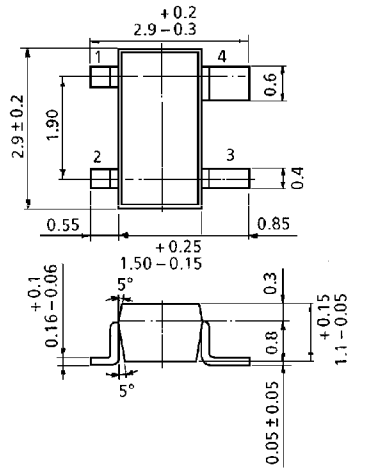
TENTATIVE TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT4S04

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm



1, 3. EMITTER
2. BASE
4. COLLECTOR

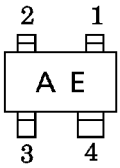
SMQ	
JEDEC	—
EIAJ	—
TOSHIBA	2-3J1C

- Low Noise : Figure : NF = 1.2 dB
- High Gain : Gain = 13.5 dB (f = 1 GHz)

MAXIMUM RATINGS (Ta = 25°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_C	100	mA
Collector Current	I_B	10	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

MARKING



MICROWAVE CHARACTERISTICS (Ta = 25°C)

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

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 5 V, I_E = 0	—	—	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 1 V, I_C = 0	—	—	1	μA
DC Current Gain	h_{FE}	V_{CE} = 1 V, I_C = 5 mA	60	—	160	—
Reverse Transfer Capacitance	C_{re}	V_{CB} = 1 V, I_E = 0, f = 1 MHz (Note)	—	0.75	1.1	pF

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