

General purpose amplification (12V, 1.5A)

QSX7

●Application

Low frequency amplifier

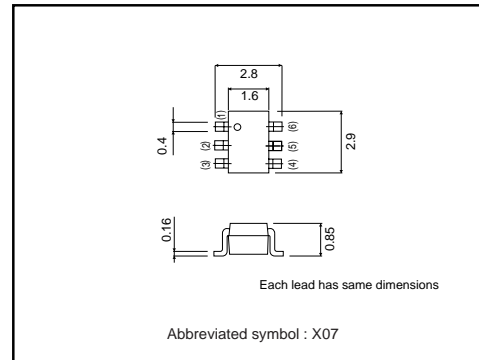
●Features

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

$$V_{CE(sat)} \leq 200\text{mV}$$

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

●External dimensions (Unit : mm)

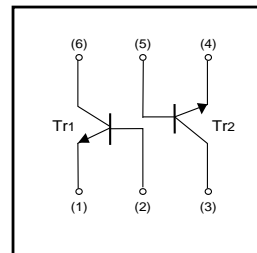


●Absolute maximum ratings (Ta=25°C)

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	1.5	A
	I_{CP}	3	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	°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×10.8mm Ceramic substrate

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	15	-	-	V	$I_C=10\mu\text{A}$
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	$V_{CE(sat)}$	-	85	200	mV	$I_C/I_B=500\text{mA}/25\text{mA}$
DC current gain	h_{FE}	270	-	680	-	$V_{CE}/I_C=2\text{V}/200\text{mA}$ *
Transition frequency	f_T	-	400	-	MHz	$V_{CE}=2\text{V}, I_E=-200\text{mA}, f=100\text{MHz}$ *
Collector output capacitance	C_{ob}	-	12	-	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
QSX7		○

●Electrical characteristic curves

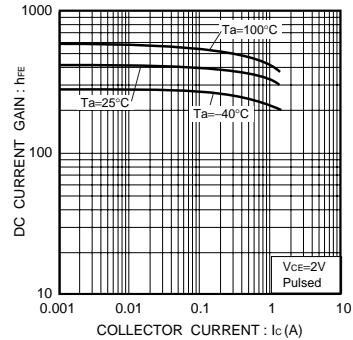


Fig.1 DC current gain vs. collector current

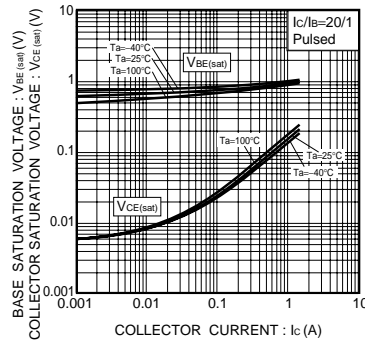


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

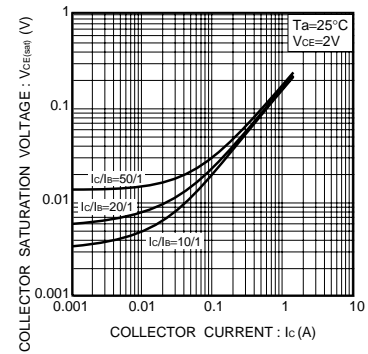


Fig.3 Collector-emitter saturation voltage vs. collector current

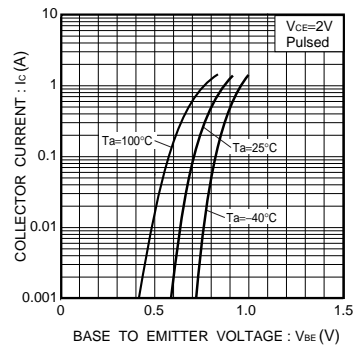


Fig.4 Grounded emitter propagation characteristics

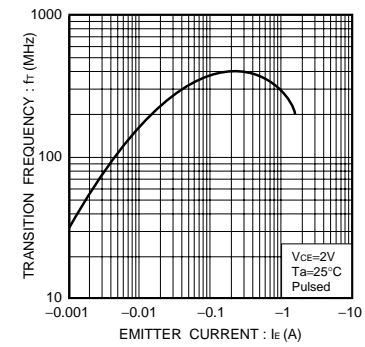


Fig.5 Gain bandwidth product vs. emitter current

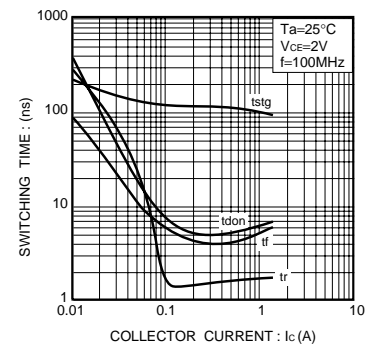


Fig.6 Switching time

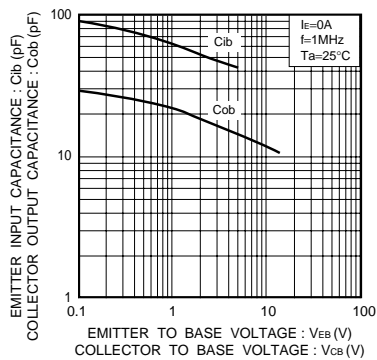


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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