

General purpose amplification (15V, 6A)

QSX1

●Application

Low frequency amplifier

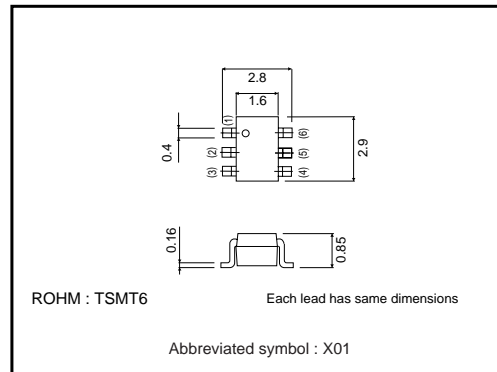
●Features

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

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

$$\text{at } I_c = 3\text{A} / I_B = 60\text{mA}$$

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

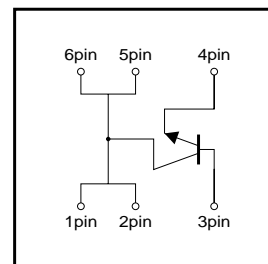
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	15	V
Collector-emitter voltage	V_{CE0}	12	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_c	6	A
	I_{cP}	10	A *1
Power dissipation	P_c	500	mW *2
		1.25	W *3
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°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}	15	-	-	V	$I_c=10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CE0}	12	-	-	V	$I_c=1\text{mA}$
Emitter-base breakdown voltage	BV_{EB0}	6	-	-	V	$I_E=10\mu\text{A}$
Collector cutoff current	I_{cB0}	-	-	100	nA	$V_{CB}=15\text{V}$
Emitter cutoff current	I_{EB0}	-	-	100	nA	$V_{EB}=6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	80	200	mV	$I_c/I_B=3\text{A}/60\text{mA}$
DC current gain	h_{FE}	270	-	680	-	$V_{CE}/I_c=2\text{V}/500\text{mA}$ *
Transition frequency	f_T	-	250	-	MHz	$V_{CE}=2\text{V}, I_E=-500\text{mA}, f=100\text{MHz}$ *
Collector output capacitance	C_{ob}	-	80	-	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
QSX1		○

●Electrical characteristic curves

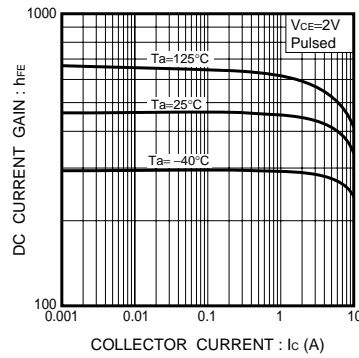


Fig.1 DC current gain vs. collector current

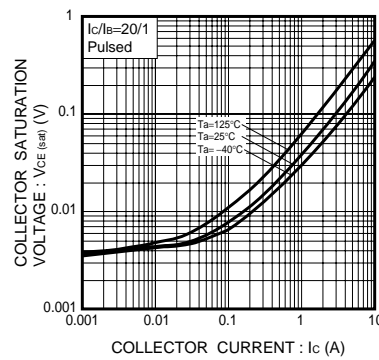


Fig.2 Collector-emitter saturation voltage vs. collector current

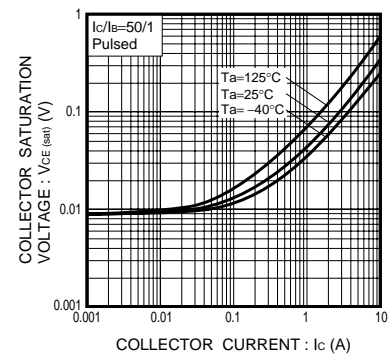


Fig.3 Collector-emitter saturation voltage vs. collector current

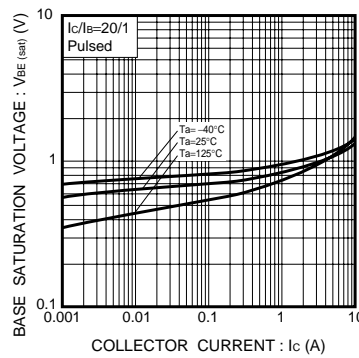


Fig.4 Base-emitter saturation voltage vs. collector current

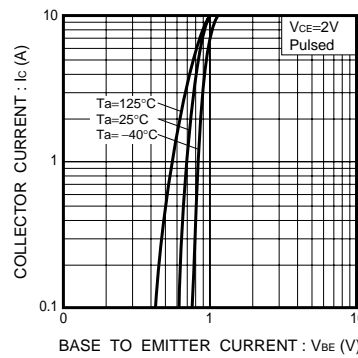


Fig.5 Grounded emitter propagation characteristics

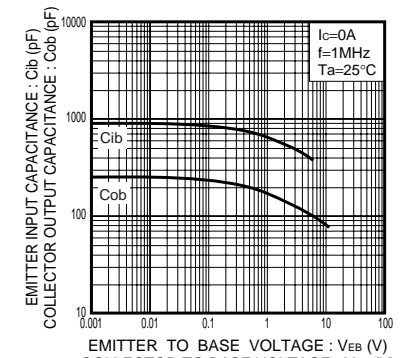


Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

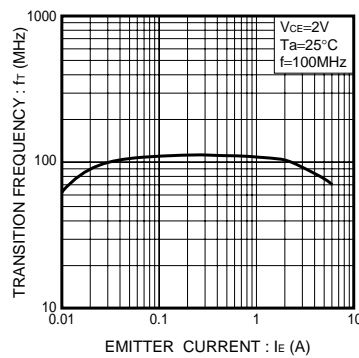


Fig.7 Gain bandwidth product vs. emitter current

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