

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

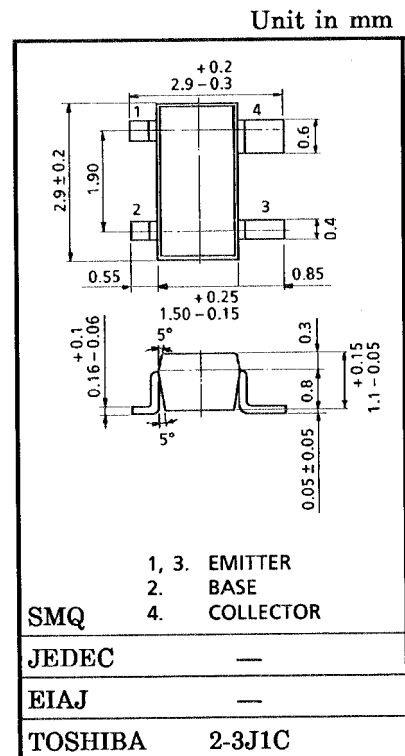
## MT4S07

VHF~UHF Band Low Noise Amplifier Applications

- Low Noise Figure:  $NF = 1.5\text{dB}$   
( $V_{CE} = 3\text{ V}$ ,  $I_C = 5\text{ mA}$ ,  $f = 2\text{ GHz}$ )
- High Gain:  $|S_{21e}|^2 = 9.5\text{dB}$   
( $V_{CE} = 3\text{ V}$ ,  $I_C = 15\text{ mA}$ ,  $f = 2\text{ GHz}$ )

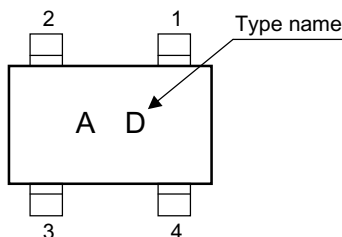
### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

項目	記号	定格	単位
Collector-base voltage	$V_{CBO}$	10	V
Collector-emitter voltage	$V_{CEO}$	5	V
Emitter-base voltage	$V_{EBO}$	1.5	V
Collector current	$I_C$	25	mA
Base current	$I_B$	10	mA
Collector power dissipation	$P_C$	150	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$



Weight : 0.012 g

### Marking



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**Microwave Characteristics (Ta = 25°C)**

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	$f_T$	$V_{CE} = 3 \text{ V}, I_C = 10 \text{ mA}$	10	12	—	GHz
Insertion gain	$ S_{21e} ^2(1)$	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}, f = 2 \text{ GHz}$	—	8	—	dB
	$ S_{21e} ^2(2)$	$V_{CE} = 3 \text{ V}, I_C = 15 \text{ mA}, f = 2 \text{ GHz}$	7.5	10.5	—	
Noise figure	NF(1)	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}, f = 2 \text{ GHz}$	—	1.6	3	dB
	NF(2)	$V_{CE} = 3 \text{ V}, I_C = 5 \text{ mA}, f = 2 \text{ GHz}$	—	1.5	3	

**Electrical Characteristics (Ta = 25°C)**

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 5 \text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 1 \text{ V}, I_C = 0$	—	—	1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}$	70	—	140	—
Reverse transfer capacitance	$C_{re}$	$V_{CB} = 1 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ (Note)	—	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