

TENTATIVE

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5316

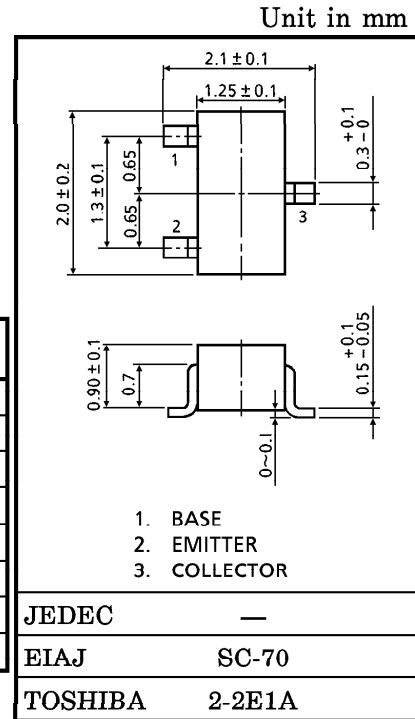
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

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

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

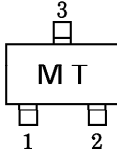
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	8	V
Collector-Emitter Voltage	V_{CE0}	5	V
Emitter-Base Voltage	V_{EB0}	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}	$-55\sim 125$	$^\circ\text{C}$



Weight : 0.006g

MARKING



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

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

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 10V, I_E = 0$	—	—	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1V, I_C = 0$	—	—	1	μA
DC Current Gain	h_{FE}	$V_{CE} = 3V, I_C = 15mA$	50	—	250	V
Output Capacitance	C_{ob}	$V_{CB} = 2.5V, I_E = 0, f = 1MHz$ (Note)	—	0.7	—	pF
Reverse Transfer Capacitance	C_{re}		—	0.5	—	pF

Note : C_{re} is measured by 3 terminal method with Capacitance bridge.

CAUTION

This device electrostatic sensitivity. Please handle with caution.