

General purpose amplification (30V, 5A)

QSX2

●Application

Low frequency amplifier

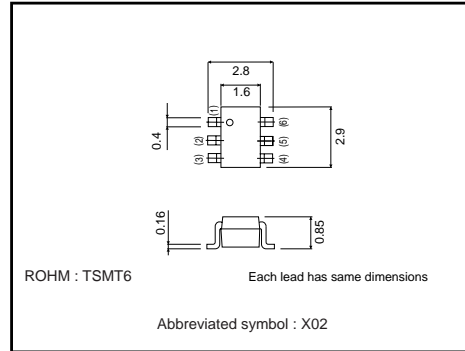
●Features

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

$$V_{CE(sat)} \leq 250\text{mV}$$

at $I_c = 2\text{A} / I_B = 40\text{mA}$

●External dimensions (Unit : mm)

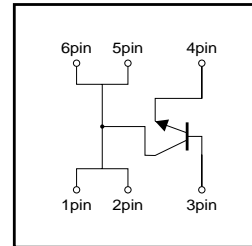


●Absolute maximum ratings (Ta=25°C)

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	5	A
	I_{cP}	8	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×10.8mm 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_{cB0}	-	-	100	nA	$V_{CB}=30\text{V}$
Emitter cutoff current	I_{EB0}	-	-	100	nA	$V_{EB}=6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	110	250	mV	$I_c / I_B=2\text{A}/40\text{mA}$
DC current gain	h_{FE}	270	-	680	-	$V_{CE} / I_c=2\text{V} / 500\text{mA}$ [*]
Transition frequency	f_r	-	200	-	MHz	$V_{CE}=2\text{V}, I_E=-500\text{mA}, f=100\text{MHz}$ [*]
Collector output capacitance	C_{ob}	-	60	-	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
QSX2		○

●Electrical characteristic curves

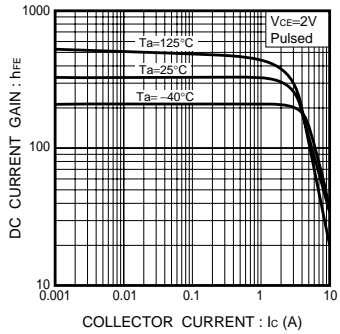


Fig.1 DC current gain vs. collector current

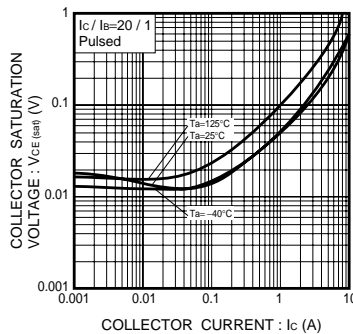


Fig.2 Collector-emitter saturation voltage vs. collector current

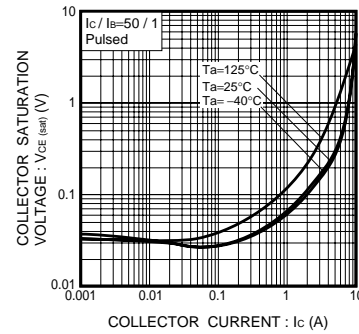


Fig.3 Collector-emitter saturation voltage vs. collector current

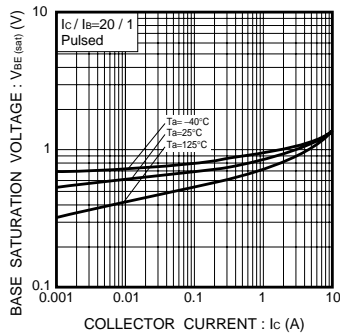


Fig.4 Base-emitter saturation voltage vs. collector current

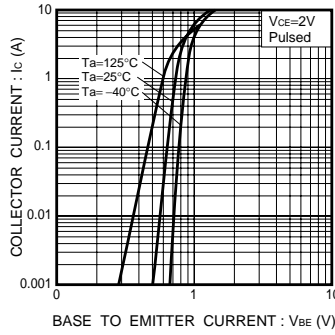


Fig.5 Grounded emitter propagation characteristics

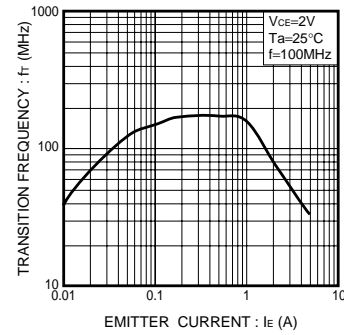


Fig.6 Gain bandwidth product vs. emitter current

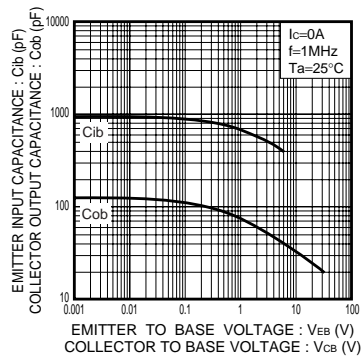


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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