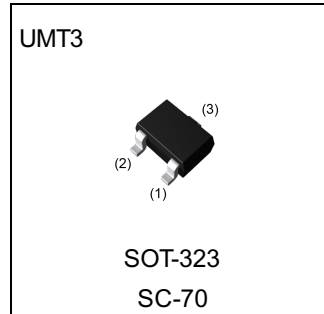


Parameter	Value
V_{CEO}	32V
I_C	500mA

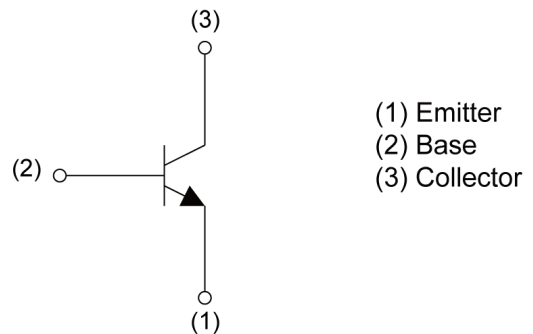
●Outline



●Features

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

●Inner circuit



- (1) Emitter
- (2) Base
- (3) Collector

●Application

DRIVING CIRCUIT, LOW FREQUENCY AMPLIFIER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SC4097	UMT3	2021	T106	180	8	3000	C

● **Absolute maximum ratings** ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Values	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	500	mA
Power dissipation	P_D^{*1}	200	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

● **Electrical characteristics** ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu\text{A}$	40	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$	32	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu\text{A}$	5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 20\text{V}$	-	-	1.0	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\text{V}$	-	-	1.0	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	600	mV
DC current gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 10\text{mA}$	120	-	390	-
Transition frequency	f_T	$V_{CE} = 5\text{V}, I_E = -20\text{mA}, f = 100\text{MHz}$	-	250	-	MHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	-	6.5	-	pF

h_{FE} values are classified as follows :

rank	Q	R	-	-	-
h_{FE}	120-270	180-390	-	-	-

*1 Each terminal mounted on a reference land.

● Electrical characteristic curves ($T_a = 25^\circ\text{C}$)

Fig.1 Grounded emitter propagation characteristics

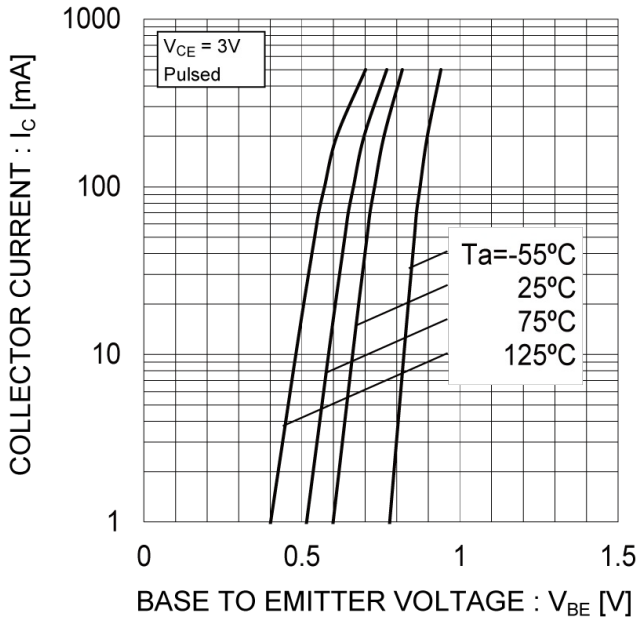


Fig.2 Typical output characteristics

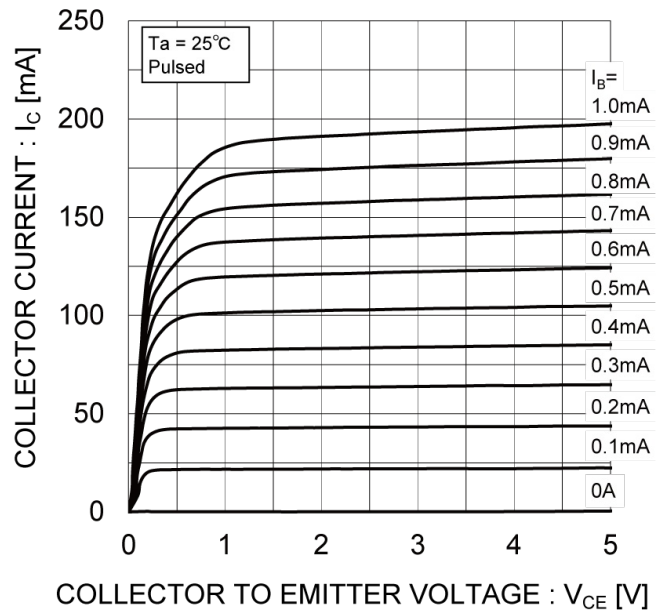


Fig.3 DC current gain vs. collector current (I)

