

MT6L54E

VHF-UHF Band Low Noise Amplifier Application

VHF-UHF Band Oscillator Application

- Two devices are built in to the super-thin and ultra super mini (6 pin) package: ES6

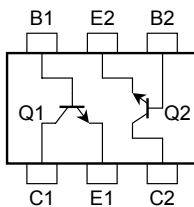
	Q1: SSM (TESM)	Q2: TESM
Three pin (SSM/TESM) type part No.	MT3S06S (MT3S06T)	MT3S08T

Maximum Ratings (Ta = 25°C)

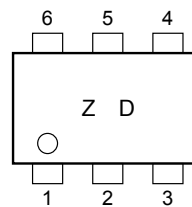
Characteristics	Symbol	Q1	Q2	Unit
Collector-base voltage	V_{CBO}	10	20	V
Collector-emitter voltage	V_{CEO}	5	8	V
Emitter-base voltage	V_{EBO}	1.5	1.5	V
Collector current	I_C	15	40	mA
Base current	I_B	7	10	mA
Collector power dissipation	P_C (Note 1)	100		mW
Junction temperature	T_j	125		°C
Storage temperature range	T_{stg}	-55 to 125		°C

Note 1: Total power dissipation of Q1 and Q2

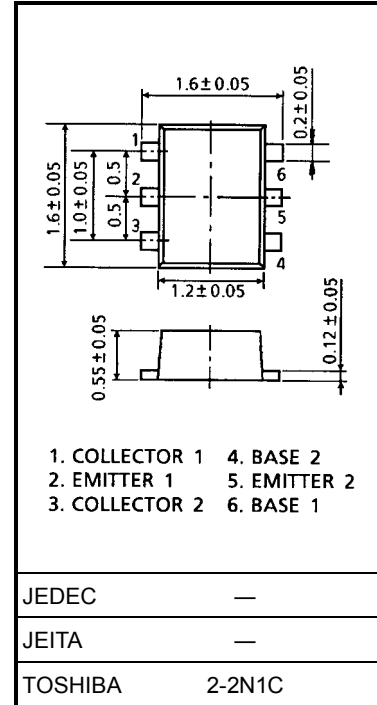
Pin Assignment



Marking



Unit: mm



Weight: 0.003 g (typ.)

Electrical Characteristics Q1-Side (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	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 1\text{ V}, I_C = 0$	—	—	1	μA
DC current gain	h_{FE}	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$	70	—	140	—
Transition frequency	f_T	$V_{CE} = 3\text{ V}, I_C = 5\text{ mA}$	7	10	—	GHz
Insertion gain	$ S_{21e} ^2 (1)$	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$	—	7.5	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 3\text{ V}, I_C = 7\text{ mA}, f = 2\text{ GHz}$	4.5	8	—	
Noise figure	NF (1)	$V_{CE} = 1\text{ V}, I_C = 3\text{ mA}, f = 2\text{ GHz}$	—	1.7	3	dB
	NF (2)	$V_{CE} = 3\text{ V}, I_C = 3\text{ mA}, f = 2\text{ GHz}$	—	1.6	3	
Reverse transfer capacitance	C_{re}	$V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.35	0.75	pF

Electrical Characteristics Q2-Side (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 10\text{ V}, I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 1\text{ V}, I_C = 0$	—	—	1	μA
DC current gain	h_{FE}	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$	80	—	140	—
Transition frequency	f_T	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$	2	4.5	—	GHz
Insertion gain	$ S_{21e} ^2 (1)$	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 1\text{ GHz}$	—	9.5	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 3\text{ V}, I_C = 20\text{ mA}, f = 1\text{ GHz}$	9.5	12.5	—	
Noise figure	NF	$V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 1\text{ GHz}$	—	1.4	2.5	dB
Reverse transfer capacitance	C_{re}	$V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.55	0.95	pF

Caution

This device electrostatic sensitivity. Please handle with caution.

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