TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

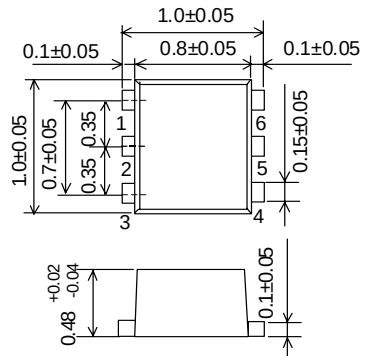
MT6L11FS

VHF~UHF Band Low-Noise Amplifier Applications

Two devices are incorporated in a fine-pitch, small-mold package (6 pins): fS6.

- Superior noise characteristics
- Superior performance in buffer and oscillator applications.
- Lead (Pb)-free.

Unit: mm



1. Collector1 (C1)
2. Emitter1 (E1)
3. Collector2 (C2)
4. Base2 (B2)
5. Emitter2 (E2)
6. Base1 (B1)

fS6

JEDEC	―
JEIAJ	―
Toshiba	2-1F1A

Weight: 0.001g (typ.)

Mounted Devices

	Q1/Q2
Corresponding three-pin products:TESM(fSM) mold products	MT3S11T (MT3S11FS)

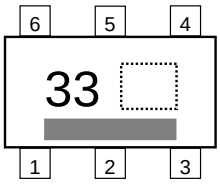
Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector- base voltage	V_{CBO}	13	V
Collector- emitter voltage	V_{CEO}	6	V
Emitter- base voltage	V_{EBO}	1	V
Collector current	I_C	40	mA
Base current	I_B	10	mA
Collector power dissipation	P_C(Note 1)	100	mW
		110 (Note 2)	
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

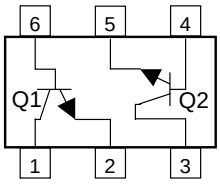
Note 1: 10 mm^2 × 1.0 mm (t), mounted on a glass-epoxy printed circuit board.

Note 2: During two-element operation

Marking (top view)



Pin Assignment (top view)



Electrical Characteristics Q1/Q2 (Ta = 25°C)

Characteristic	Symbol	Condition	Min	Typ.	Max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 5 V, I_E = 0	—	—	0.1	μA
Emitter cutoff 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	100	—	160	
Reverse transfer capacitance	C_{re} (Note)	V_{CB} = 1 V, I_E = 0, f = 1 MHz	—	0.65	0.9	pF
Transition frequency	f_T	V_{CE} = 1 V, I_C = 5 mA	4	6	—	GHz
Insertion gain	$\lvert S_{21e}\rvert^2$ (1)	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	3.5	—	dB
	$\lvert S_{21e}\rvert^2$ (2)	V_{CE} = 3 V, I_C = 20 mA, f = 2 GHz	4	6.5	—	
Noise figure	NF	V_{CE} = 1 V, I_C = 5 mA, f = 2 GHz	—	2.4	3.2	dB

Note: C_{re} is measured with a three-terminal method using a capacitance bridge.

Caution

This device is sensitive to electrostatic discharge. Ensure that tools and equipment are sufficiently grounded before handling. When handling individual devices (which are not yet mounted on a circuit board), ensure that the environment is protected against electrostatic discharge. Operators should wear antistatic clothing, and containers and other objects that come into direct contact with devices should be made of antistatic materials.

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