

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5091FT

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

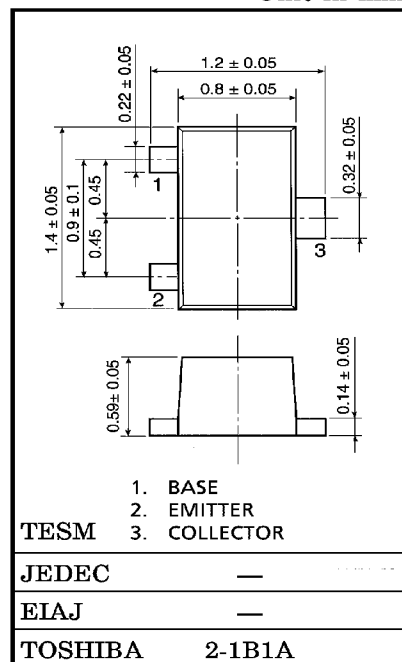
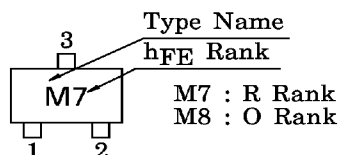
Unit in mm

- Low Noise Figure, High Gain.
- $NF=1.1dB$, $|S_{21e}|^2=7dB$ ($f=1GHz$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	8	V
Emitter-Base Voltage	V_{EBO}	1.5	V
Base Current	I_B	20	mA
Collector Current	I_C	40	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^\circ C$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ C$

MARKING

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE}=8V, I_C=20mA$	7	10	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE}=8V, I_C=20mA, f=1GHz$	10	13	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE}=8V, I_C=20mA, f=2GHz$	—	7	—	
Noise Figure	NF (1)	$V_{CE}=8V, I_C=5mA, f=1GHz$	—	1.1	2.5	dB
	NF (2)	$V_{CE}=8V, I_C=5mA, f=2GHz$	—	1.7	—	

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

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)	$V_{CE}=8V, I_C=20mA$	50	—	160	—
Output Capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$	—	0.7	—	pF
Reverse Transfer Capacitance	C_{re}		—	0.5	0.95	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.

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