

# Low frequency amplifier

## QST5

### ●Application

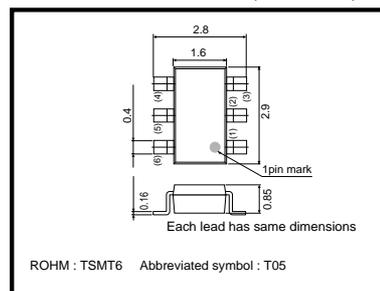
Low frequency amplifier

Driver

### ●Features

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

### ●External dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

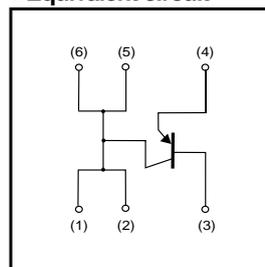
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	-30	V
Collector-emitter voltage	$V_{CE0}$	-30	V
Emitter-base voltage	$V_{EB0}$	-6	V
Collector current	$I_C$	-2	A
	$I_{CP}$	-4	A *1
Power dissipation	$P_C$	500	mW *2
		1.25	W *3
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-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×1.0mm ceramic substrate

### ●Equivalent circuit



### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	-30	-	-	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CE0}$	-30	-	-	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EB0}$	-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

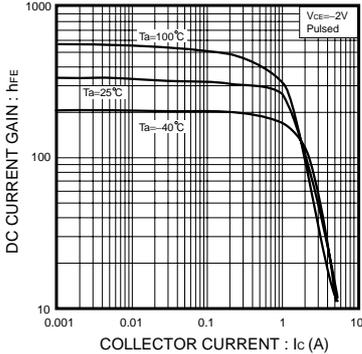


Fig.1 DV current gain vs. collector current

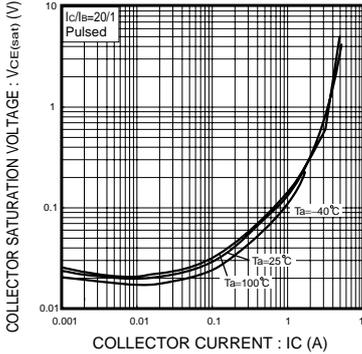


Fig.2 Collector-emitter saturation voltage vs. collector current

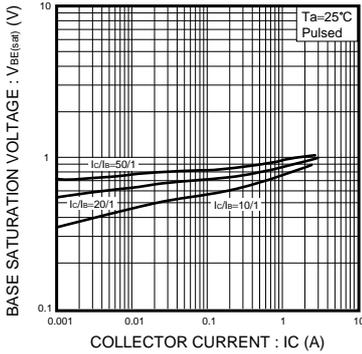


Fig.3 Base-emitter saturation voltage vs. collector current

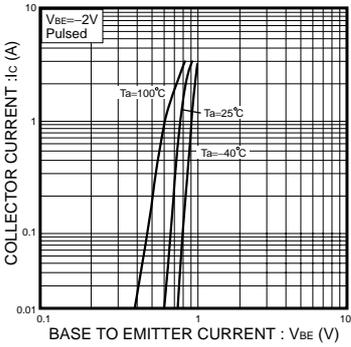


Fig.4 Grounded emitter propagation characteristics

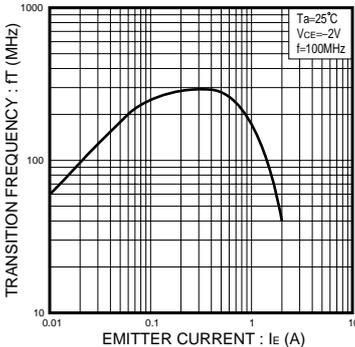


Fig.5 Gain bandwidth product vs. emitter current

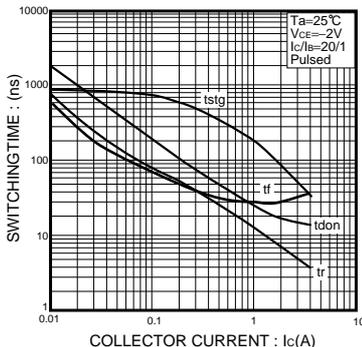


Fig.6 Switching time

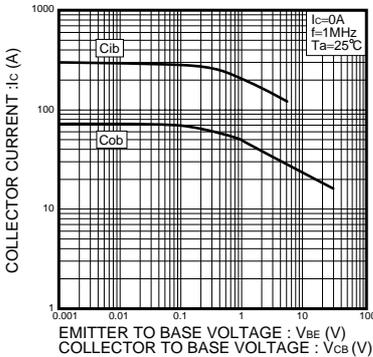


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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