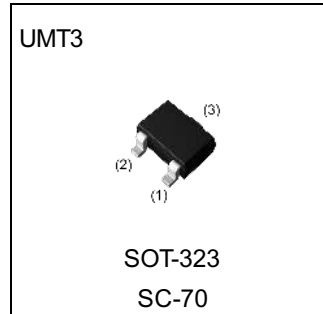


Parameter	Value
$V_{CEO}$	-32V
$I_C$	-500mA

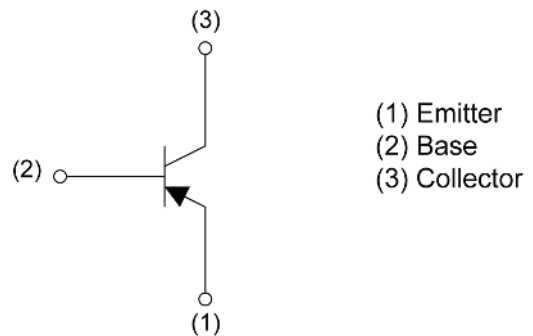
### ●Outline



### ●Features

- 1) Large  $I_C$ .  
 $I_{CMAX} = -500mA$
- 2) Low  $V_{CE(sat)}$ . Ideal for low-voltage operation.
- 3) Complements the 2SC4097.

### ●Inner circuit



### ●Application

GENERAL PURPOSE SMALL SIGNAL AMPLIFIER

### ●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SA1577	UMT3	2021	T106	180	8	3000	H

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

Parameter	Symbol	Values	Unit
Collector-base voltage	$V_{\text{CBO}}$	-40	V
Collector-emitter voltage	$V_{\text{CEO}}$	-32	V
Emitter-base voltage	$V_{\text{EBO}}$	-5	V
Collector current	$I_{\text{C}}$	-500	mA
Power dissipation	$P_{\text{D}}^{*1}$	200	mW
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Range of storage temperature	$T_{\text{stg}}$	-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	$BV_{\text{CBO}}$	$I_{\text{C}} = -100\mu\text{A}$	-40	-	-	V
Collector-emitter breakdown voltage	$BV_{\text{CEO}}$	$I_{\text{C}} = -1\text{mA}$	-32	-	-	V
Emitter-base breakdown voltage	$BV_{\text{EBO}}$	$I_{\text{E}} = -100\mu\text{A}$	-5	-	-	V
Collector cut-off current	$I_{\text{CBO}}$	$V_{\text{CB}} = -20\text{V}$	-	-	-1.0	$\mu\text{A}$
Emitter cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}} = -4\text{V}$	-	-	-1.0	$\mu\text{A}$
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -300\text{mA}, I_{\text{B}} = -30\text{mA}$	-	-	-600	mV
DC current gain	$h_{\text{FE}}$	$V_{\text{CE}} = -3\text{V}, I_{\text{C}} = -10\text{mA}$	120	-	390	-
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}} = -5\text{V}, I_{\text{E}} = 20\text{mA}, f = 100\text{MHz}$	-	200	-	MHz
Output capacitance	$C_{\text{ob}}$	$V_{\text{CB}} = -10\text{V}, I_{\text{E}} = 0\text{A}, f = 1\text{MHz}$	-	7.0	-	pF

$h_{\text{FE}}$  values are classified as follows :

rank	Q	R	-	-	-
$h_{\text{FE}}$	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

