

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# HN3C03FU

TV TUNER, UHF OSCILLATOR APPLICATION  
TV UHF RF AMPLIFIER APPLICATION

Unit in mm

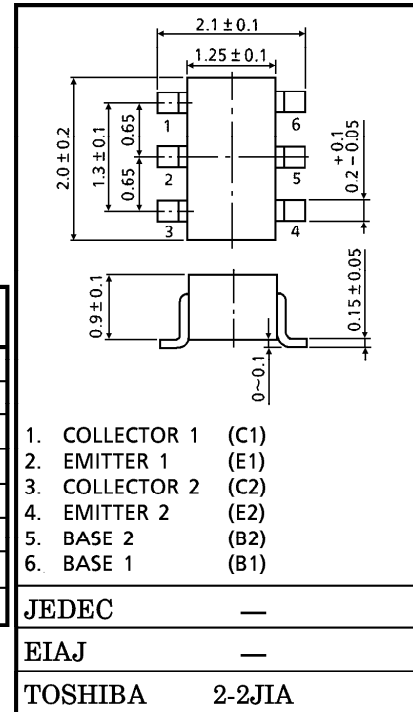
(COMMON COLLECTOR)

- Including Two Devices in US6
- Output Capacitance :  $C_{ob} = 1.2\text{pF}$  (Typ.)
- High Transition Frequency :  $f_T = 4.0\text{GHz}$  (Typ.)

MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ ) ( $Q_1, Q_2$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	12	V
Emitter-Base Voltage	$V_{EB0}$	3	V
Collector Current	$I_C$	30	mA
Base Current	$I_B$	15	mA
Collector Power Dissipation	$P_{C^*}$	200	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$

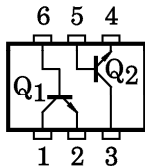
\* : Total



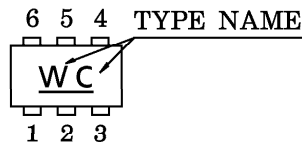
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ ) ( $Q_1, Q_2$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 10\text{V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 2\text{V}, I_C = 0$	—	—	1.0	$\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	12	—	—	V
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_E = 5\text{mA}$	35	—	130	—
Transition Frequency	$f_T$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}, f = 1\text{GHz}$	2.6	4.0	—	GHz
Output Capacitance $Q_1$	$C_{ob(1)}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	1.2	1.55	pF
Output Capacitance $Q_2$	$C_{ob(2)}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	1.0	1.35	pF
Collector-Base Time Constant $Q_1$	$C_c \cdot r_{bb'(1)}$	$V_{CB} = 10\text{V}, I_C = 5\text{mA}, f = 30\text{MHz}$	—	3.2	8.5	ps
Collector-Base Time Constant $Q_2$	$C_c \cdot r_{bb'(2)}$	$V_{CB} = 10\text{V}, I_C = 5\text{mA}, f = 30\text{MHz}$	—	2.7	8.0	ps

PIN ASSIGNMENT (TOP VIEW)



MARKING



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