

Low frequency amplifier (-30V, -1.5A)

US6T7

●Application

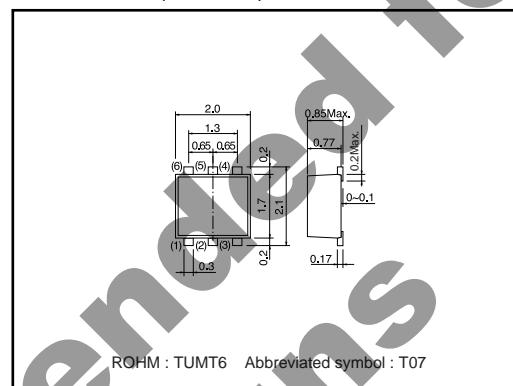
Low frequency amplifier

Driver

● Features

- 1) A collector current is large.
- 2) $V_{CE(sat)}$: max. -370mV
At $I_c = -1\text{A}$ / $I_b = -50\text{mA}$

●Dimensions (Unit : mm)



- **Absolute maximum ratings (Ta=25°C)**

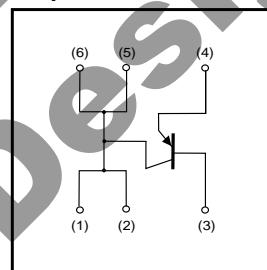
Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CBO}	-30	V
Collector-emitter voltage	V _{CEO}	-30	V
Emitter-base voltage	V _{EBO}	-6	V
Collector current	I _C	-1.5	A
	I _{CP}	-3	A *1
Power dissipation	P _C	400	mW *2
		1.0	W *3
Junction temperature	T _J	150	°C
Range of storage temperature	T _{STG}	-55 to +150	°C

*1 Single pulse, $P_w=1\text{ms}$

*2 Each Terminal Mounted on a Recommended

*3 Mounted on a 25mm×25mm×t:0.8mm Ceramic substrate

● Equivalent circuit



● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-30	—	—	V	$I_C = -10\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-30	—	—	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-6	—	—	V	$I_E = -10\mu A$
Collector cutoff current	I_{CBO}	—	—	-100	nA	$V_{CB} = -30V$
Emitter cutoff current	I_{EBO}	—	—	-100	nA	$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	-190	-370	mV	$I_C = -1A, I_B = -50mA$
DC current gain	h_{FE}	270	—	680	—	$V_{CE} = -2V, I_C = -100mA$ *
Transition frequency	f_T	—	280	—	MHz	$V_{CE} = -2V, I_E = 100mA, f = 100MHz$ *
Collector output capacitance	C_{ob}	—	13	—	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

* Pulsed

Transistors

●Packaging specifications

Type	Package	Taping
	Code	TR
US6T7	Basic ordering unit (pieces)	3000

●Electrical characteristic curves

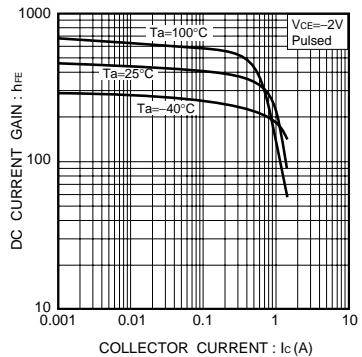


Fig.1 DC current gain vs. collector current

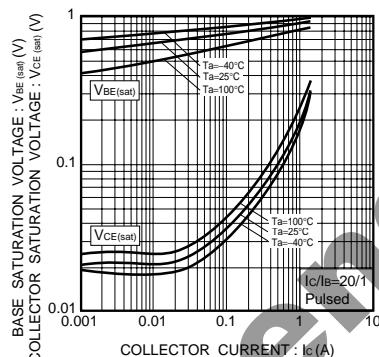


Fig.2 Collector-emitter saturation voltage vs. collector current

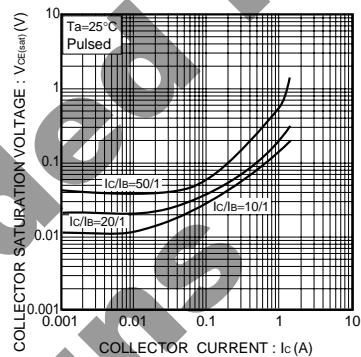


Fig.3 Collector-emitter saturation voltage vs. collector current

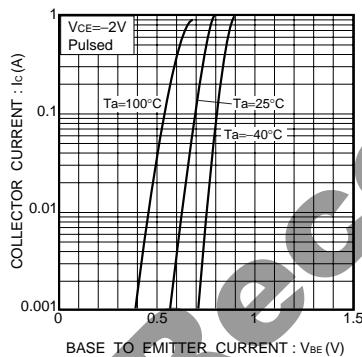


Fig.4 Grounded emitter propagation characteristics

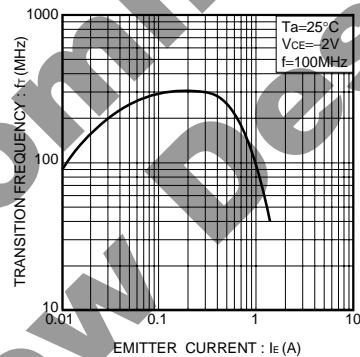


Fig.5 Gain bandwidth product vs. emitter current

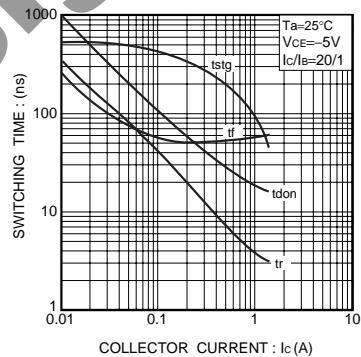
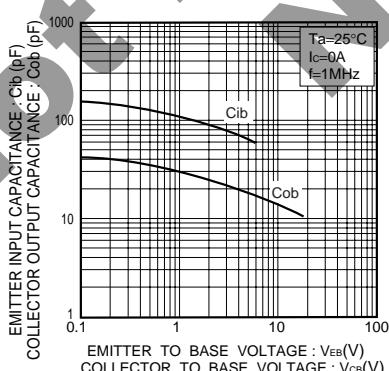


Fig.6 Switching time

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

Appendix

Notes

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