

TENTATIVE

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5316

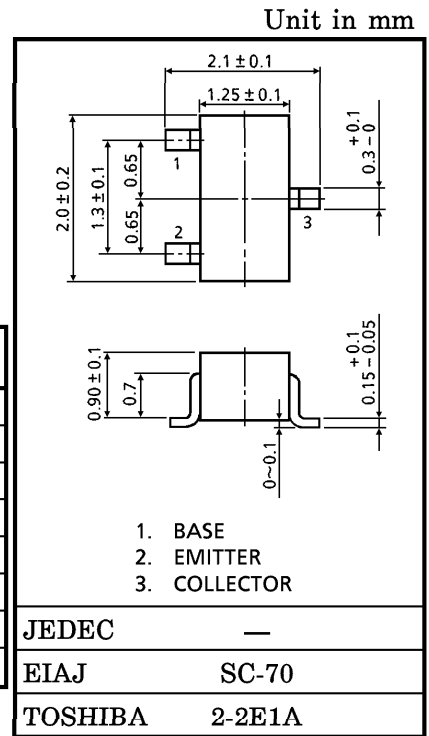
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

(CHIP :  $f_T = 16$  GHz series)

- Low Noise Figure :  $NF = 1.3$  dB ( $f = 2$  GHz)
- High Gain :  $G_a = 9$  dB ( $f = 2$  GHz)

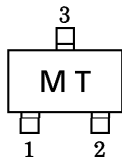
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

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	$T_{stg}$	-55~125	$^\circ\text{C}$



Weight : 0.006 g

MARKING



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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T$	$V_{CE} = 3$ V, $I_C = 15$ mA	9	—	—	GHz
Insertion Gain	$ S_{21e} ^2$ (1)	$V_{CE} = 3$ V, $I_C = 15$ mA, $f = 1$ GHz	12	15	—	dB
	$ S_{21e} ^2$ (2)	$V_{CE} = 3$ V, $I_C = 15$ mA, $f = 2$ GHz	6	9	—	
Noise Figure	NF (1)	$V_{CE} = 3$ V, $I_C = 5$ mA, $f = 1$ GHz	—	0.9	1.8	dB
	NF (2)	$V_{CE} = 3$ V, $I_C = 5$ mA, $f = 2$ GHz	—	1.3	2.2	

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 8\text{ V}, I_E = 0$	—	—	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	$h_{FE}$	$V_{CE} = 3\text{ V}, I_C = 15\text{ mA}$	50	—	250	V
Output Capacitance	$C_{ob}$	$V_{CB} = 2.5\text{ V}, I_E = 0,$	—	0.6	—	pF
Reverse Transfer Capacitance	$C_{re}$	$f = 1\text{ MHz}$ (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.

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