

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5322FT

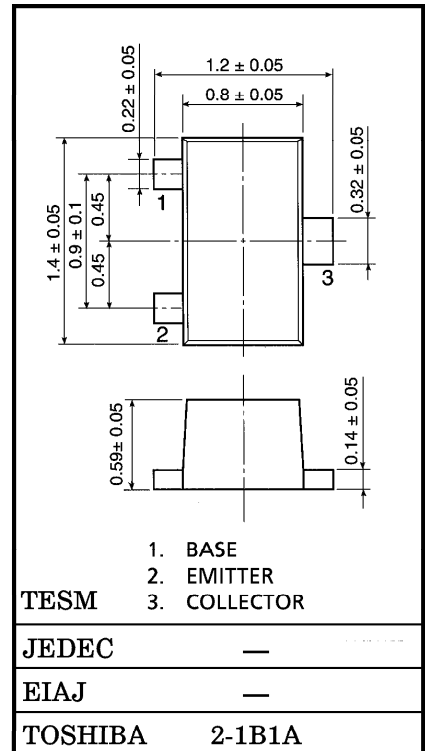
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

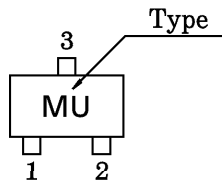
- Low Noise Figure :  $NF = 1.4 \text{ dB}$  ( $f = 2 \text{ GHz}$ )
- High Gain :  $|S_{21e}|^2 = 10 \text{ dB}$  ( $f = 2 \text{ GHz}$ )

MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	8	V
Collector-Emitter Voltage	$V_{CEO}$	5	V
Emitter-Base Voltage	$V_{EB0}$	1.5	V
Collector Current	$I_C$	10	mA
Base Current	$I_B$	5	mA
Collector Power Dissipation	$P_C$	100	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$



MARKING



MICROWAVE CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T$	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}$	9	—	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}, f = 1 \text{ GHz}$	12.5	15.5	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}, f = 2 \text{ GHz}$	7	10	—	
Noise Figure	NF (1)	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ mA}, f = 1 \text{ GHz}$	—	0.9	1.8	dB
	NF (2)	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ mA}, f = 2 \text{ GHz}$	—	1.4	2.2	

ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 8 \text{ V}, I_E = 0$	—	—	1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 1 \text{ V}, I_C = 0$	—	—	1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}$	50	—	250	—
Output Capacitance	$C_{ob}$	$V_{CB} = 2.5 \text{ V}, I_E = 0,$	—	0.4	—	pF
Reverse Transfer Capacitance	$C_{re}$	$f = 1 \text{ MHz}$ (Note)	—	0.3	0.7	pF

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.

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