

TENTATIVE

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT3S03AU

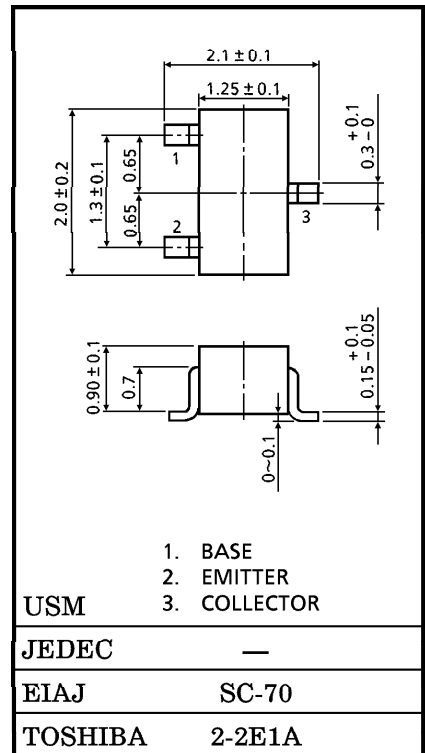
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

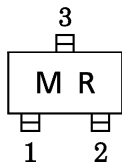
- Low Noise : Figure : NF = 1.4 dB
- High Gain : Gain = 8 dB (f = 2 GHz)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	10	V
Collector-Emitter Voltage	V _{CE0}	5	V
Emitter-Base Voltage	V _{EB0}	2	V
Base Current	I _C	40	mA
Collector 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



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MICROWAVE CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T(1)$	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$	5	7	—	GHz
	$f_T(2)$	$V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$	7	10	—	
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA},$ $f = 2\text{ GHz}$	—	5.5	—	dB
	$ S_{21e} ^2(2)$	$V_{CE} = 3\text{ V}, I_C = 20\text{ mA},$ $f = 2\text{ GHz}$	6	8	—	
Noise Figure	NF (1)	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA},$ $f = 2\text{ GHz}$	—	1.7	3	dB
	NF (2)	$V_{CE} = 3\text{ V}, I_C = 7\text{ mA},$ $f = 2\text{ GHz}$	—	1.4	2.2	

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.