

# Low frequency amplifier

## QX6

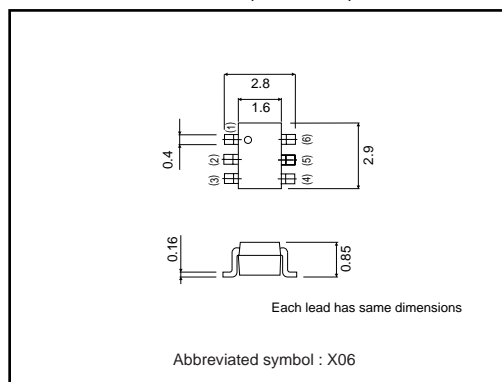
### ●Application

Low frequency amplifier  
Driver

### ●Features

- 1) A collector current is large.
- 2)  $V_{CE(sat)} \leq 350\text{mV}$   
At  $I_C = 1\text{A} / I_B = 50\text{mA}$

### ●External dimensions (Unit : mm)



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

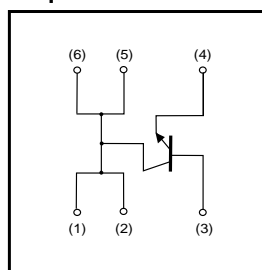
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	30	V
Collector-emitter voltage	$V_{CE0}$	30	V
Emitter-base voltage	$V_{EB0}$	6	V
Collector current	$I_C$	1.5	A
	$I_{CP}$	3	A *1
Power dissipation	$P_C$	500	mW *2
		1.25	W *3
Junction temperature	$T_J$	150	°C
Range of storage temperature	$T_{stg}$	-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×1.0.8mm 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	$V_{CE(sat)}$	-	140	350	mV	$I_C=1\text{A}, I_B=50\text{mA}$
DC current gain	$h_{FE}$	270	-	680	-	$V_{CE}=2\text{V}, I_C=100\text{mA}^*$
Transition frequency	$f_T$	-	300	-	MHz	$V_{CE}=2\text{V}, I_E=-100\text{mA}, f=100\text{MHz}^*$
Collector output capacitance	$C_{ob}$	-	11	-	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
Q SX6		○

●Electrical characteristic curves

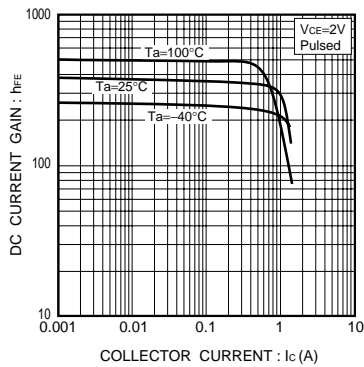


Fig.1 DC current gain vs. collector current

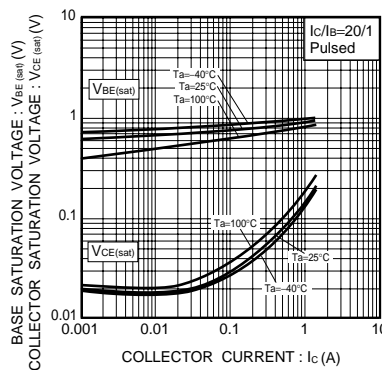


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

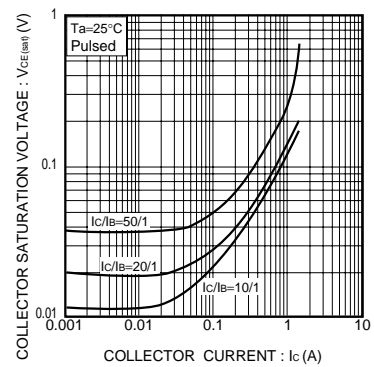


Fig.3 Collector-emitter saturation voltage vs. collector current

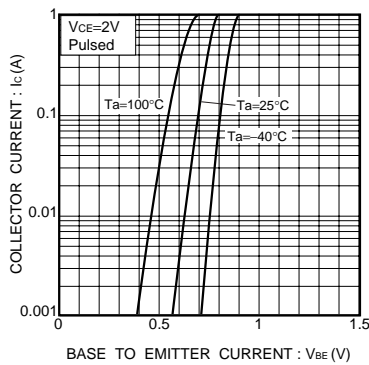


Fig.4 Grounded emitter propagation characteristics

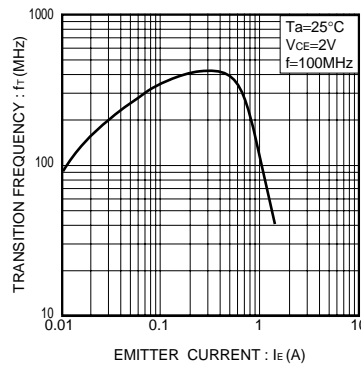


Fig.5 Gain bandwidth product vs. emitter current

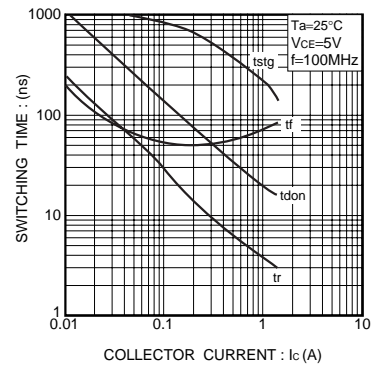


Fig.6 Switching time

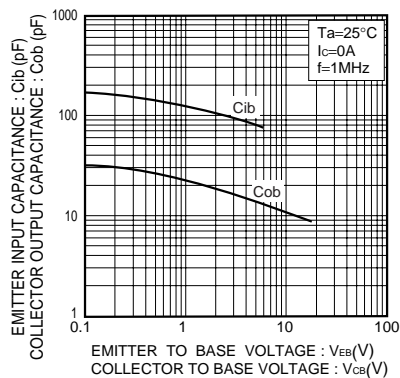


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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