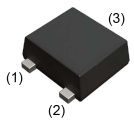
2SD2702

General purpose amplification (12V, 1.5A) Datasheet

Parameter	Value
V_{CEO}	12V
I_C	1.5A

●Outline

SOT-323T

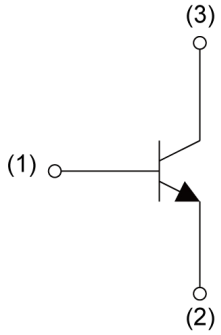


TUMT3

●Features

1)A collector current is large.
2)Collector-Emitter saturation voltage is low.
$V_{CE(sat)} \leqq 200mV$
at $I_C=500mA/I_B=25mA$

●Inner circuit



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

●Application

LOW FREQUENCY AMPLIFIER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SD2702	SOT-323T (TUMT3)	2021	TL	180	8	3000	ES

●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	15	V
Collector-emitter voltage	V_{CEO}	12	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	1.5	A
	I_{CP}*1	3	A
Power dissipation	P_D*2	400	mW
	P_D*3	800	mW
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = 10μA	15	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	12	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 10μA	6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 15V	-	-	100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 6V	-	-	100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 25mA	-	85	200	mV
DC current gain	h_{FE}	V_{CE} = 2V, I_C = 200mA	270	-	680	-
Transition frequency	f_T	V_{CE} = 2V, I_E = -200mA, f = 100MHz	-	400	-	MHz
Output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0A, f = 1MHz	-	12	-	pF

*1 Pw=1ms, Single pulse

*2 Each terminal mounted on a reference land.

*3 Mounted on a ceramic board(25×25×0.8mm).

●Electrical characteristic curves(T_a = 25°C)

Fig.1 Grounded emitter propagation characteristics

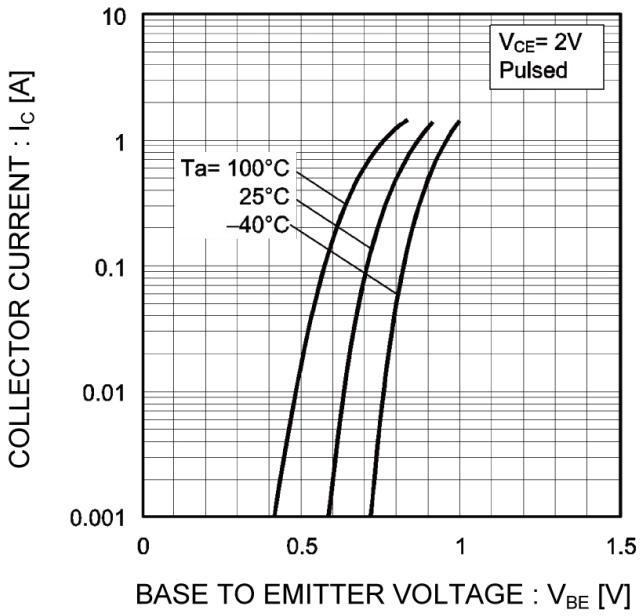


Fig.2 Typical output characteristics

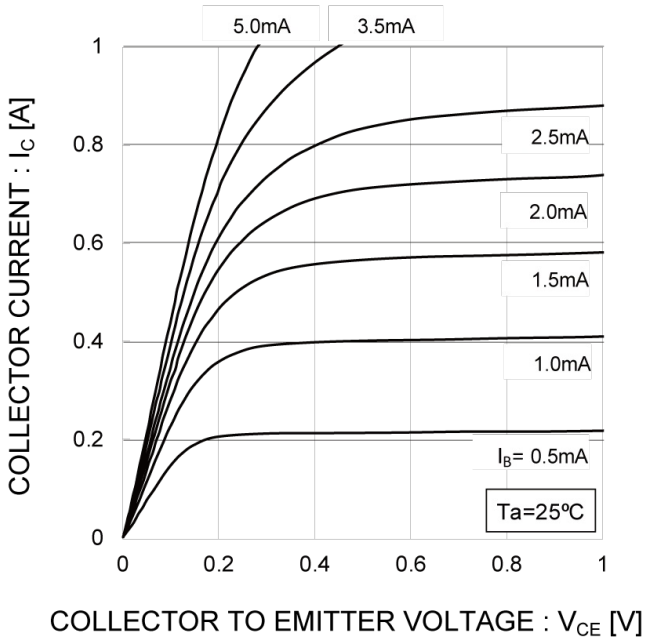


Fig.3 DC current gain vs. collector current (I)