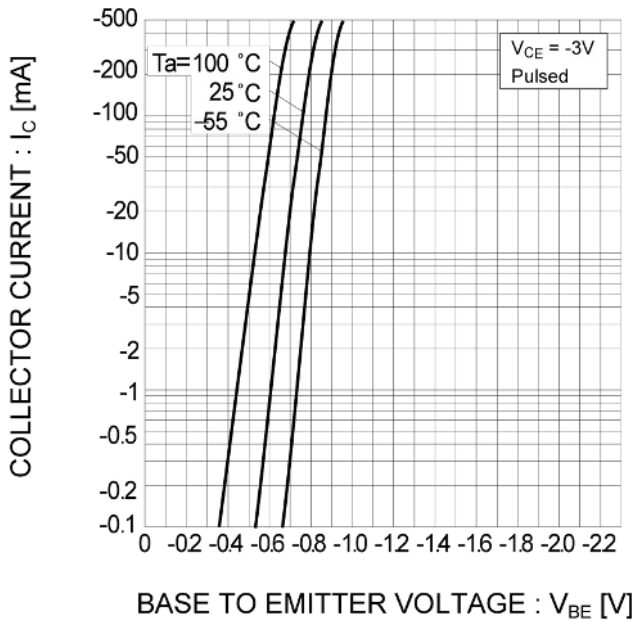


Fig.2 Grounded emitter output characteristics (I)

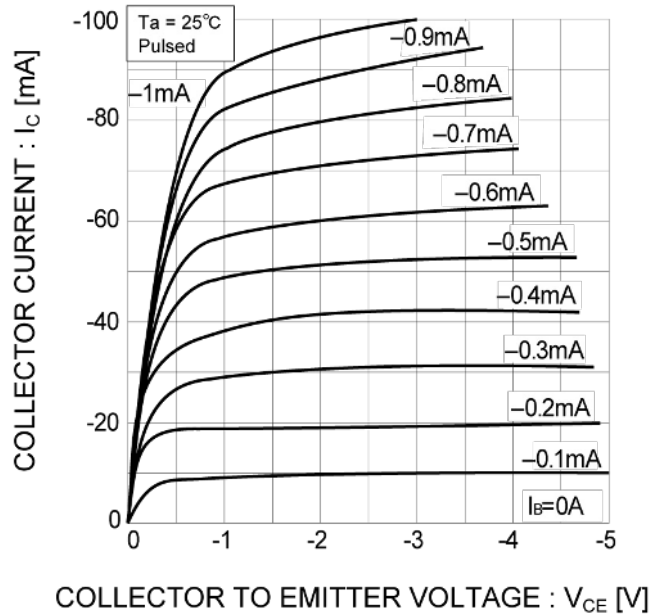


