TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

MT4S07

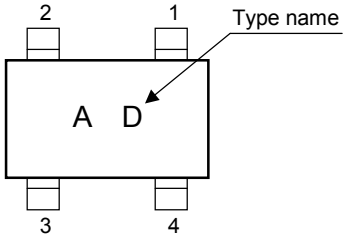
VHF~UHF Band Low Noise Amplifier Applications

- Low Noise Figure: NF = 1.5dB
  (V_{CE} = 3 V, I_C = 5 mA, f = 2 GHz)
- High Gain: $|S21e|^2$ = 9.5dB
  (V_{CE} = 3 V, I_C = 15 mA, f = 2 GHz)

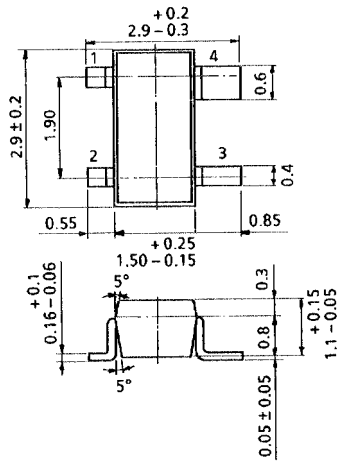
Maximum Ratings (Ta = 25°C)

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	Tj	125	°C
Storage temperature range	Tstg	−55~125	°C

Marking



Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-3J1C

Weight: 0.012 g (typ.)

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	V_{CE} = 3 V, I_C = 10 mA	10	12	—	GHz
Insertion gain	$\|S21e\|^2$(1)	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	8	—	dB
	$\|S21e\|^2$(2)	V_{CE} = 3 V, I_C = 15 mA, f = 2 GHz	7.5	10.5	—	
Noise figure	NF(1)	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	1.6	3	dB
	NF(2)	V_{CE} = 3 V, I_C = 5 mA, f = 2 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 V, I_E = 0	—	—	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} = 1 V, I_C = 5 mA	70	—	140	—
Reverse transfer capacitance	C_{re}	V_{CB} = 1 V, I_E = 0, f = 1 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

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