

# General purpose amplification (15V, 6A)

## QX1

### ●Application

Low frequency amplifier

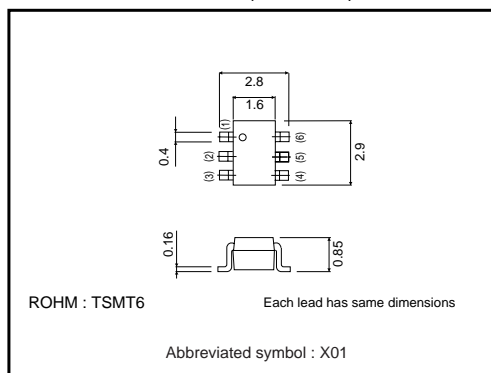
### ●Features

- 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)

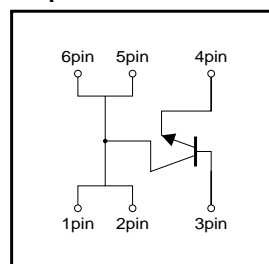
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	12	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	6	A
	$I_{CP}$	10	A *1
Power dissipation	$P_C$	500	mW *2
		1.25	W *3
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-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×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	$V_{CE(sat)}$	—	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
QXS1		○

## ●Electrical characteristic curves

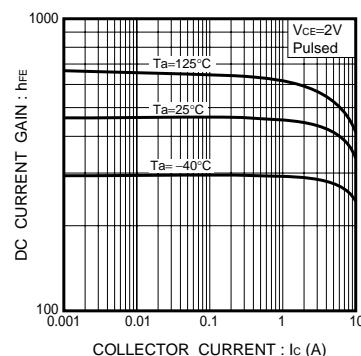


Fig.1 DC current gain vs. collector current

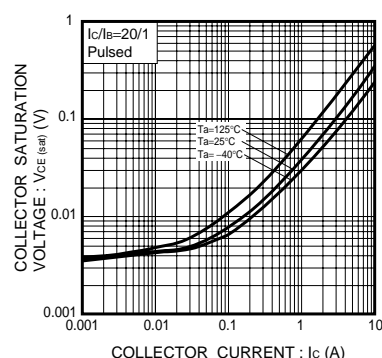


Fig.2 Collector-emitter saturation voltage vs. collector current

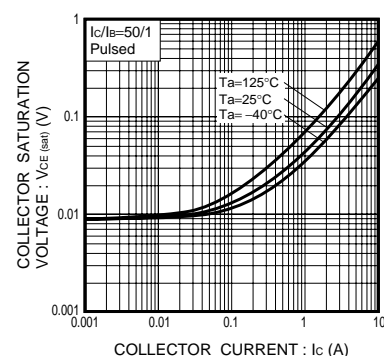


Fig.3 Collector-emitter saturation voltage vs. collector current

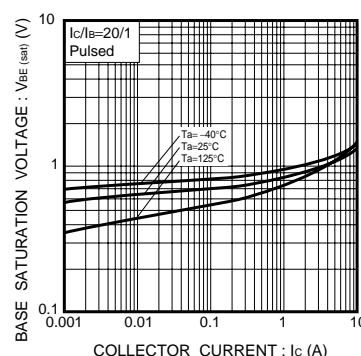


Fig.4 Base-emitter saturation voltage vs. collector current

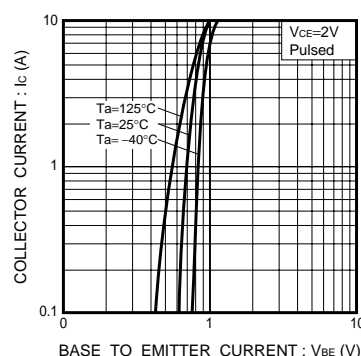


Fig.5 Grounded emitter propagation characteristics

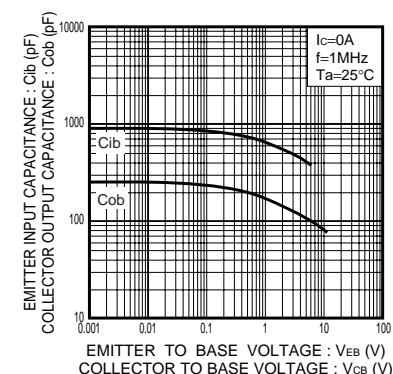


Fig.6 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

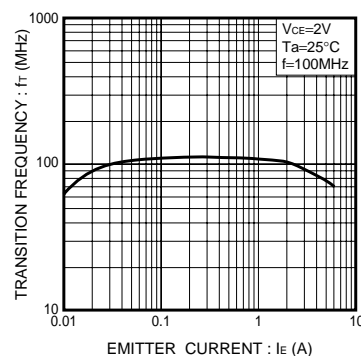


Fig.7 Gain bandwidth product vs. emitter current

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