

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5257

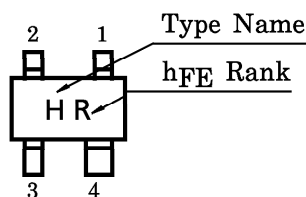
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : $NF = 1.5\text{dB}$ ($f = 2\text{GHz}$)
- High Gain : $\text{Gain} = 10\text{dB}$ ($f = 2\text{GHz}$)

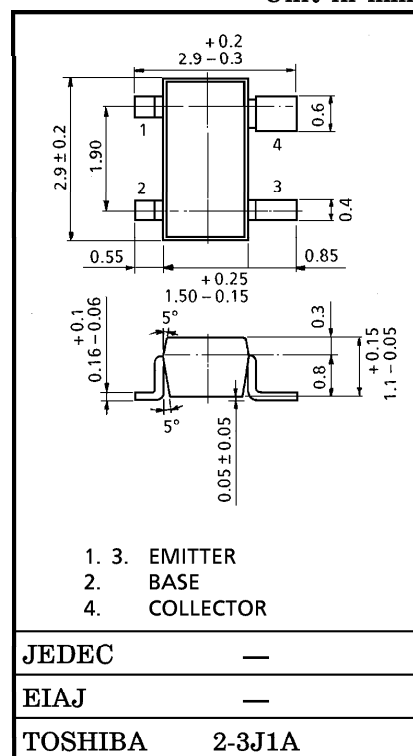
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	15	V
Collector-Emitter Voltage	V_{CE0}	7	V
Emitter-Base Voltage	V_{EB0}	1.5	V
Collector Current	I_C	40	mA
Base Current	I_B	20	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

MARKING



Unit in mm

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 20\text{mA}$	9	12	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}, f = 1\text{GHz}$	13	16	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}, f = 2\text{GHz}$	7	10	—	
Noise Figure	NF (1)	$V_{CE} = 5\text{V}, I_C = 5\text{mA}, f = 1\text{GHz}$	—	1.1	—	dB
	NF (2)	$V_{CE} = 5\text{V}, I_C = 5\text{mA}, f = 2\text{GHz}$	—	1.5	3	

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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} (Note 1)	$V_{CE} = 5V, I_C = 20mA$	50	—	160	—
Output Capacitance	C_{ob}	$V_{CB} = 5V, I_E = 0, f = 1MHz$ (Note 2)	—	0.6	—	pF
Reverse Transfer Capacitance	C_{re}		—	0.45	0.85	pF

(Note 1) : h_{FE} Classification R : 50~100, O : 80~160

(Note 2) : C_{re} is measured by 3 terminal method with capacitance bridge.