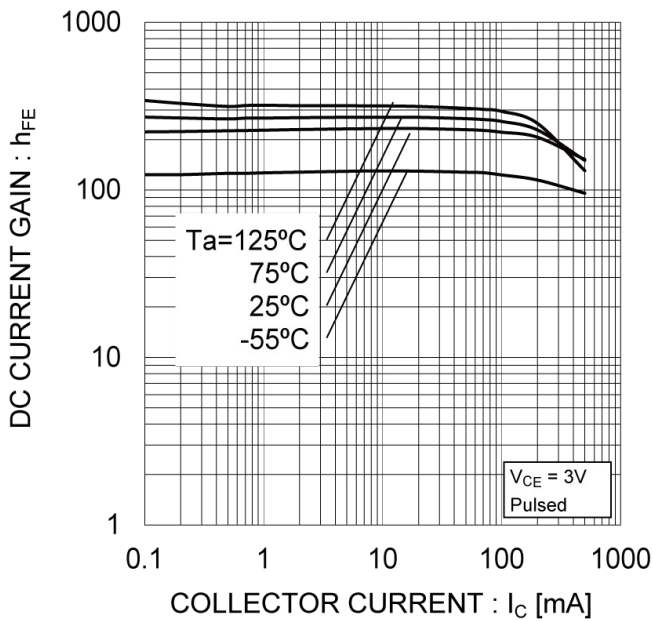
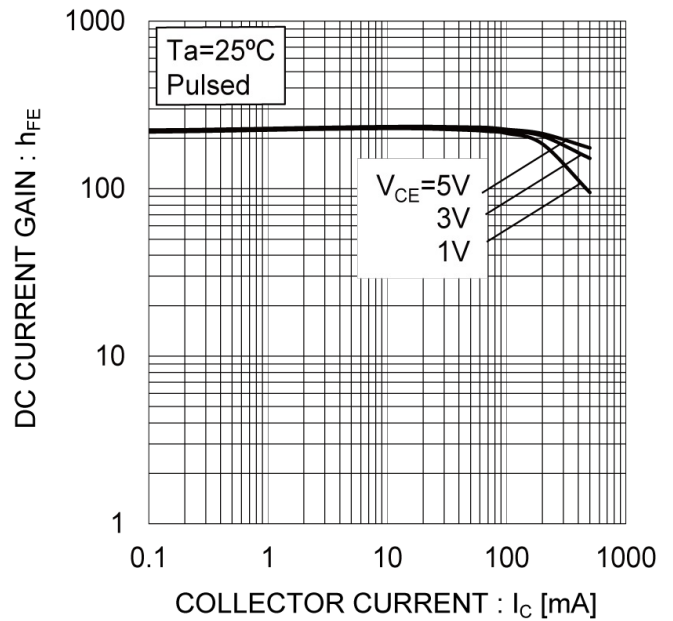


Fig.4 DC current gain vs. collector current (II)



● Electrical characteristic curves ($T_a = 25^\circ\text{C}$)

Fig.5 Collector-emitter saturation voltage vs. collector current(I)

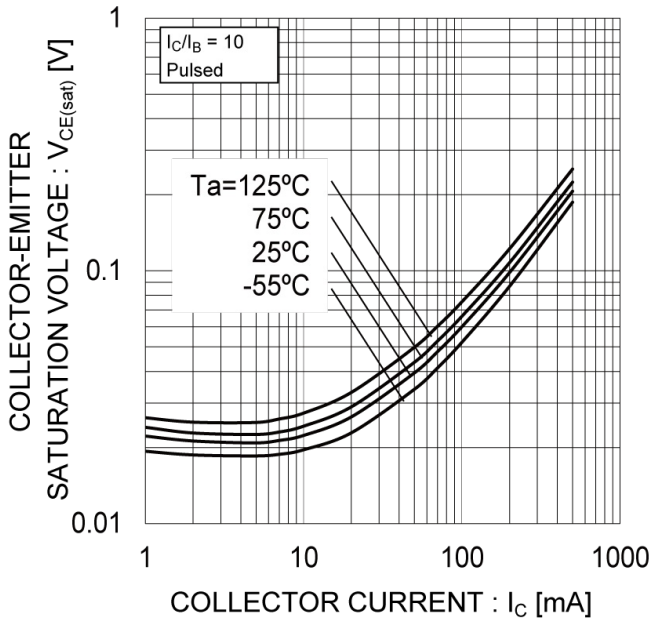


Fig.6 Collector-emitter saturation voltage vs. collector current(II)

