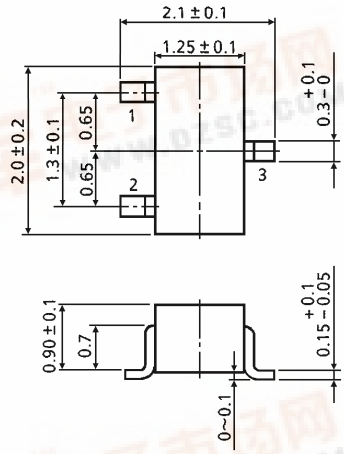
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT3S07U

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : NF = 1.5 dB (V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz)
- High Gain : $|S_{21e}|^2$ = 9.5 dB (V_{CE} = 3 V, I_C = 15 mA, f = 2 GHz)

Unit in mm



1. BASE
2. EMITTER
3. COLLECTOR

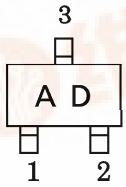
JEDEC	—
EIAJ	SC-70
TOSHIBA	2-2E1A

Weight : 0.006 g

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
Collector Current	I_C	25	mA
Base Current	I_B	10	mA
Collector Power Dissipation	P_C	100	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	V_{CE} = 3 V, I_C = 10 mA	10	12	—	GHz
Insertion Gain	$\|S_{21e}\|^2$ (1)	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	7.5	—	dB
	$\|S_{21e}\|^2$ (2)	V_{CE} = 3 V, I_C = 15 mA, f = 2 GHz	6.5	9.5	—	
Noise Figure	NF (1)	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	1.6	3	dB
	NF (2)	V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz	—	1.5	3	

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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 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)	—	0.4	0.85	pF

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.