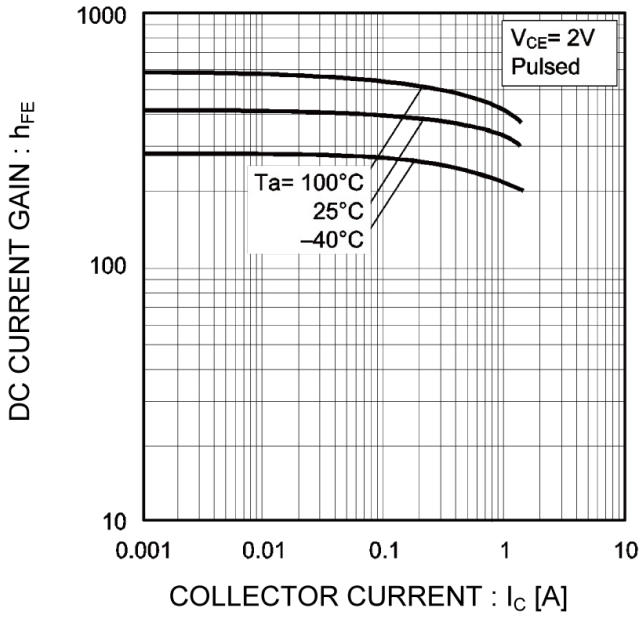
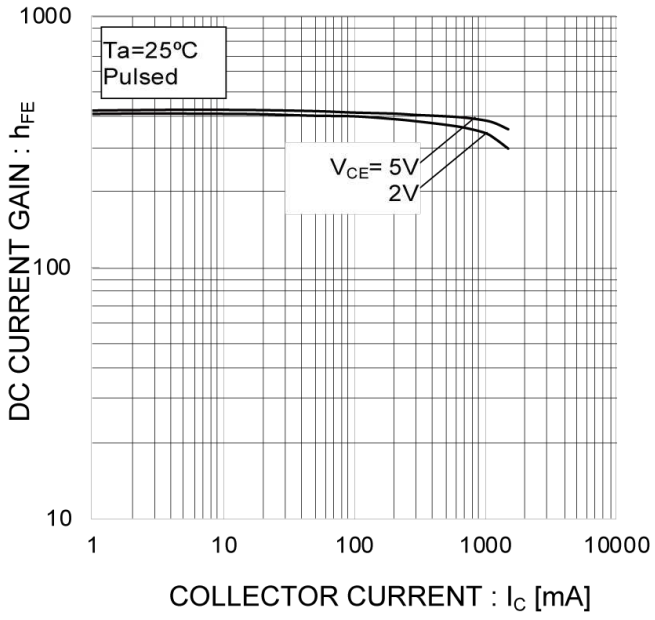


Fig.4 DC current gain vs. collector current (II)



●Electrical characteristic curves(T_a = 25°C)

