

TENTATIVE TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

HN3C17FU

VHF~UHF LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

(CHIP : $f_T=16\text{GHz}$ series)

- Low Noise Figure : $NF=1.3\text{dB}$ ($f=2\text{GHz}$)
- High Gain : $|S_{21e}|^2=9.0\text{dB}$ ($f=2\text{GHz}$)

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^*}	200	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

* : Total

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	—
Transition Frequency	f_T	$V_{CE}=3\text{V}, I_C=15\text{mA}$,	9	—	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE}=3\text{V}, I_C=15\text{mA}$, $f=1\text{GHz}$	12	15	—	dB
Insertion Gain	$ S_{21e} ^2 (2)$	$V_{CE}=3\text{V}, I_C=15\text{mA}$, $f=2\text{GHz}$	6	9.0	—	dB
Noise Figure	NF	$V_{CE}=3\text{V}, I_C=5\text{mA}$, $f=2\text{GHz}$	—	1.3	2.2	dB
Reverse Transfer Capacitance Q_1	$C_{re} (1)$	$V_{CB}=2.5\text{V}, I_E=0$	—	0.45	0.9	pF
Reverse Transfer Capacitance Q_2	$C_{re} (2)$	$f=1\text{MHz}$ (Note)	—	0.4	0.85	pF

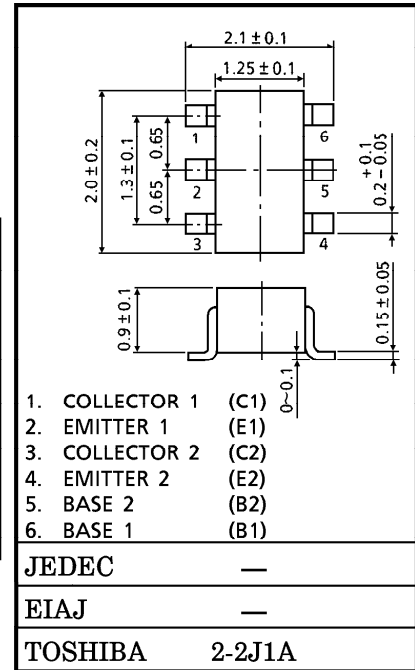
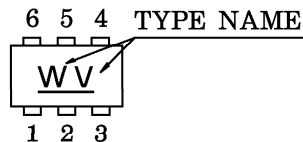
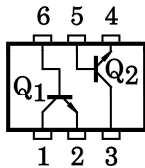
(Note) C_{re} is measured by 3 terminal method with Capacitance Bridge.

CAUTION

This device electrostatic sensitivity. Please handle with caution.

PIN ASSIGNMENT (TOP VIEW)

MARKING



961001EAA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.