

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5086FT

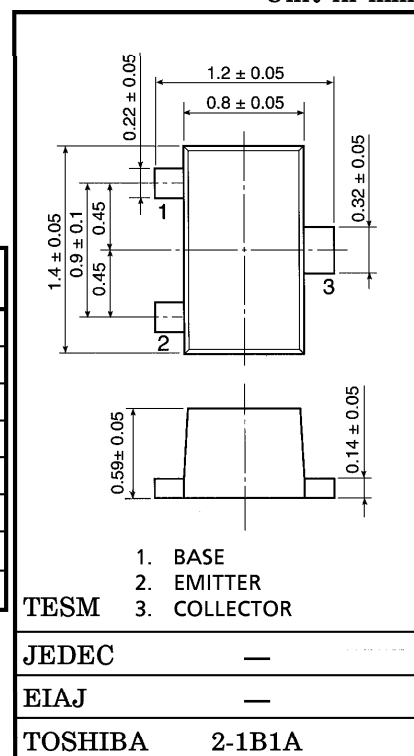
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

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

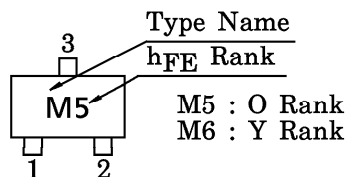
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

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	$T_{stg}$	-55~125	$^\circ\text{C}$



Weight : 0.0022g

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	

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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)	$V_{CE}=10V, I_C=20mA$	80	—	240	—
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$ (Note 2)	—	1.0	—	pF
Reverse Transfer Capacitance	$C_{re}$		—	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.