

TENTATIVE

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# MT4S03AU

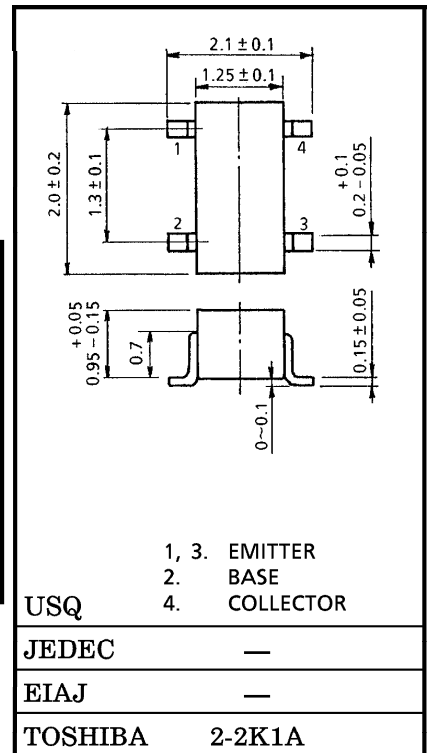
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

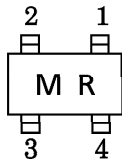
- Low Noise : Figure : NF = 1.4 dB
- High Gain : Gain = 9 dB (f = 2 GHz)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	10	V
Collector-Emitter Voltage	V <sub>CEO</sub>	5	V
Emitter-Base Voltage	V <sub>EB0</sub>	2	V
Base Current	I <sub>C</sub>	40	mA
Collector Current	I <sub>B</sub>	10	mA
Collector Power Dissipation	P <sub>C</sub>	100	mW
Junction Temperature	T <sub>j</sub>	125	°C
Storage Temperature Range	T <sub>stg</sub>	-55~125	°C



MARKING



MICROWAVE CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f <sub>T</sub> (1)	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 5 mA	2	4.5	—	GHz
	f <sub>T</sub> (2)	V <sub>CE</sub> = 3 V, I <sub>C</sub> = 10 mA	7	10	—	
Insertion Gain	S <sub>21e</sub>   <sup>2</sup> (1)	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 5 mA, f = 2 GHz	3.5	5.5	—	dB
	S <sub>21e</sub>   <sup>2</sup> (2)	V <sub>CE</sub> = 3 V, I <sub>C</sub> = 20 mA, f = 2 GHz	7	9	—	
Noise Figure	NF (1)	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 5 mA, f = 2 GHz	—	1.7	3	dB
	NF (2)	V <sub>CE</sub> = 3 V, I <sub>C</sub> = 7 mA, f = 2 GHz	—	1.4	2.2	

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	ICBO	V <sub>CB</sub> = 5 V, I <sub>E</sub> = 0	—	—	0.1	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 1 V, I <sub>C</sub> = 0	—	—	1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 5 mA	80	—	160	—
Reverse Transfer Capacitance	C <sub>re</sub>	V <sub>CB</sub> = 1 V, I <sub>E</sub> = 0, f = 1 MHz (Note)	—	0.7	1.05	pF

(Note) : C<sub>re</sub> is measured by 3 terminal method with capacitance bridge.

## CAUTION

This device electrostatic sensitivity. Please handle with caution.