

TENTATIVE TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

HN3C18FU

VHF~UHF LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

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

- 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^*}	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}	$V_{CE}=3\text{V}, I_C=7\text{mA}$	50	—	250	—
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
Insertion Gain	$ S_{21e} ^2 (2)$	$V_{CE}=3\text{V}, I_C=7\text{mA}, f=2\text{GHz}$	7	10	—	dB
Noise Figure	NF	$V_{CE}=3\text{V}, I_C=3\text{mA}, f=2\text{GHz}$	—	1.4	2.3	dB
Reverse Transfer Capacitance Q_1	$C_{re} (1)$	$V_{CB}=2.5\text{V}, I_E=0$	—	0.4	0.9	pF
Reverse Transfer Capacitance Q_2	$C_{re} (2)$	$f=1\text{MHz}$ (Note)	—	0.35	0.85	pF

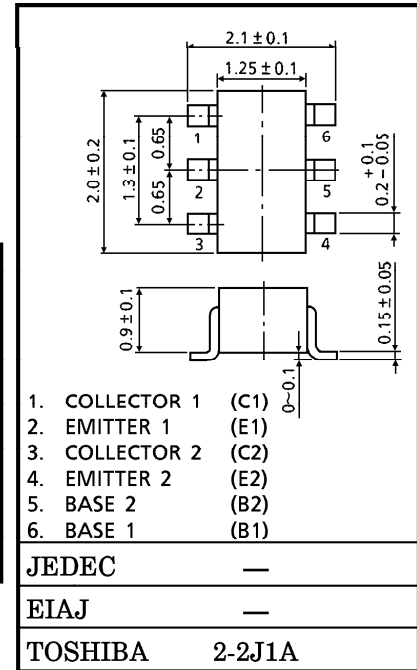
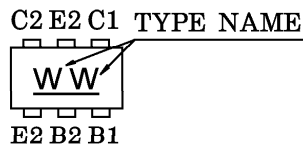
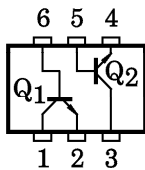
(Note) C_{re} is measured by 3 terminal method with Capacitance Bridge.

CAUTION

This device electrostatic sensitivity. Please handle with caution.

PIN ASSIGNMENT (TOP VIEW)

MARKING



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