

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	$\mu\text{A}$
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	—
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

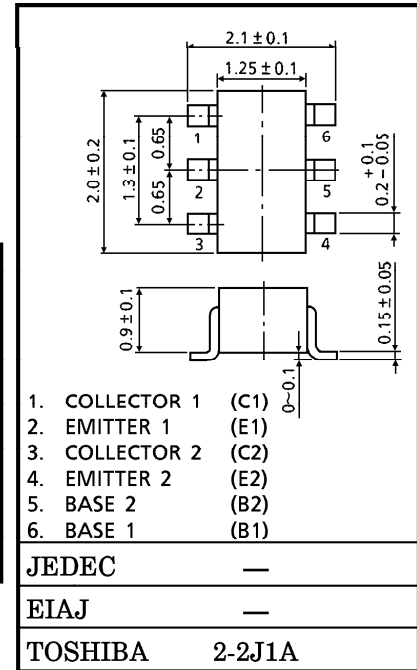
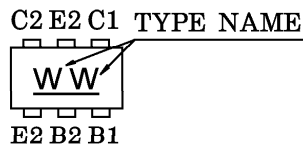
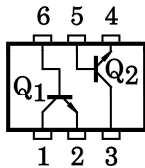
(Note)  $C_{re}$  is measured by 3 terminal method with Capacitance Bridge.

**CAUTION**

This device electrostatic sensitivity. Please handle with caution.

PIN ASSIGNMENT (TOP VIEW)

MARKING



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