

Preliminary

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

MT6L61AS

VHF-UHF Band Low Noise Amplifier Application

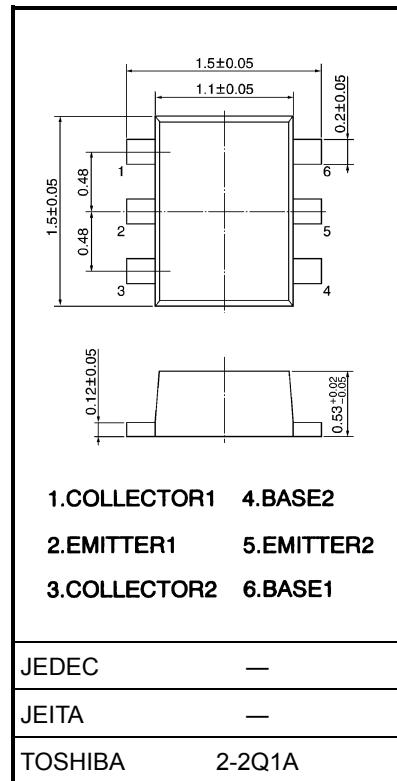
VHF-UHF Band Oscillator Application

Unit: mm

- Two devices are built into the sES6 package, which is smaller and thinner than the super-thin and ultra-super mini (6-pin) ES6 package.

Mounted Devices

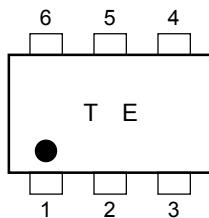
	Q1	Q2
Three pin SSM type part No.	MT3S07S	MT3S04AS



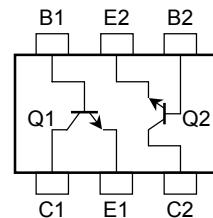
Weight: 2.1 mg

Note 1: Total power dissipation of Q1 and Q2 mounted on the circuit board.

Marking



Pin Assignment



Electrical Characteristics Q1-Side (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	—	
Transition frequency	f _T	V _{CE} = 3 V, I _C = 10 mA	10	12	—	GHz	
Insertion gain	S _{21e} ² (1)	V _{CE} = 1 V, I _C = 5 mA, f = 2 GHz	—	6.5	—	dB	
	S _{21e} ² (2)	V _{CE} = 3 V, I _C = 15 mA, f = 2 GHz	4	7	—		
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		
Reverse transfer capacitance	C _{re}	V _{CB} = 1 V, I _E = 0, f = 1 MHz	(Note 2)		0.45	0.85	pF

Electrical Characteristics Q2-Side (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	80	—	160	—	
Transition frequency	f _T (1)	V _{CE} = 1 V, I _C = 5 mA	2	5	—	GHz	
	f _T (2)	V _{CE} = 3 V, I _C = 7 mA	5	7	—		
Insertion gain	S _{21e} ² (1)	V _{CE} = 1 V, I _C = 5 mA, f = 1 GHz	—	8.5	—	dB	
	S _{21e} ² (2)	V _{CE} = 3 V, I _C = 20 mA, f = 1 GHz	7.5	11	—		
Noise figure	NF (1)	V _{CE} = 1 V, I _C = 5 mA, f = 1 GHz	—	1.3	2.2	dB	
	NF (2)	V _{CE} = 3 V, I _C = 7 mA, f = 1 GHz	—	1.2	2		
Reverse transfer capacitance	C _{re}	V _{CB} = 1 V, I _E = 0, f = 1 MHz	(Note 2)		0.9	1.25	pF

Note 2: C_{re} is measured by 3 terminal method with capacitance bridge.

Handling Precaution

When handling individual devices (which are not yet mounted on a circuit board), be sure that the environment is protected against electrostatic electricity. Operators should wear anti-static clothing, and containers and other objects that come into direct contact with devices should be made of anti-static materials.

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