

General purpose amplification (30V, 1A)

US6X8

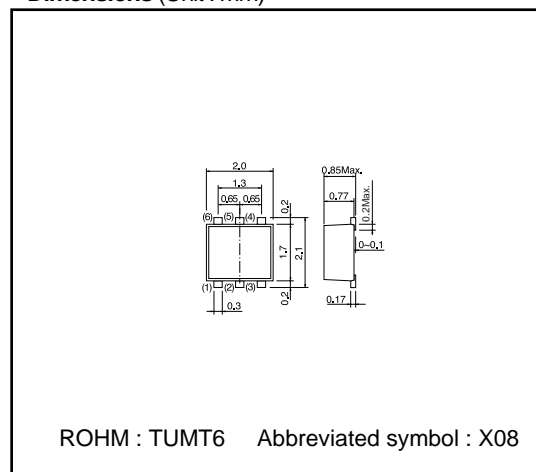
●Application

Low frequency amplifier

●Features

- 1) Collector current is large.
- 2) Collector saturation voltage is low.
 $V_{CE(sat)}$: max. 350mV
 at $I_C = 500\text{mA}$ / $I_B = 25\text{mA}$

●Dimensions (Unit : mm)



●Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

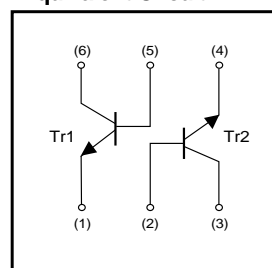
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	1	A
	I_{CP}	2	A *1
Power dissipation	P_C	0.4	W/TOTAL *2
		1.0	W/TOTAL *3
		0.7	W/ELEMENT *3
Junction temperature	T_J	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 Single pulse, $P_W = 1\text{ms}$

*2 Each Terminal Mounted on a Recommended

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

●Equivalent Circuit



●Electrical characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	30	—	—	V	$I_C = 10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	30	—	—	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	$V_{CB} = 30\text{V}$
Emitter cutoff current	I_{EBO}	—	—	100	nA	$V_{EB} = 6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	120	350	mV	$I_C/I_E = 500\text{mA}/25\text{mA}$
DC current gain	h_{FE}	270	—	680	—	$V_{CE}/I_C = 2\text{V}/100\text{mA}$ *
Transition frequency	f_T	—	320	—	MHz	$V_{CE} = 2\text{V}$, $I_E = 100\text{mA}$, $f = 100\text{MHz}$ *
Collector output capacitance	C_{ob}	—	7	—	pF	$V_{CB} = 10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$

* Pulsed

Transistors

●Packaging specifications

Type	Package	
	Code	TR
	Basic ordering unit (pieces)	3000
US6X8		○

●Electrical characteristic curves

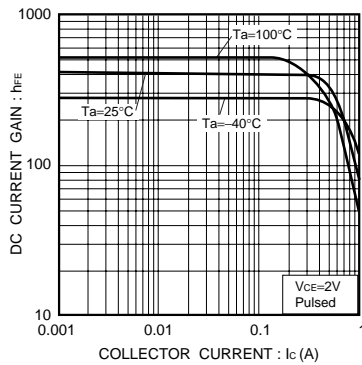


Fig.1 DC current gain vs. collector current

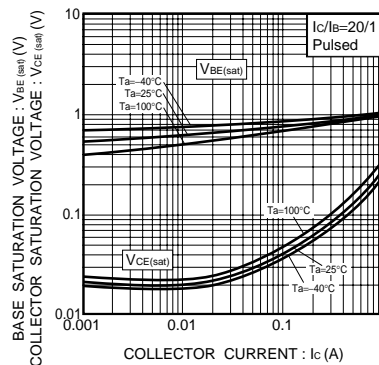


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

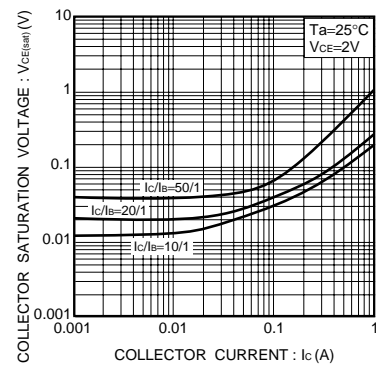


Fig.3 Collector-emitter saturation voltage vs. collector current

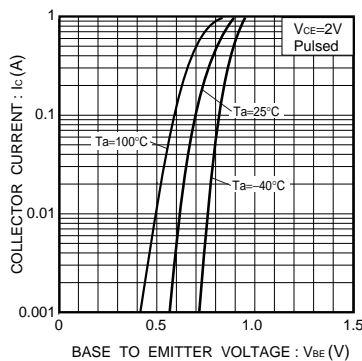


Fig.4 Grounded emitter propagation characteristics

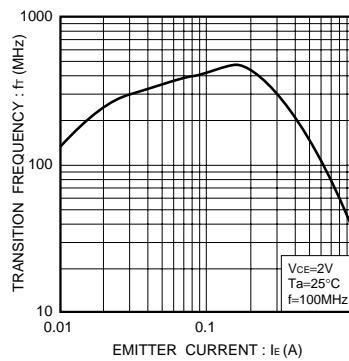


Fig.5 Gain bandwidth product vs. emitter current

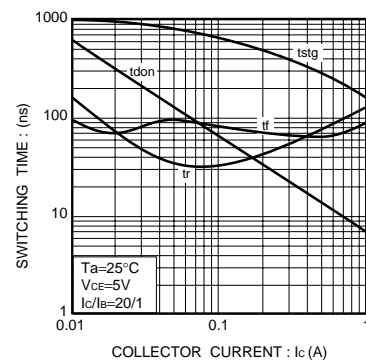
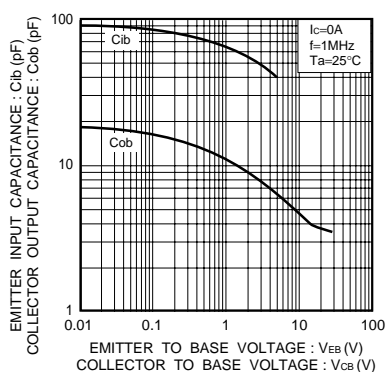


Fig.6 Switching time

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

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