TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT4S06U

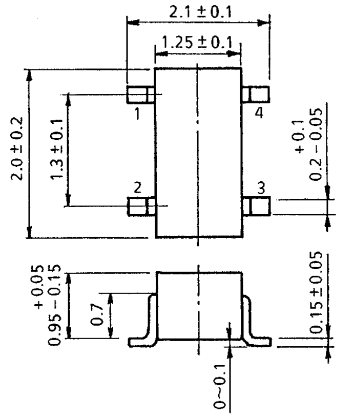
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : NF = 1.6 dB
  (V_{CE} = 3 V, I_C = 3 mA, f = 2 GHz)
- High Gain : $|S_{21e}|^2$ = 11.5 dB
  (V_{CE} = 3 V, I_C = 7 mA, f = 2 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}	1.5	V
Base Current	I_C	15	mA
Collector Current	I_B	7	mA
Collector Power Dissipation	P_C	60	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

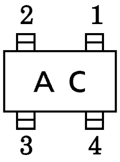
Unit in mm



1, 3. EMITTER
2. BASE
4. COLLECTOR

USQ	
JEDEC	—
EIAJ	—
TOSHIBA	2-2K1A

MARKING



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MICROWAVE CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 3$ V, $I_C = 5$ mA	7	10	—	GHz
Insertion Gain	$\lvert S_{21e}\rvert^2$ (1)	$V_{CE} = 1$ V, $I_C = 5$ mA, f = 2 GHz	—	10.5	—	dB
	$\lvert S_{21e}\rvert^2$ (2)	$V_{CE} = 3$ V, $I_C = 7$ mA, f = 2 GHz	8.5	11.5	—	
Noise Figure	NF (1)	$V_{CE} = 1$ V, $I_C = 3$ mA, f = 2 GHz	—	1.7	3	dB
	NF (2)	$V_{CE} = 3$ V, $I_C = 3$ mA, f = 2 GHz	—	1.6	3	

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	70	—	140	—
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 1$ V, $I_E = 0$, f = 1 MHz (Note)	—	0.23	0.7	pF

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.