Fig.3 Grounded emitter output characteristics (II)

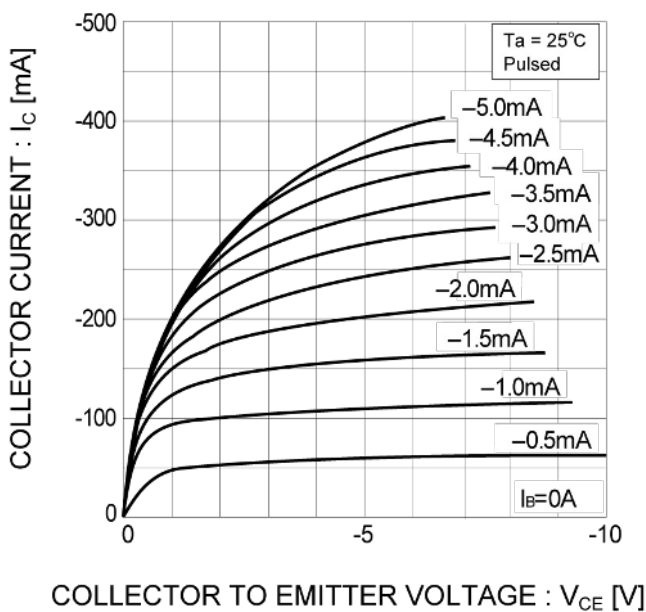
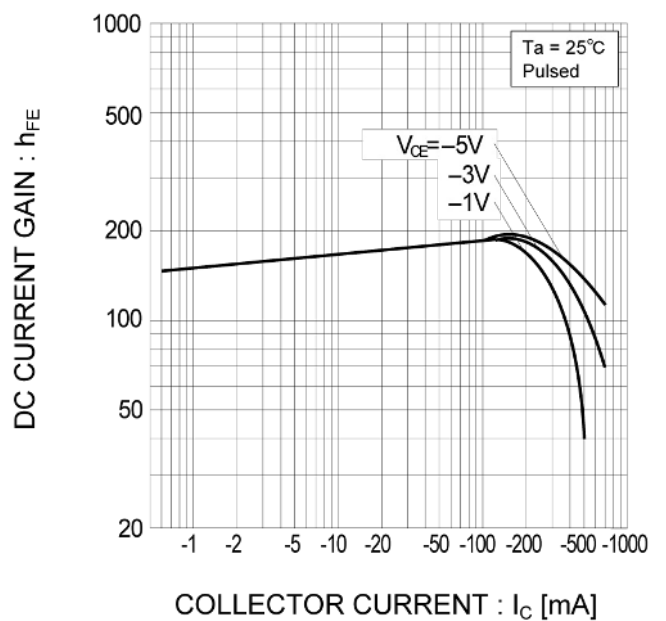


