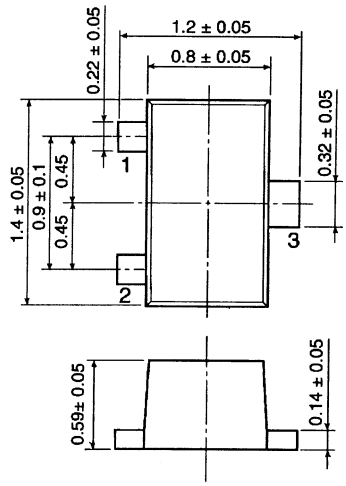
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC5317FT

VHF~UHF Band Low Noise Amplifier Applications
(chip: f_T = 16 GHz series)

- Low noise figure: NF = 1.3dB (f = 2 GHz)
- High gain: $|S_{21e}|^2$ = 9dB (f = 2 GHz)

Unit: mm



1. BASE
2. EMITTER
3. COLLECTOR

TESM

JEDEC	—
JEITA	—
TOSHIBA	2-1B1A

Weight: 0.0022 g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	8	V
Collector-emitter voltage	V_{CEO}	5	V
Emitter-base voltage	V_{EBO}	1.5	V
Collector current	I_C	20	mA
Base current	I_B	10	mA
Collector power dissipation	P_C	100	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	V_{CE} = 3 V, I_C = 15 mA	9	—	—	GHz
Insertion gain	$\|S_{21e}\|^2$ (1)	V_{CE} = 3 V, I_C = 15 mA, f = 1 GHz	12	15	—	dB
	$\|S_{21e}\|^2$ (2)	V_{CE} = 3 V, I_C = 15 mA, f = 2 GHz	6	9	—	
Noise figure	NF (1)	V_{CE} = 3 V, I_C = 5 mA, f = 1 GHz	—	0.9	1.8	dB
	NF (2)	V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz	—	1.3	2.2	

Electrical Characteristics (Ta = 25°C)

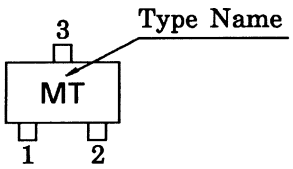
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 8 V, I_E = 0	—	—	1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 1 V, I_C = 0	—	—	1	μA
DC current gain	h_{FE}	V_{CE} = 3 V, I_C = 15 mA	50	—	250	
Output capacitance	C_{ob}	V_{CB} = 2.5 V, I_E = 0, f = 1 MHz (Note)	—	0.6	—	pF
Reverse transfer capacitance	C_{re}		—	0.4	0.85	pF

Note: C_{re} is measured by 3 terminal method with capacitance bridge.

Caution

This device electrostatic sensitivity. Please handle with caution.

Marking



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