General purpose amplification (12V, 1.5A)

QSX7

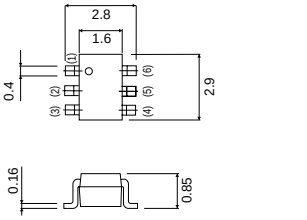
●**Application**

Low frequency amplifier

●**Features**

1) A collector current is large.
2) Collector saturation voltage is low.
   $V_{CE(sat)} \leq 200mV$
   At $I_C = 500mA / I_B = 25mA$

●**External dimensions** (Units : mm)



Each lead has same dimensions

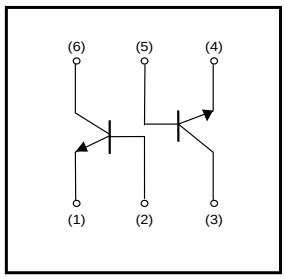
Abbreviated symbol : X07

●**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*2
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	−55~+150	°C

*1 Single pulse, P_W=1ms
*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=10μA
Collector-emitter breakdown voltage	BV_{CEO}	12	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	100	nA	V_{CB}=15V
Emitter cutoff current	I_{EBO}	–	–	100	nA	V_{EB}=6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	80	200	mV	I_C/I_B=500mA/25mA
DC current gain	h_{FE}	270	–	680	–	V_{CE}/I_C=2V/200mA *
Transition frequency	f_T	–	400	–	MHz	V_{CE}=2V, I_E=−200mA, f=100MHz *
Collector output capacitance	Cob	–	12	–	pF	V_{CB}=10V, I_E=0A, f=1MHz

* Pulsed

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
QSX7		○

●Electrical characteristic curves

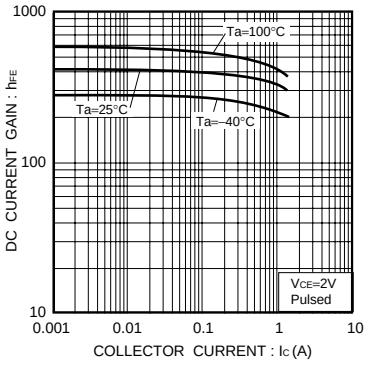


Fig.1 DC current gain vs. collector current

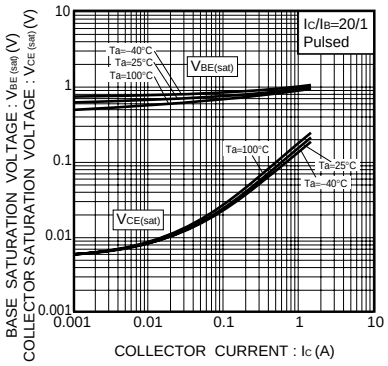


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

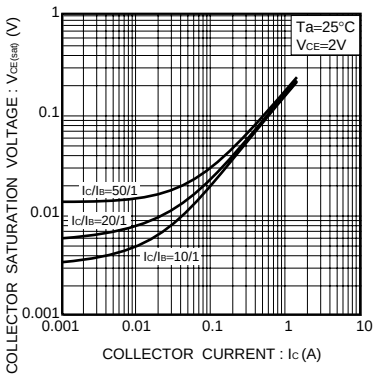


Fig.3 Collector-emitter saturation voltage vs. collector current

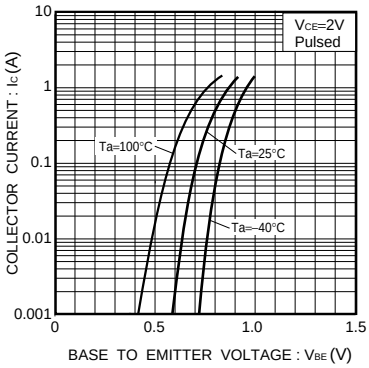


Fig.4 Grounded emitter propagation characteristics

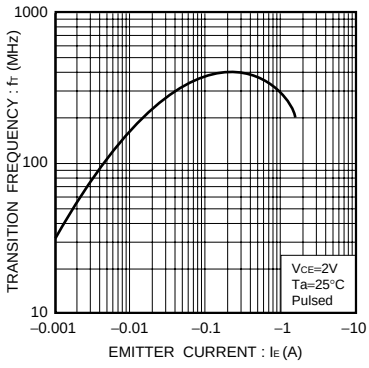


Fig.5 Gain bandwidth product vs. emitter current

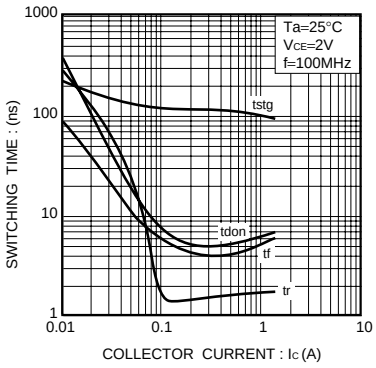


Fig.6 Switching time

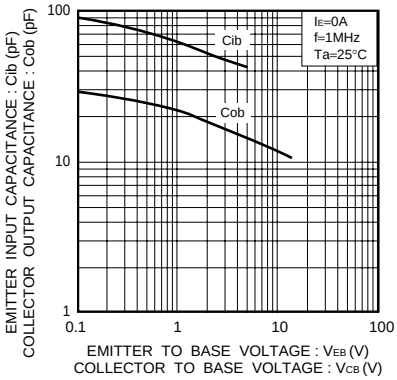


Fig.7 Collector output capacitacitance vs.collector-base voltage
Emitter input capacitance vs.emitter-base voltage