

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC3098

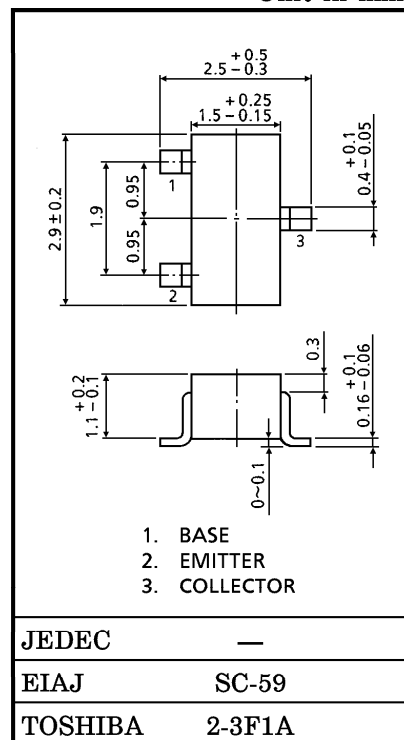
UHF~C BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

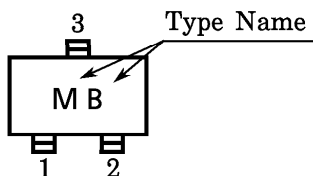
- Low Noise Figure
- $NF = 2.5dB, |S_{21e}|^2 = 14.5dB (f = 500MHz)$
- $NF = 3.0dB, |S_{21e}|^2 = 9.0dB (f = 1GHz)$

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	20	V
Emitter-Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	50	mA
Base Current	I <sub>B</sub>	25	mA
Collector Power Dissipation	P <sub>C</sub>	150	mW
Junction Temperature	T <sub>j</sub>	125	°C
Storage Temperature Range	T <sub>stg</sub>	-55~125	°C



Marking



Weight : 0.012g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	—	3.5	—	GHz
Insertion Gain	S <sub>21e</sub>   <sup>2</sup> (1)	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 500MHz	—	14.5	—	dB
	S <sub>21e</sub>   <sup>2</sup> (2)	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 1GHz	—	9	—	dB
Noise Figure	NF (1)	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA, f = 500MHz	—	2.5	—	dB
	NF (2)	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA, f = 1GHz	—	3	—	dB

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0	—	—	1	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 1V, I <sub>C</sub> = 0	—	—	1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	30	80	300	—
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0,	—	1.15	—	pF
Reverse Transfer Capacitance	C <sub>re</sub>	f = 1MHz (Note)	—	0.75	—	pF

(Note) C<sub>re</sub> is measured by 3-terminal method with Capacitance Bridge.

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