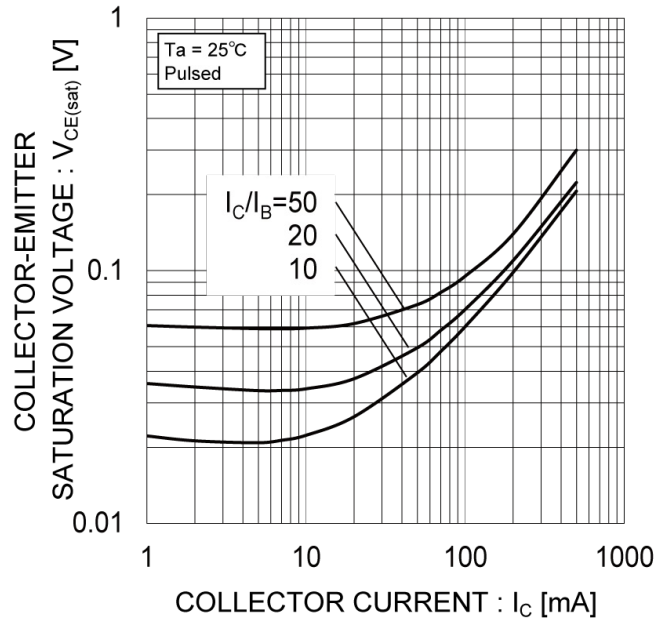


Fig.7 Base-emitter saturation voltage vs. collector current

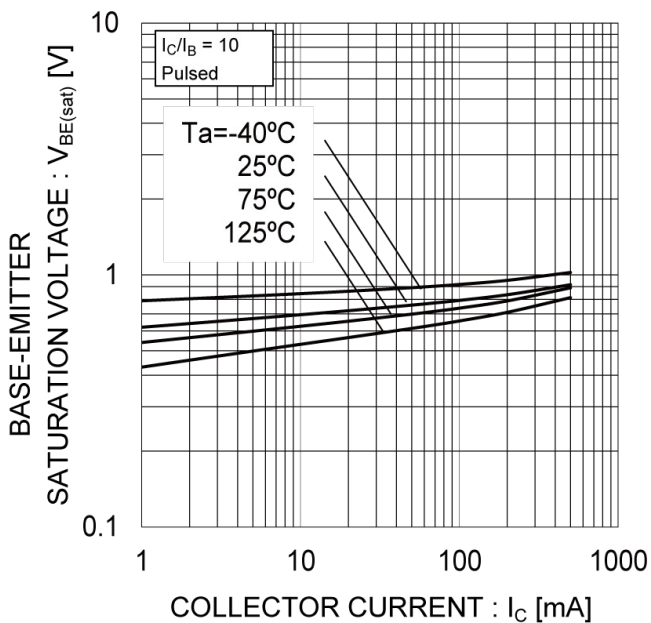
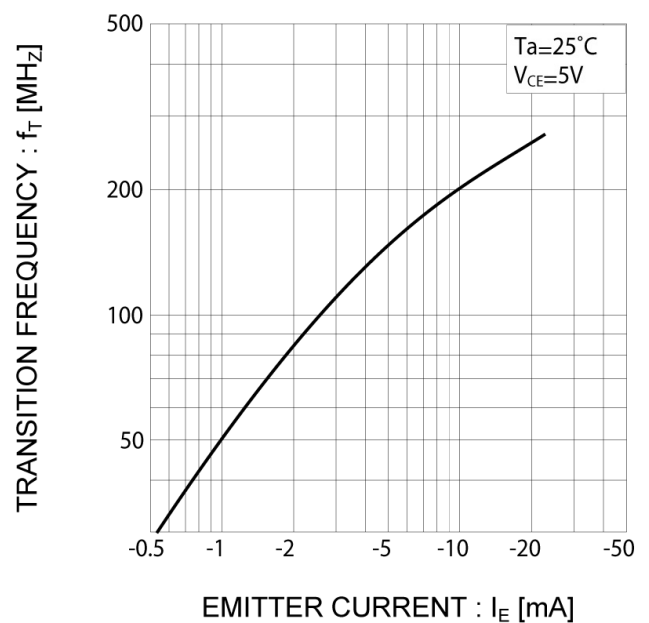


Fig.8 Gain bandwidth product vs. emitter current



●Electrical characteristic curves($T_a = 25^\circ\text{C}$)

