

Transistors

Low frequency amplifier

QST5

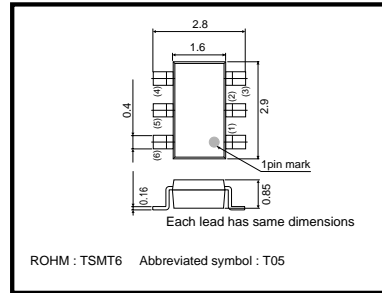
●Application

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)

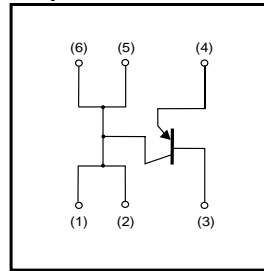


●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

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	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 Single pulse, $P_w=1\text{ms}$
*2 Each terminal mounted on a recommended
*3 Mounted on a $25\text{mm} \times 25\text{mm} \times 1.0\text{mm}$ ceramic substrate

●Equivalent circuit



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

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

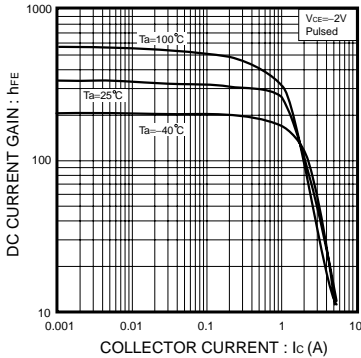


Fig.1 DV current gain vs. collector current

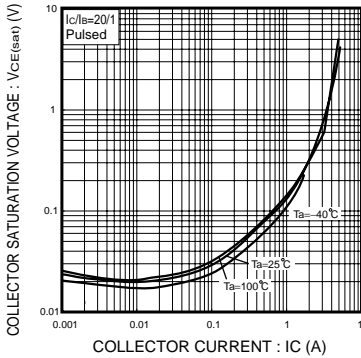


Fig.2 Collector-emitter saturation voltage vs. collector current

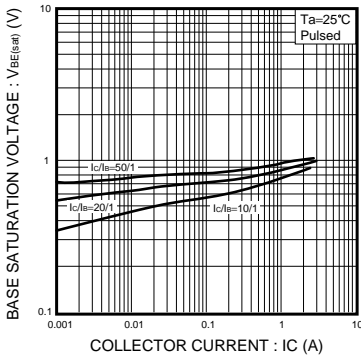


Fig.3 Base-emitter saturation voltage vs. collector current

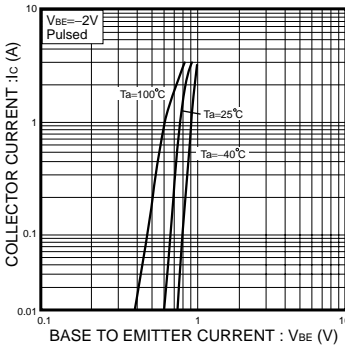


Fig.4 Grounded emitter propagation characteristics

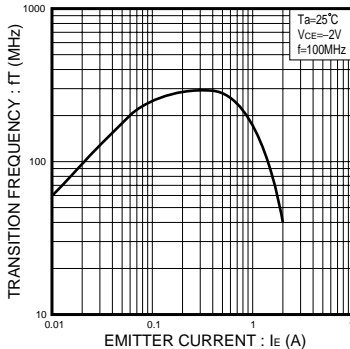


Fig.5 Gain bandwidth product vs. emitter current

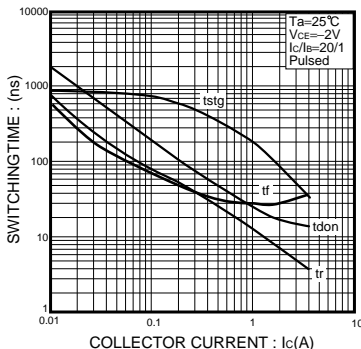


Fig.6 Switching time

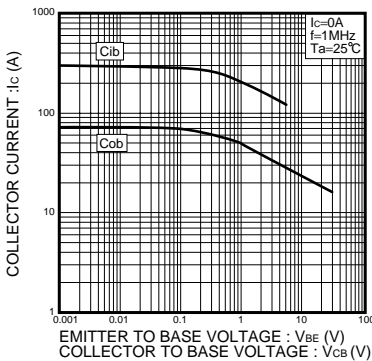


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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