

# Low frequency amplifier

## QSX5

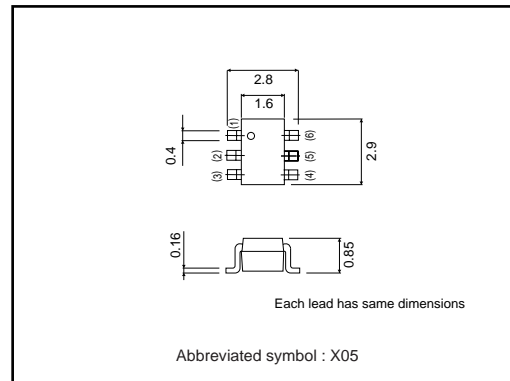
●Application

Low frequency amplifier  
Driver

●Features

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

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

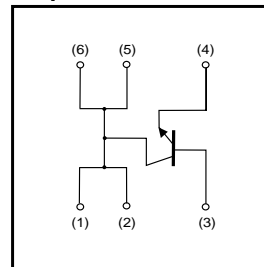
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	12	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_c$	2	A
	$I_{cP}$	4	A *1
Power dissipation	$P_c$	500	mW *2
		1.25	W *3
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*1 Single pulse,  $P_w=1ms$

\*2 Each Terminal Mounted on a Recommended

\*3 Mounted on a 25mm×25mm×1.0.8mm Ceramic substrate

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

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

\* Pulsed

Transistors

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
QSX5		○

●Electrical characteristic curves

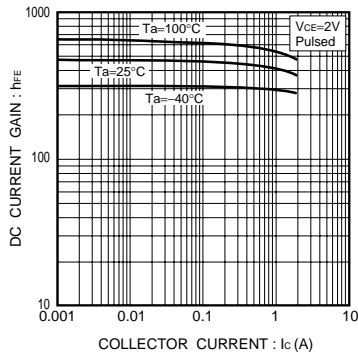


Fig.1 DC current gain vs. collector current

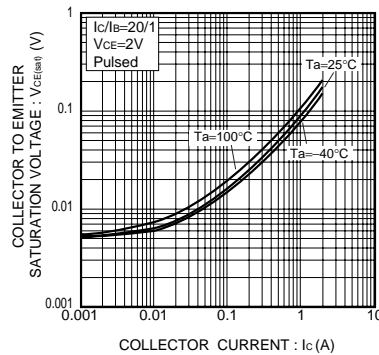


Fig.2 Base-emitter saturation voltage vs. collector current

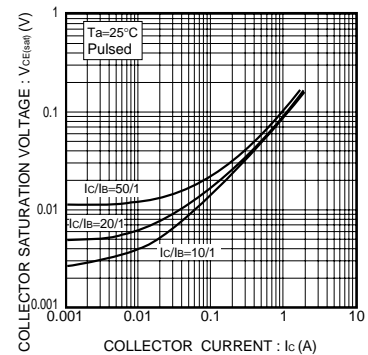


Fig.3 Collector-emitter saturation voltage vs. collector current

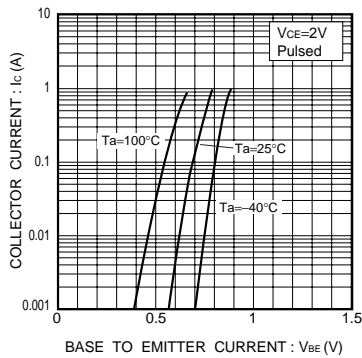


Fig.4 Grounded emitter propagation characteristics

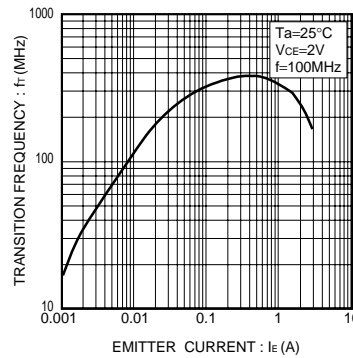


Fig.5 Gain bandwidth product vs. emitter current

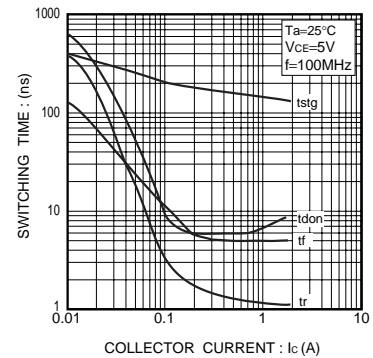


Fig.6 Switching time

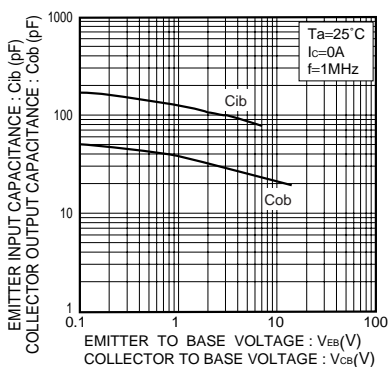


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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