

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5317FT

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS
(CHIP : $f_T = 16\text{GHz}$ series)

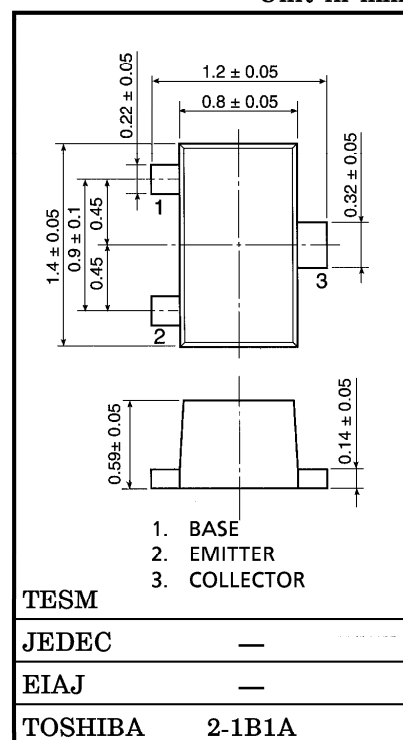
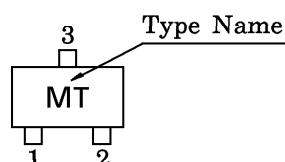
Unit in mm

- Low Noise Figure : $NF = 1.3\text{dB}$ ($f = 2\text{GHz}$)
- High Gain : $|S_{21e}|^2 = 9\text{dB}$ ($f = 2\text{GHz}$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	8	V
Collector-Emitter Voltage	V_{CEO}	5	V
Emitter-Base Voltage	V_{EBO}	1.5	V
Collector Current	I_C	20	mA
Base Current	I_B	10	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

MARKING

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 3\text{V}, I_C = 15\text{mA}$	9	—	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE} = 3\text{V}, I_C = 15\text{mA}, f = 1\text{GHz}$	—	15	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 3\text{V}, I_C = 15\text{mA}, f = 2\text{GHz}$	—	9	—	
Noise Figure	$NF (1)$	$V_{CE} = 3\text{V}, I_C = 5\text{mA}, f = 1\text{GHz}$	—	0.9	1.8	dB
	$NF (2)$	$V_{CE} = 3\text{V}, I_C = 5\text{mA}, f = 2\text{GHz}$	—	1.3	2.2	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 10\text{V}, I_E = 0$	—	—	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1\text{V}, I_C = 0$	—	—	1	μA
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 15\text{mA}$	50	—	250	V
Output Capacitance	C_{ob}	$V_{CB} = 2.5\text{V}, I_E = 0, f = 1\text{MHz}$	—	0.7	—	pF
Reverse Transfer Capacitance	C_{re}	(Note)	—	0.5	0.85	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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