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

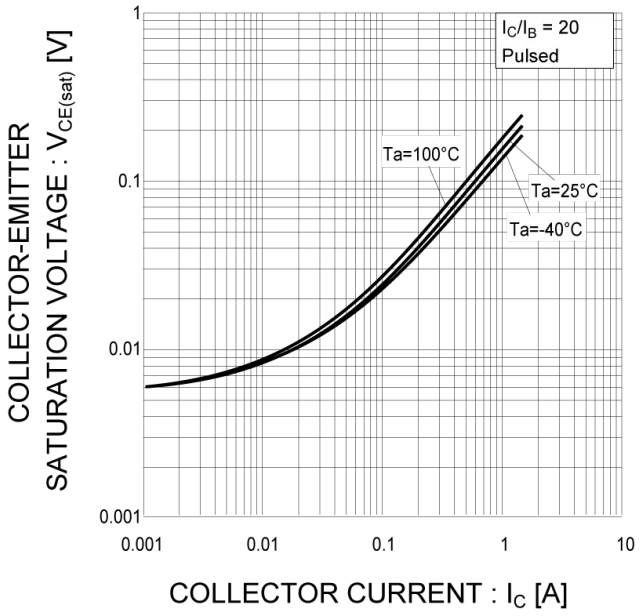


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

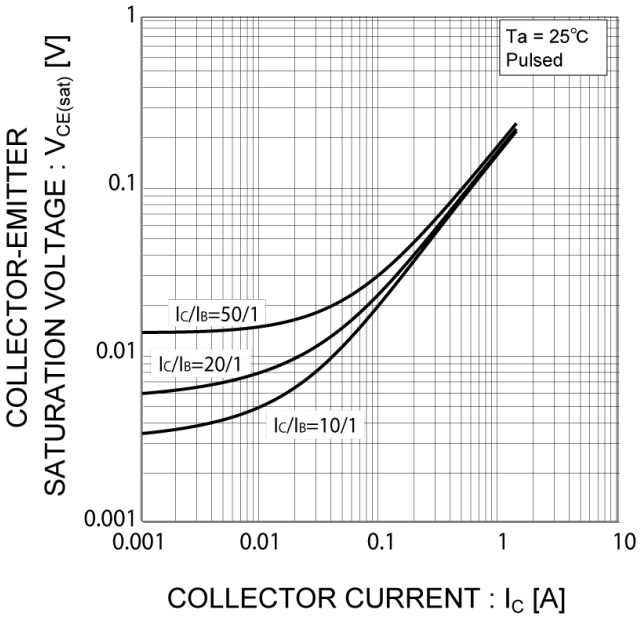


Fig.7 Base-emitter saturation voltage vs. collector current

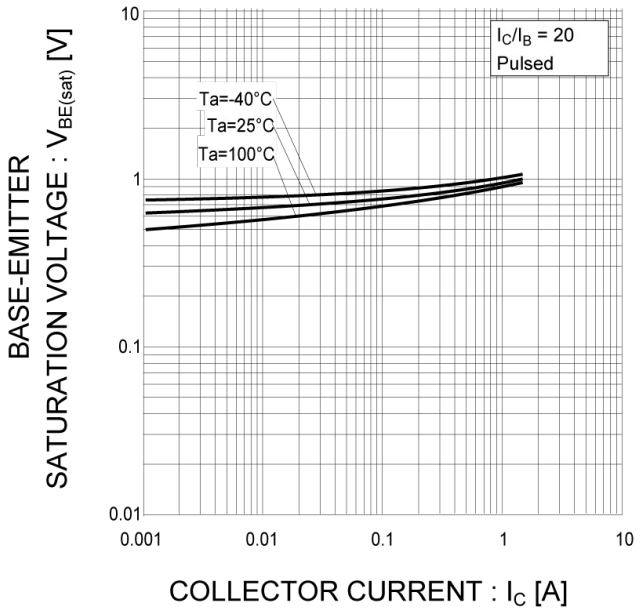
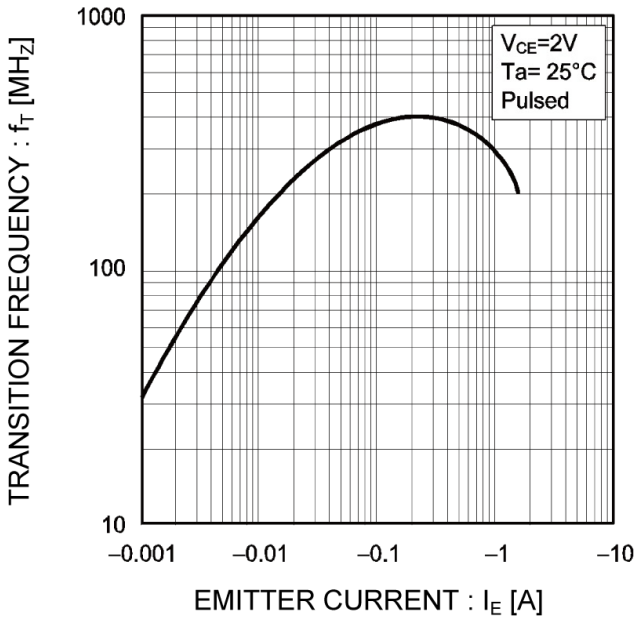


Fig.8 Gain bandwidth product vs. emitter current



●Electrical characteristic curves(T_a = 25°C)