Fig.4 DC current gain vs. collector current (I)



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

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

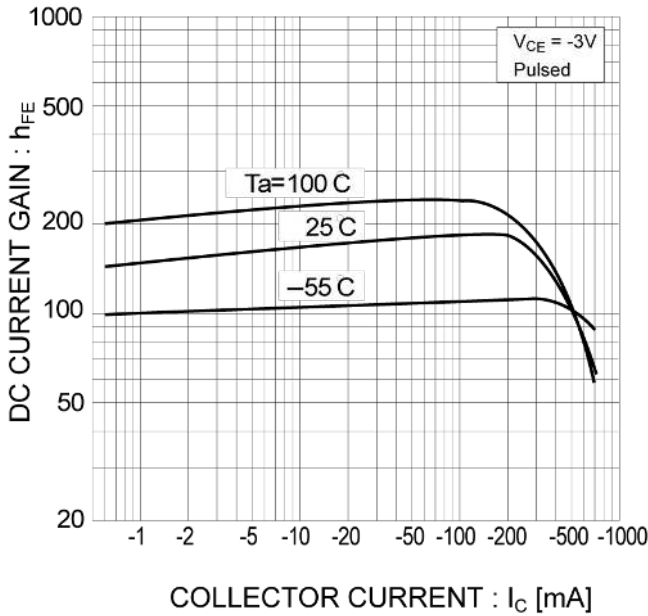


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

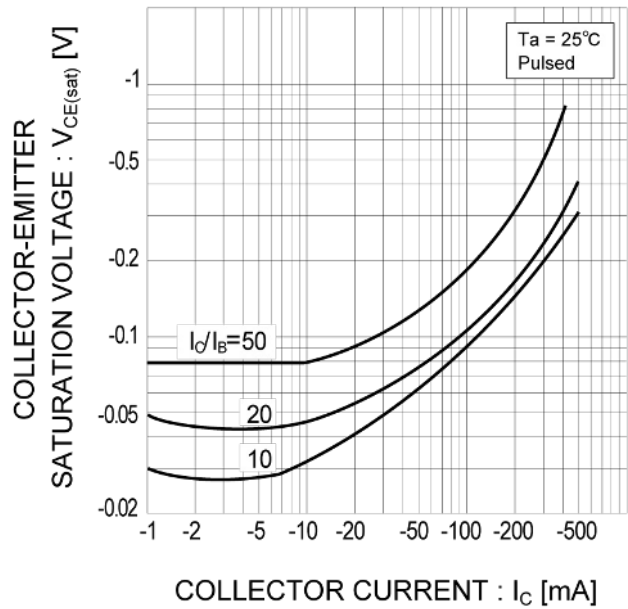


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

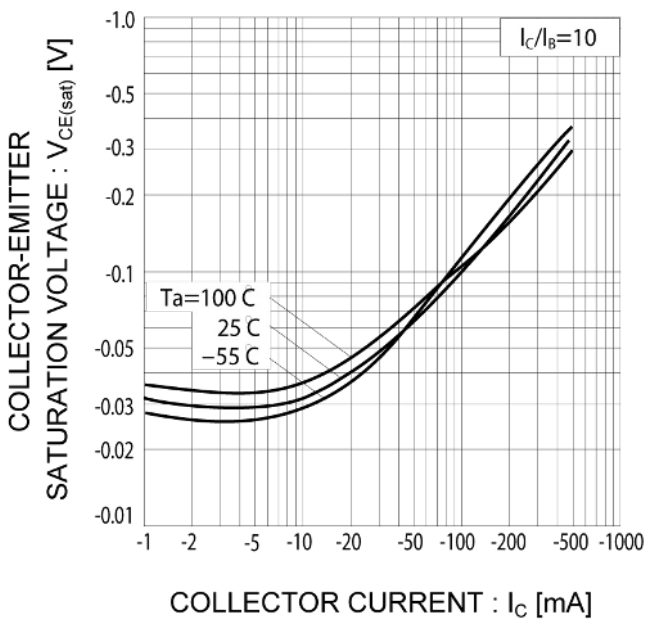
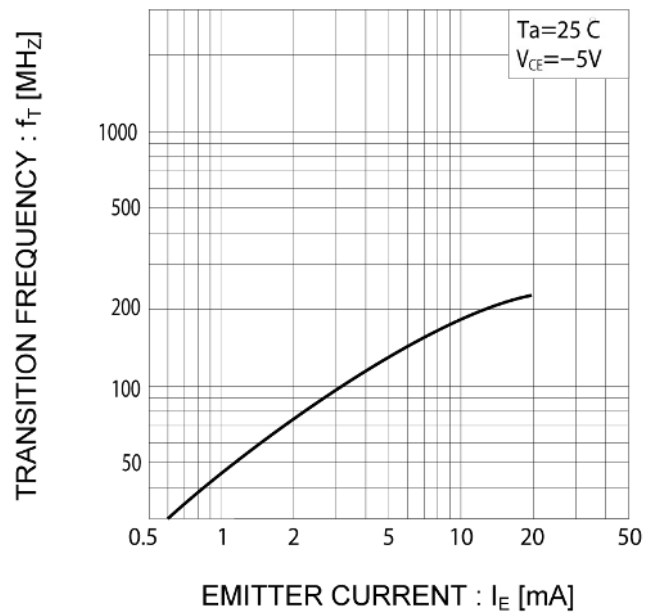


