

Transistors

# General purpose amplification (30V, 1A)

## US6X8

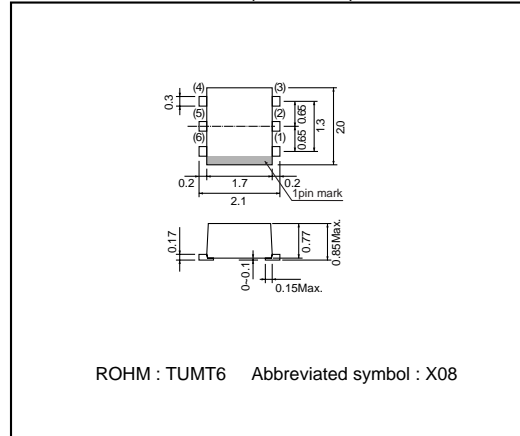
●Application

Low frequency amplifier

●Features

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

●External dimensions (Unit : mm)

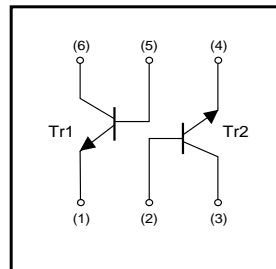


●Absolute maximum ratings (Ta=25°C)

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	°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×1.0.8mm ceramic substrate

●Equivalent Circuit



●Electrical characteristics (Ta=25°C)

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

\* Pulsed

Transistors

●Packaging specifications

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

●Electrical characteristic curves

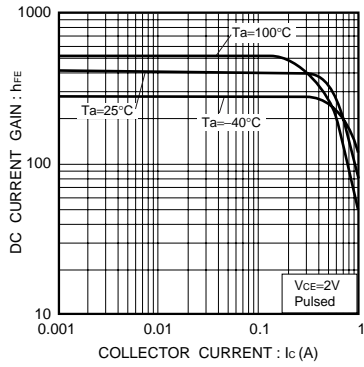


Fig.1 DC current gain vs. collector current

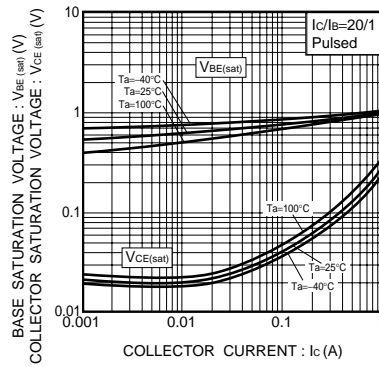


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

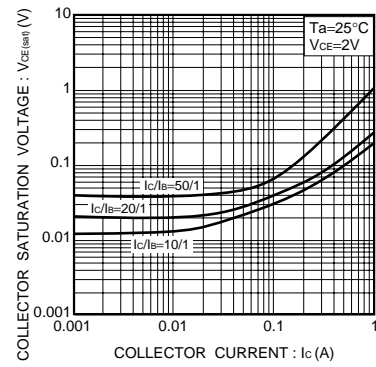


Fig.3 Collector-emitter saturation voltage vs. collector current

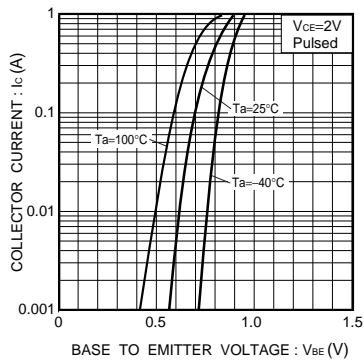


Fig.4 Grounded emitter propagation characteristics

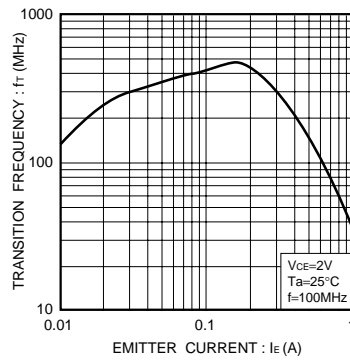


Fig.5 Gain bandwidth product vs. emitter current

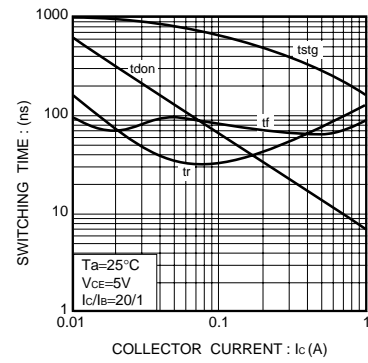


Fig.6 Switching time

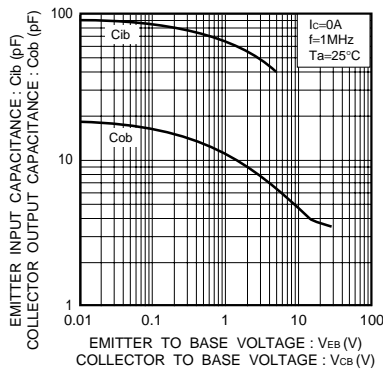


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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