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

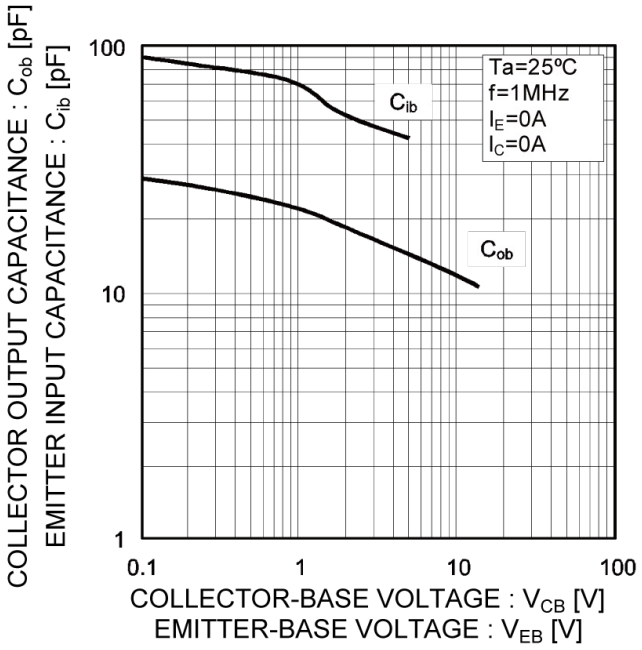
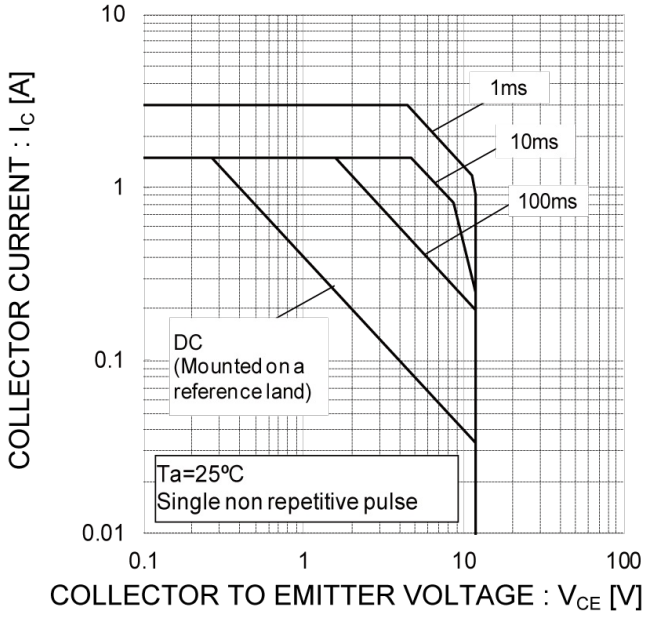
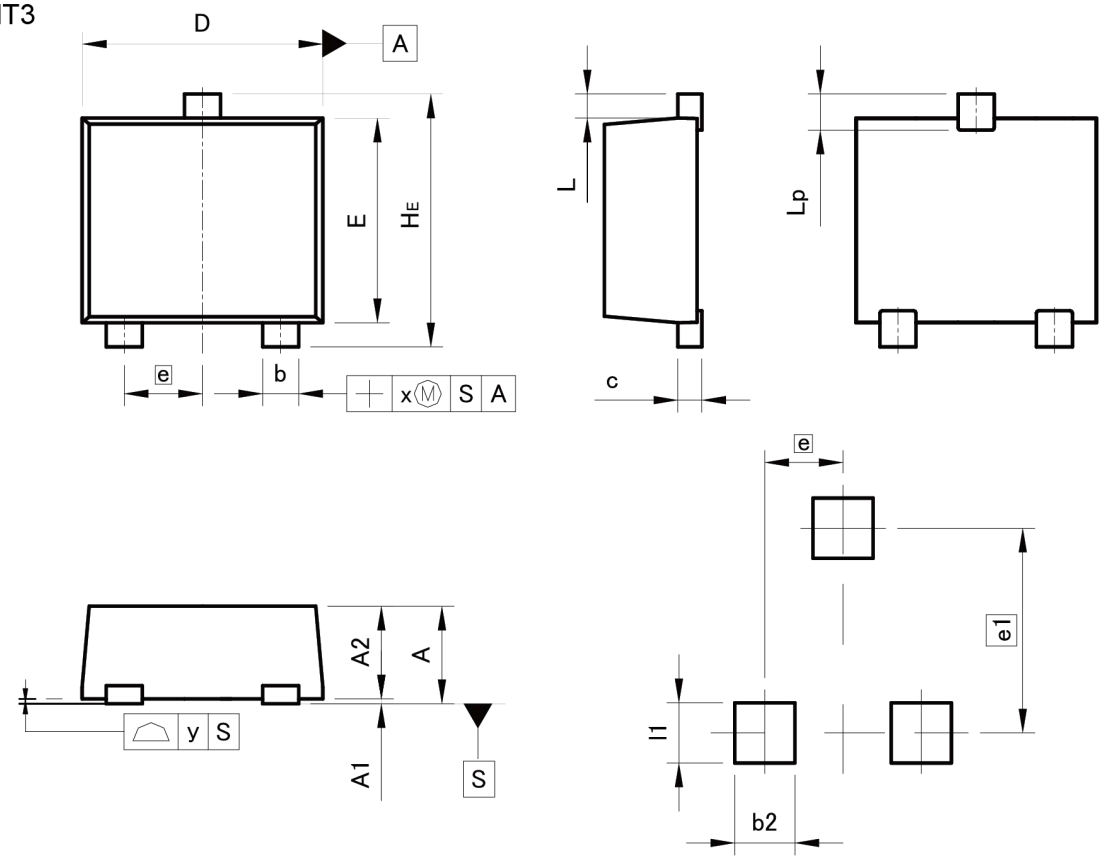


Fig.10 Safe operating area (I)



●Dimensions

TUMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	–	0.85	–	0.033
A1	0.00	0.10	0.000	0.004
A2	0.72	0.82	0.028	0.032
b	0.25	0.40	0.010	0.016
c	0.12	0.22	0.005	0.009
D	1.90	2.10	0.075	0.083
E	1.60	1.80	0.063	0.071
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L	0.20		0.008	
Lp	–	0.40	–	0.016
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.50	–	0.020
e1	1.70		0.067	
l1	–	0.50	–	0.020

Dimension in mm/inches

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