TOSHIBA **MT3S06U**

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

M T 3 S 0 6 U

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 $|S_{21e}|^2 = 9.5 \, dB$

 $(V_{CE} = 3 V, I_{C} = 7 mA, f = 2 GHz)$

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	$V_{ m EBO}$	1.5	V
Base Current	$I_{\mathbf{C}}$	15	mA
Collector Current	$I_{\mathbf{B}}$	7	mA
Collector Power Dissipation	$P_{\mathbf{C}}$	60	mW
Junction Temperature	$T_{ m j}$	125	°C
Storage Temperature Range	$\mathrm{T_{stg}}$	-55~125	°C

 2.1 ± 0.1 1.25 ± 0.1 +0.1 0~0.1 BASE 2. **EMITTER** COLLECTOR **USM JEDEC EIAJ** SC-70 **TOSHIBA** 2-2E1A

Unit in mm

Weight: 0.006 g

MARKING



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MICROWAVE CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$ m f_{T}$	$V_{ m CE}=3~{ m V},~{ m I}_{ m C}=5~{ m mA}$	7	10	_	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{\text{CE}} = 1 \text{ V}, I_{\text{C}} = 5 \text{ mA},$ f = 2 GHz	_	8.5	_	- dB
	$ S_{21e} ^2$ (2)	$V_{ ext{CE}} = 3 \text{ V}, I_{ ext{C}} = 7 \text{ mA},$ $f = 2 \text{ GHz}$	6.5	9.5	_	
Noise Figure	NF (1)	$V_{ ext{CE}} = 1 \text{ V}, I_{ ext{C}} = 3 \text{ mA},$ $f = 2 \text{ GHz}$	_	1.7	3	- dB
	NF (2)	$V_{CE} = 3 \text{ V}, I_{C} = 3 \text{ mA},$ f = 2 GHz	_	1.6	3	иБ

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	μ A
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1 V, I_{C} = 0$	_	_	1	μ A
DC Current Gain	${ t h_{FE}}$	$V_{CE} = 1 V$, $I_{C} = 5 mA$	70	_	140	_
Reverse Transfer	C	$V_{CB} = 1 \text{ V}, \text{ I}_{E} = 0, \text{ f} = 1 \text{ MHz}$		0.25	0.7	рF
Capacitance	$\mathrm{c_{re}}$	(Note)	_	0.25	0.7	pr

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.