Fig.8 Gain bandwidth product vs. emitter current



●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

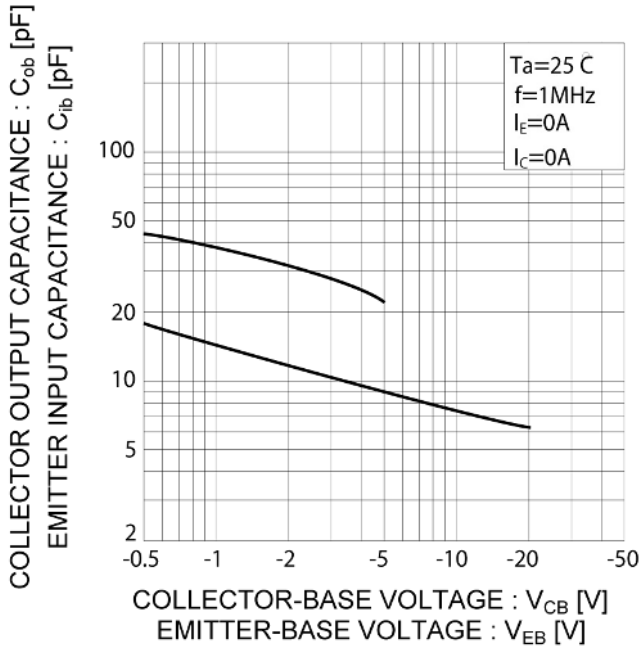
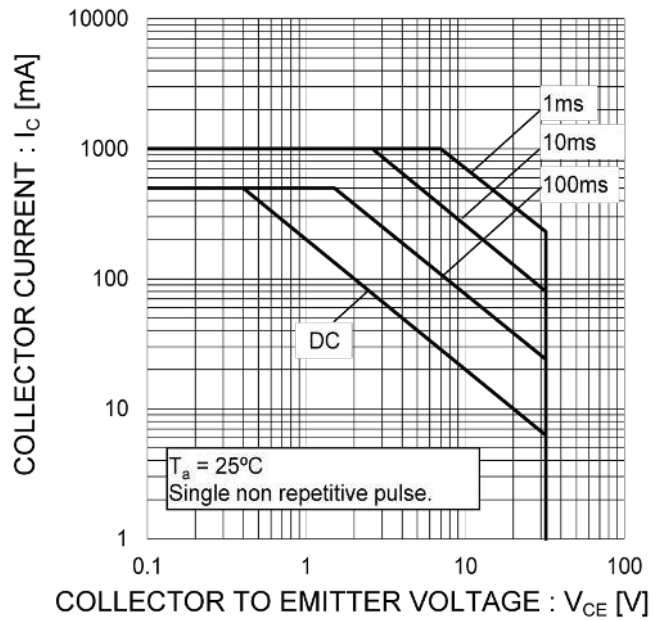
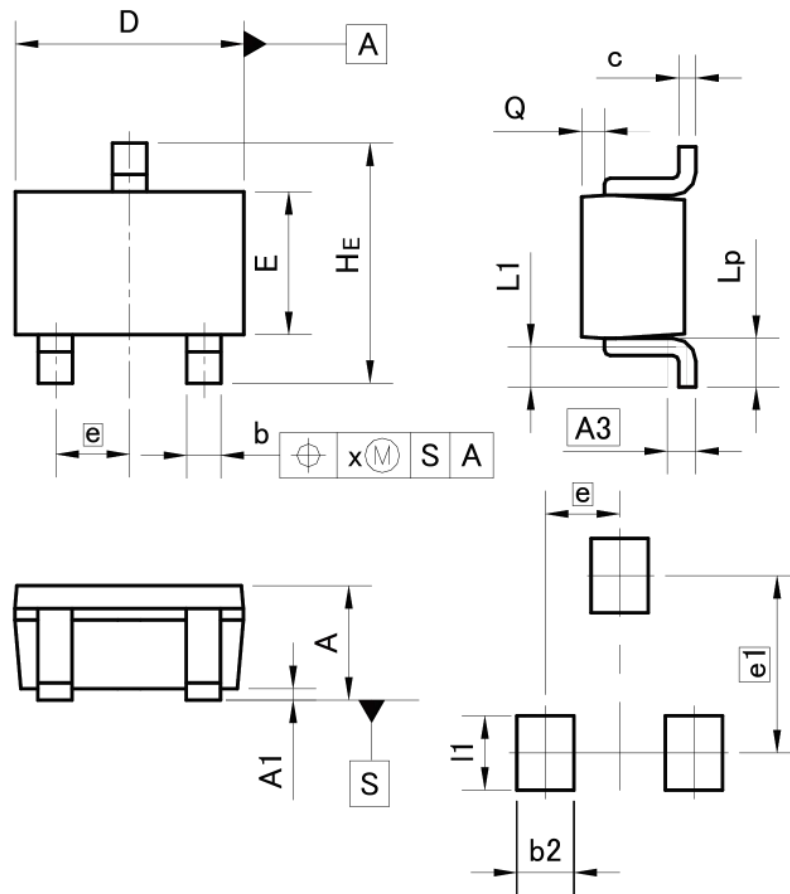


Fig.10 Safe Operating Area



●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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