

General purpose amplification (-30V , -1A)

QST9

●Application

Low frequency amplifier
Driver

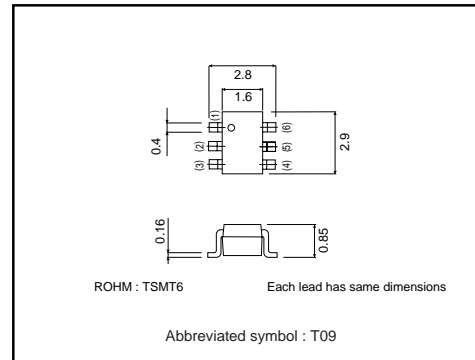
●Features

- 1) Collector current is large.
- 2) Collector saturation voltage is low.

$V_{CE(sat)}$: max. -350mV

At $I_C = -500\text{mA}$ / $I_B = -25\text{mA}$

●External dimensions (Unit : mm)



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

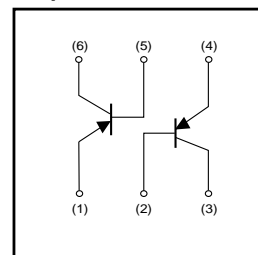
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	-30	V
Collector-emitter voltage	V_{CEO}	-30	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-1	A
	I_{CP}	-2	A *1
Power dissipation	P_C	500	mW/TOTAL *2
		1.25	W/TOTAL *3
		0.9	W/ELEMENT *3
Junction temperature	T_j	150	$^\circ\text{C}$
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_{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	$V_{CE(sat)}$	—	-150	-350	mV	$I_C=-500\text{mA}$, $I_B=-25\text{mA}$
DC current gain	h_{FE}	270	—	680	—	$V_{CE}=-2\text{V}$, $I_C=-100\text{mA}$ *
Transition frequency	f_T	—	320	—	MHz	$V_{CE}=-2\text{V}$, $I_E=100\text{mA}$, $f=100\text{MHz}$ *
Collector output capacitance	C_{ob}	—	7	—	pF	$V_{CB}=-10\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$

* Pulsed

Transistors

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
QST9		○

●Electrical characteristic curves

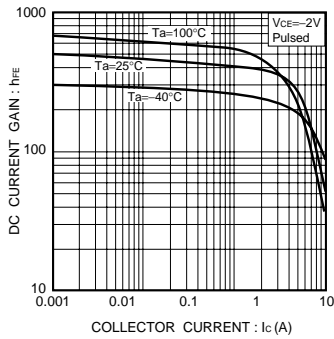


Fig.1 DC current gain vs. collector current

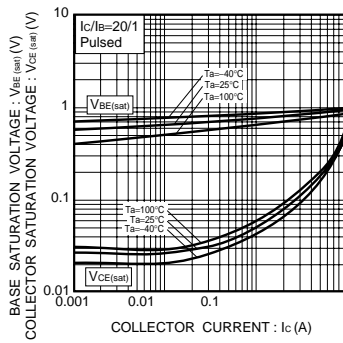


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

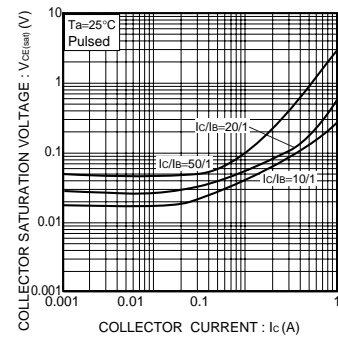


Fig.3 Collector-emitter saturation voltage vs. collector current

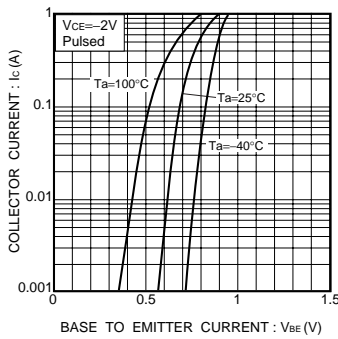


Fig.4 Grounded emitter propagation characteristics

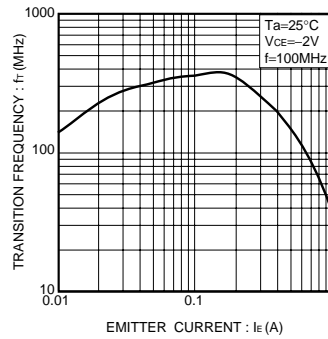


Fig.5 Gain bandwidth product vs. emitter current

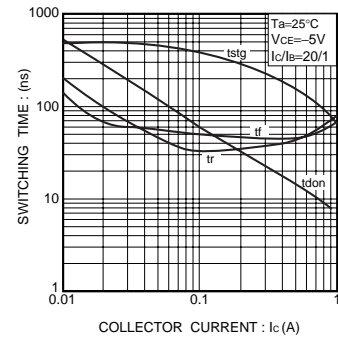


Fig.6 Switching time

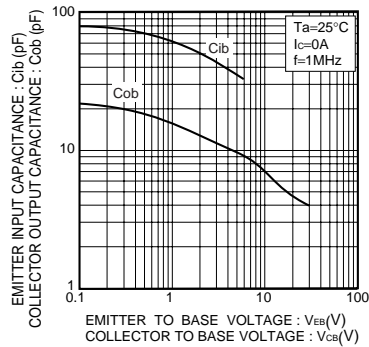


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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