

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC5086FT

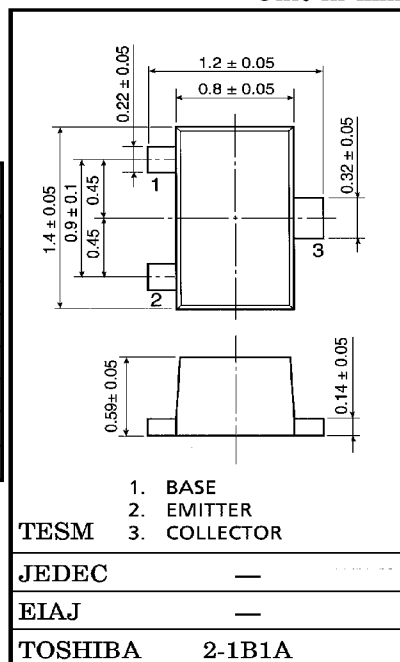
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

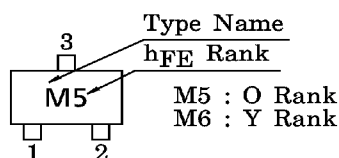
- Low Noise Figure, High Gain.
- $NF=1.1\text{dB}$, $|S_{21e}|^2=11\text{dB}$ ($f=1\text{GHz}$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	20	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter-Base Voltage	V_{EB0}	3	V
Base Current	I_B	40	mA
Collector Current	I_C	80	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$



MARKING

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$	5	7	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$, $f=500\text{MHz}$	—	16.5	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$, $f=1\text{GHz}$	7.5	11	—	
Noise Figure	NF (1)	$V_{CE}=10\text{V}$, $I_C=5\text{mA}$, $f=500\text{MHz}$	—	1	—	dB
	NF (2)	$V_{CE}=10\text{V}$, $I_C=5\text{mA}$, $f=1\text{GHz}$	—	1.1	2	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=10\text{V}$, $I_E=0$	—	—	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=1\text{V}$, $I_C=0$	—	—	1	μA
DC Current Gain	h_{FE} (Note 1)	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$	80	—	240	—
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$	—	1.0	—	pF
Reverse Transfer Capacitance	C_{re}	(Note 2)	—	0.65	1.15	pF

(Note 1) : h_{FE} Classification O : 80~160, Y : 120~240(Note 2) : C_{re} is measured by 3 terminal method with capacitance bridge.

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1998-08-04 1/1