

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5091FT

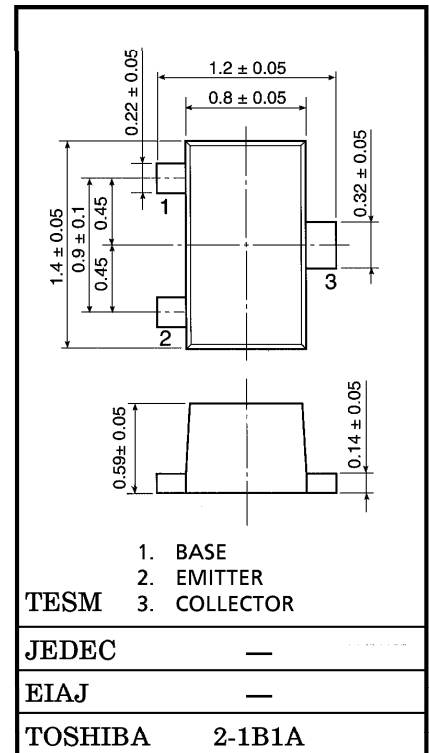
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

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

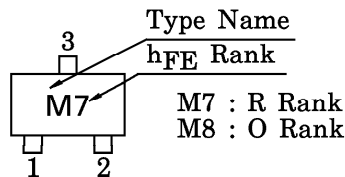
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	8	V
Emitter-Base Voltage	$V_{EB0}$	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	$T_{stg}$	-55~125	$^\circ C$



Weight : 0.0022g

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	—	

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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	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=1V, I_C=0$	—	—	1	$\mu A$
DC Current Gain	$h_{FE}$ (Note 1)	$V_{CE}=8V, I_C=20mA$	50	—	160	—
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$ (Note 2)	—	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.