

Low frequency amplifier

QST5

●Application

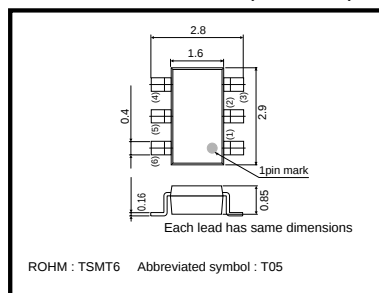
Low frequency amplifier

Driver

●Features

- 1) A collector current is large.
- 2) $V_{CE(sat)}$: max. -370mV
At $I_C = -1.5\text{A}$ / $I_B = -75\text{mA}$

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

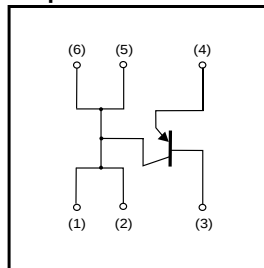
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	-30	V
Collector-emitter voltage	V_{CEO}	-30	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-2	A
	I_{CP}	-4	A *1
Power dissipation	P_C	500	mW *2
		1.25	W *3
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

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

*2 Each terminal mounted on a recommended

*3 Mounted on a 25mm×25mm×10.8mm ceramic substrate

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-30	—	—	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	-30	—	—	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	BV_{EBO}	-6	—	—	V	$I_E = -10\mu\text{A}$
Collector cutoff current	I_{CBO}	—	—	-100	nA	$V_{CB} = -30\text{V}$
Emitter cutoff current	I_{EBO}	—	—	-100	nA	$V_{EB} = -6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	-180	-370	mV	$I_C = -1.5\text{A}$, $I_B = -75\text{mA}$
DC current gain	h_{FE}	270	—	680	—	$V_{CE} = -2\text{V}$, $I_C = -200\text{mA}$
Transition frequency	f_T	—	280	—	MHz	$V_{CE} = -2\text{V}$, $I_E = 200\text{mA}$, $f = 100\text{MHz}$
Collector output capacitance	C_{ob}	—	20	—	pF	$V_{CB} = -10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$

Transistors

●Packaging specifications

Type	package	Taping
	Code	TR
	Basic ordering unit(pieces)	3000
QST5		○

●Electrical characteristic curves

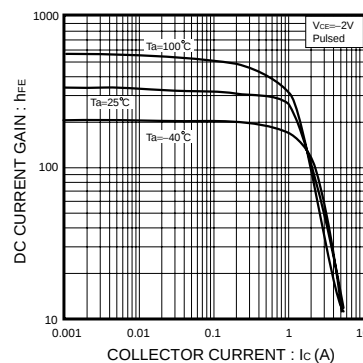


Fig.1 DV current gain vs. collector current

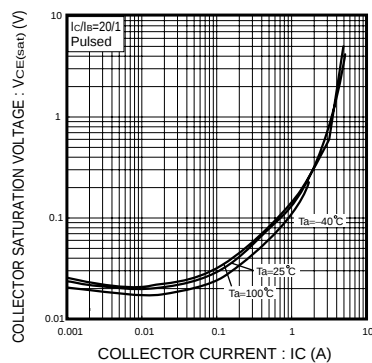


Fig.2 Collector-emitter saturation voltage vs. collector current

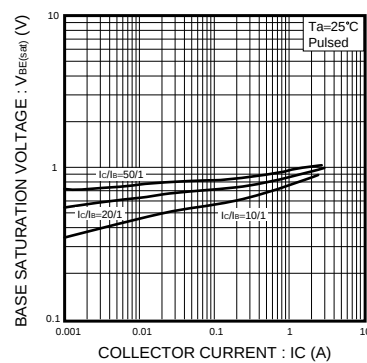


Fig.3 Base-emitter saturation voltage vs. collector current

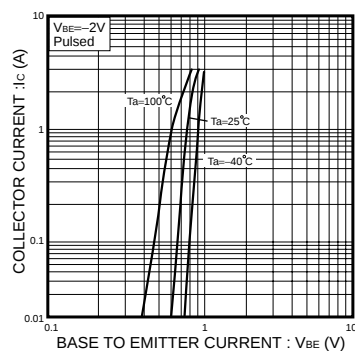


Fig.4 Grounded emitter propagation characteristics

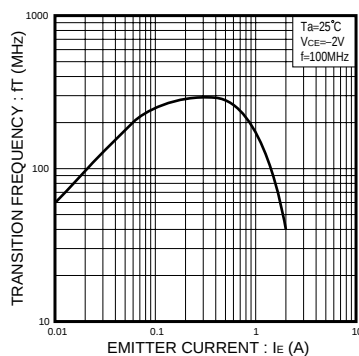


Fig.5 Gain bandwidth product vs. emitter current

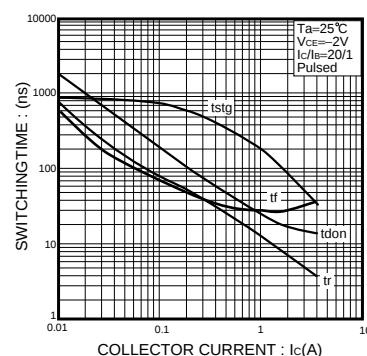
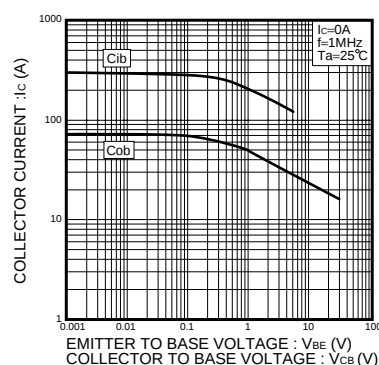


Fig.6 Switching time

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

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