Dual digital transistors

US6H23

●Features

In addition to the features of regular digital transistors.

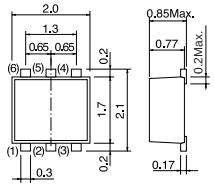
1) Low saturation voltage, typically
   $V_{CE\ (sat)}$ =40mV at I_C / I_B=50mA / 2.5mA, makes these transistors ideal for muting circuits.
2) These transistors can be used at high current levels, I_C=600mA.

●Structure

NPN silicon epitaxial planar transistor

●Dimensions (Unit : mm)

TUMT6

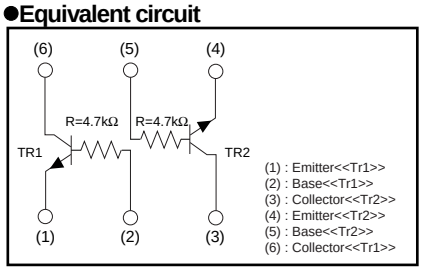


Abbreviated symbol : H23

●Packaging specifications and h_{FE}

Type	Package	TUMT6
	Packaging type	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
US6H23		○

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	12	V
Collector current	I_C	600	mA
	I_{CP}	1	A ∗1
Power dissipation	P_D	0.4(TOTAL)	W ∗2
		1.0(TOTAL)	W ∗3
		0.7(ELEMENT)	W ∗3
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	−55 to +150	°C

∗1 Pw=10ms 1 Pulse
∗2 Each terminal mounted on a recommended land
∗3 Mounted on a ceramic board

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	20	–	–	V	I_C=1mA
Collector-base breakdown voltage	BV_{CBO}	20	–	–	V	I_C=50μA
Emitter-base breakdown voltage	BV_{EBO}	12	–	–	V	I_E=50μA
Collector cutoff current	I_{CBO}	–	–	500	nA	V_{CB}=20V
Emitter cutoff current	I_{EBO}	–	–	500	nA	V_{EB}=12V
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	–	40	150	mV	I_C / I_B=50mA / 2.5mA
DC current gain	h_{FE}	820	–	2700	–	V_{CE}=5V, I_C=50mA
Transition frequency	f_T *	–	150	–	MHz	V_{CE}=10V, I_E=50mA, f=100MHz
Collector output capacitance	C_{ob} *	–	6	–	pF	V_{CB}=10V, I_E= 0mA, f=1MHz
Input resistance	R	3.29	4.7	6.11	kΩ	–
Output ON resistance	R_{on}	–	0.55	–	Ω	VI=5V, R_L=1kΩ, f=1kHz

*Characteristics of built-in transistor.

●R_{on} **measurement circuit**

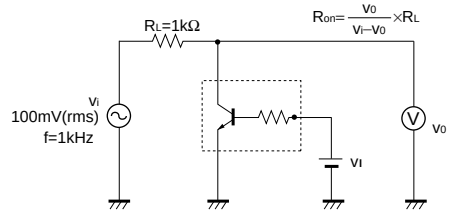


Fig.1 Output "ON" resistance (R_{on}) measurement circuit

●**Electrical characterristic curves**

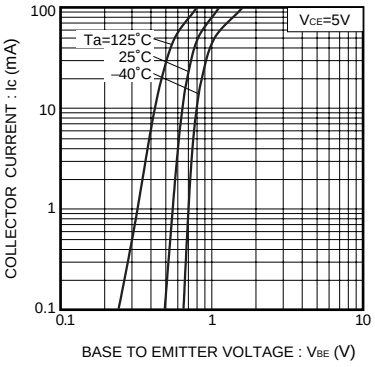


Fig.1 Grounded emitter propagation characteristics

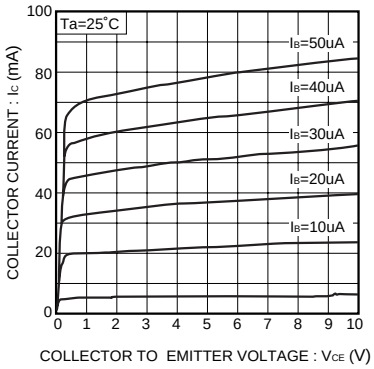


Fig.2 Typical output characteristics

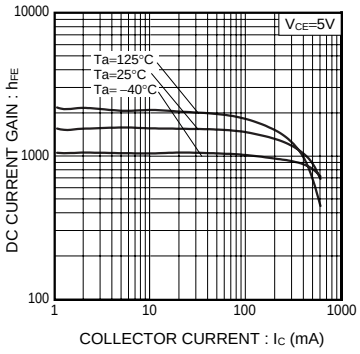


Fig.3 DC current gain vs. collector current

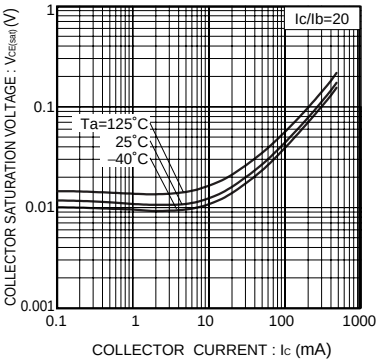


Fig.4 Collector-emitter saturation voltage vs. collector current

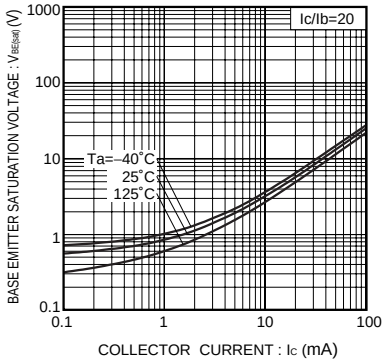


Fig.5 Base-emitter saturation voltage vs. collector current

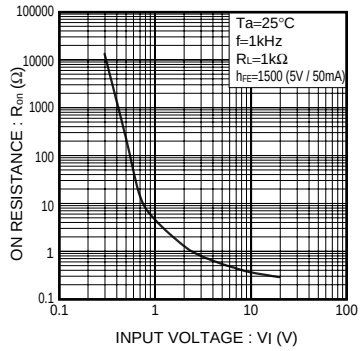


Fig.6 "ON" resistance vs. input voltage

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