

TOSHIBA

MT4S04A

TENTATIVE

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT4S04A

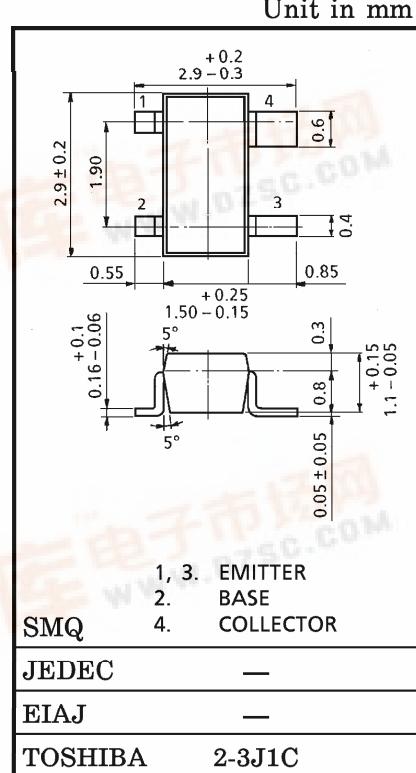
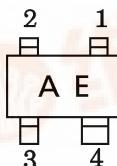
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise : Figure : $NF = 1.2 \text{ dB}$
- High Gain : Gain = 13.5 dB ($f = 1 \text{ GHz}$)

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	10	V
Collector-Emitter Voltage	V_{CEO}	5	V
Emitter-Base Voltage	V_{EBO}	2	V
Base Current	I_B	40	mA
Collector Current	I_C	10	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

MARKING

MICROWAVE CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T(1)$	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}$	2	4.5	—	GHz
	$f_T(2)$	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}$	5	7	—	
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}, f = 1 \text{ GHz}$	8	10	—	dB
	$ S_{21e} ^2(2)$	$V_{CE} = 3 \text{ V}, I_C = 20 \text{ mA}, f = 1 \text{ GHz}$	11.5	13.5	—	
Noise Figure	NF (1)	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}, f = 1 \text{ GHz}$	—	1.3	2.2	dB
	NF (2)	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}, f = 1 \text{ GHz}$	—	1.2	2	

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 5 \text{ V}$, $I_E = 0$	—	—	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1 \text{ V}$, $I_C = 0$	—	—	1	μA
DC Current Gain	h_{FE}	$V_{CE} = 1 \text{ V}$, $I_C = 5 \text{ mA}$	80	—	160	—
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 1 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$ (Note)	—	0.75	1.1	pF

(Note) : C_{re} is measured by 3 terminal method with capacitance bridge.

CAUTION

This device electrostatic sensitivity. Please handle with caution.