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

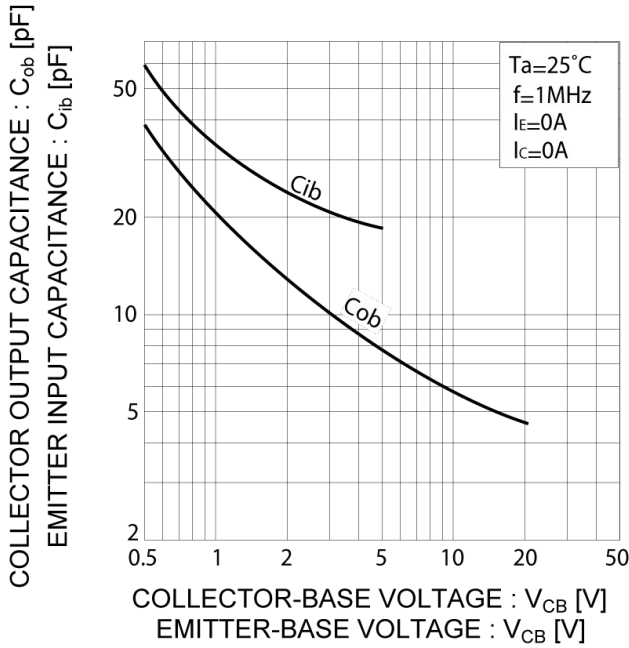
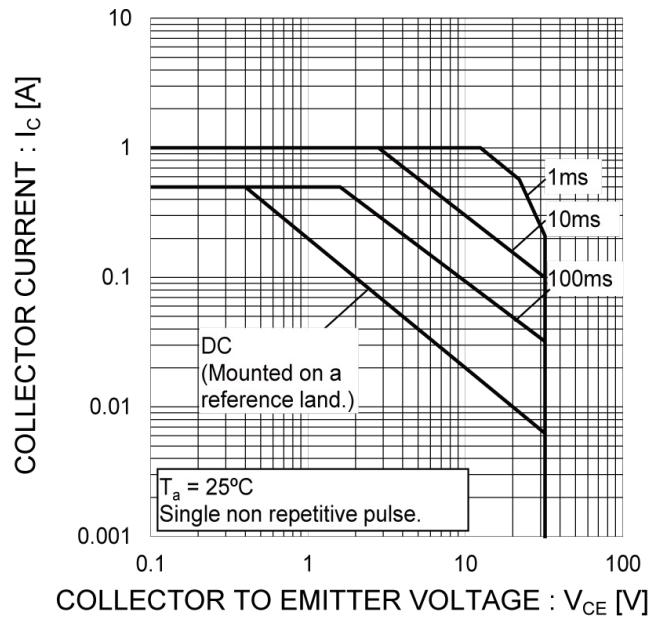
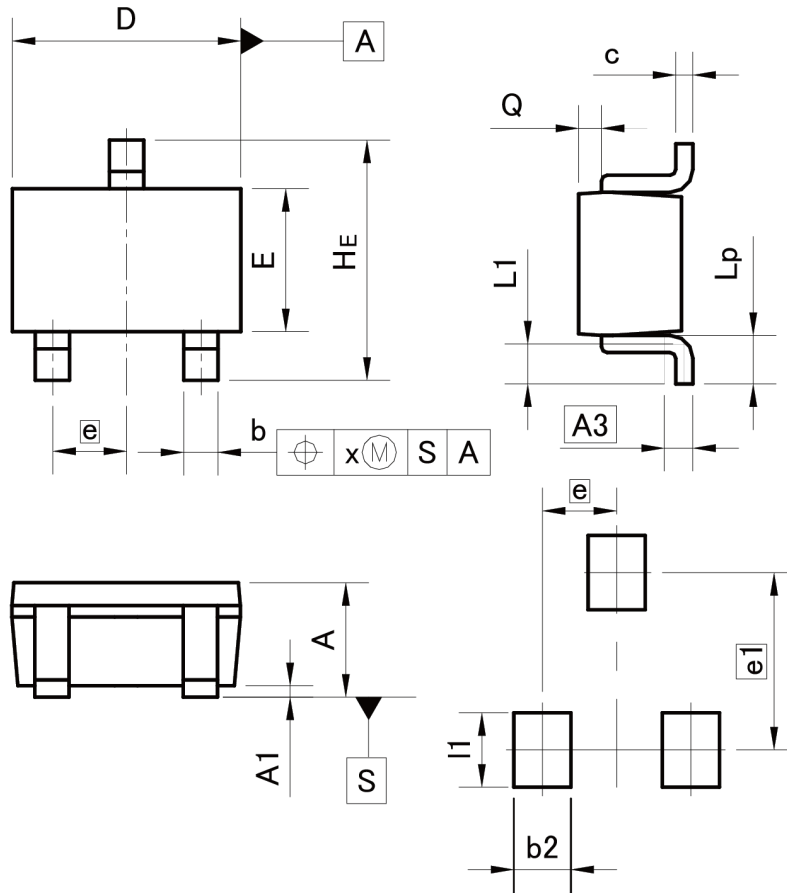


Fig.10 Safe Operating Area



●Dimensions

UMT3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.50	-	0.020
e1	1.55		0.061	
l1	-	0.65	-	0.026

Dimension in mm/inches

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