

# General purpose amplification (12V, 1.5A)

## US6X7

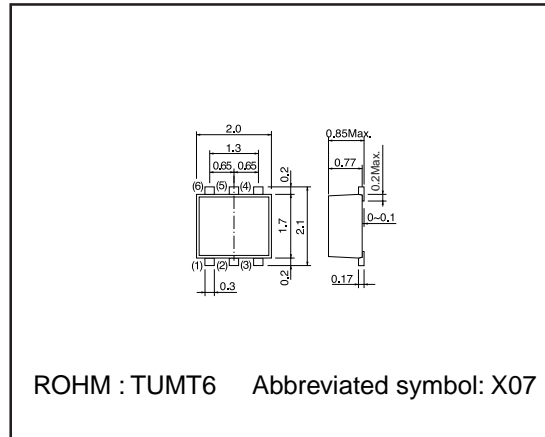
### ●Application

Low frequency amplifier

### ●Features

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

### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

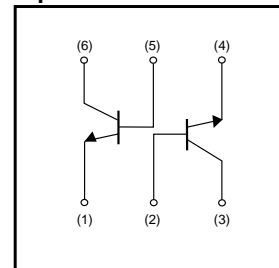
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	12	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	1.5	A
	$I_{CP}$	3	A *1
Power dissipation	$P_C$	400	mW/Total *2
		1	W/Total *3
		0.7	W/Element *3
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*1 Single pulse,  $P_w=1ms$

\*2 Each Terminal Mounted on a Recommended

\*3 Mounted on a 25mm×25mm×0.8mm ceramic substrate

### ●Equivalent circuit



### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	15	—	—	V	$I_C=10\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	12	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	6	—	—	V	$I_E=10\mu A$
Collector cutoff current	$I_{CBO}$	—	—	100	nA	$V_{CB}=15V$
Emitter cutoff current	$I_{EBO}$	—	—	100	nA	$V_{EB}=6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	85	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	$C_{ob}$	—	12	—	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

\* Pulsed

Transistors

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
US6X7		○

●Electrical characteristic curves

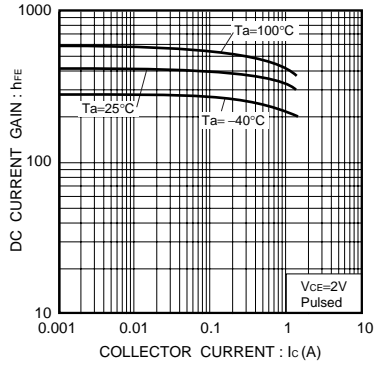


Fig.1 DC current gain vs. collector current

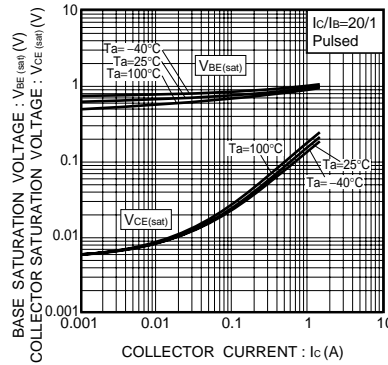


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

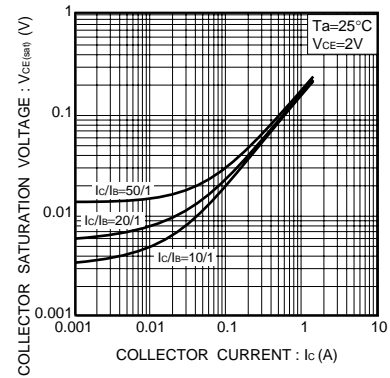


Fig.3 Collector-emitter saturation voltage vs. collector current

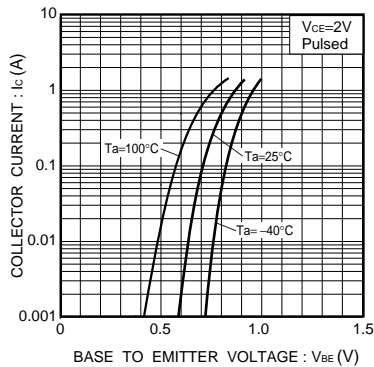


Fig.4 Grounded emitter propagation characteristics

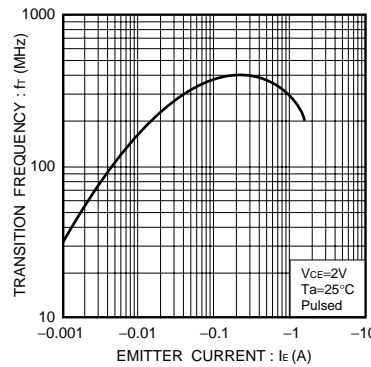


Fig.5 Gain bandwidth product vs. emitter current

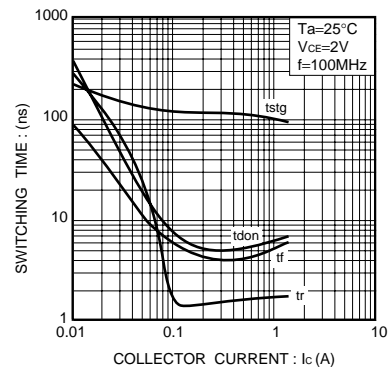


Fig.6 Switching time

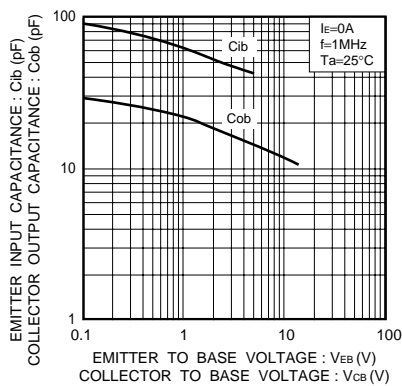


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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