

Low frequency amplifier

QSX5

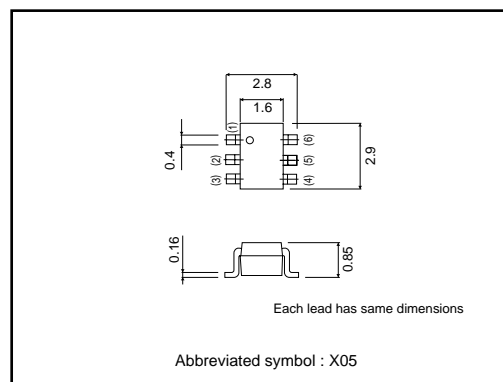
●Application

Low frequency amplifier
Driver

●Features

- 1) A collector current is large.
- 2) $V_{CE(sat)} \leq 180\text{mV}$
At $I_c = 1\text{A} / I_B = 50\text{mA}$

●External dimensions (Units : mm)



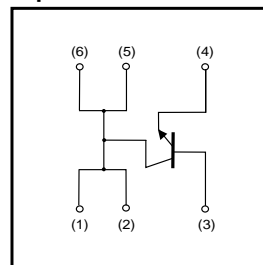
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	15	V
Collector-emitter voltage	V_{CEO}	12	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
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55~+150	°C

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

*2 Each Terminal Mounted on a Recommended

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	15	—	—	V	$I_c=10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	12	—	—	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	$V_{CB}=15\text{V}$
Emitter cutoff current	I_{EBO}	—	—	100	nA	$V_{EB}=6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	90	180	mV	$I_c=1\text{A}, I_B=50\text{mA}$
DC current gain	h_{FE}	270	—	680	—	$V_{CE}=2\text{V}, I_c=200\text{mA}^*$
Transition frequency	f_T	—	360	—	MHz	$V_{CE}=2\text{V}, I_E=-200\text{mA}, f=100\text{MHz}^*$
Collector output capacitance	C_{ob}	—	20	—	pF	$V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$

* Pulsed

Transistors

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
Q5X5		○

●Electrical characteristic curves

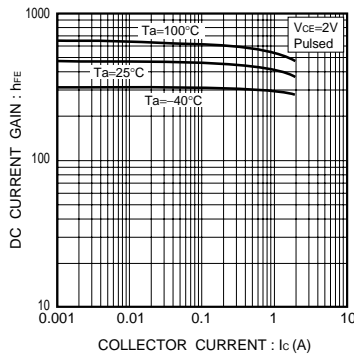


Fig.1 DC current gain vs. collector current

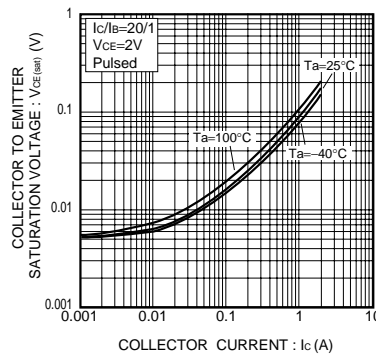


Fig.2 Base-emitter saturation voltage vs. collector current

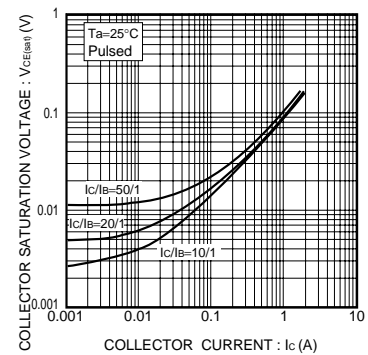


Fig.3 Collector-emitter saturation voltage vs. collector current

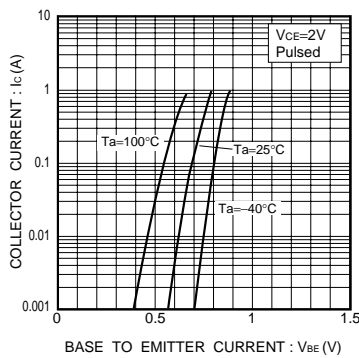


Fig.4 Grounded emitter propagation characteristics

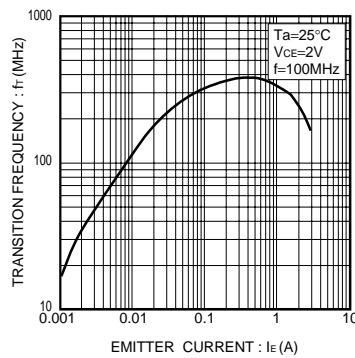


Fig.5 Gain bandwidth product vs. emitter current

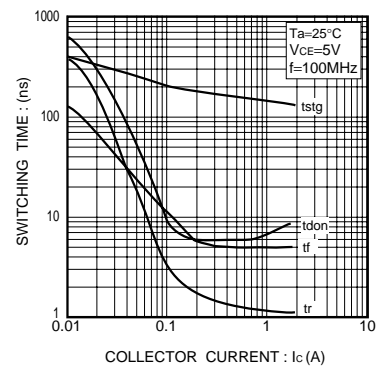


Fig.6 Switching time

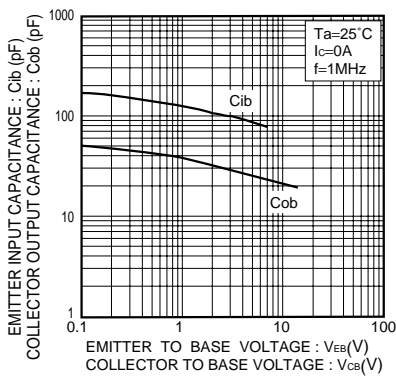


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage