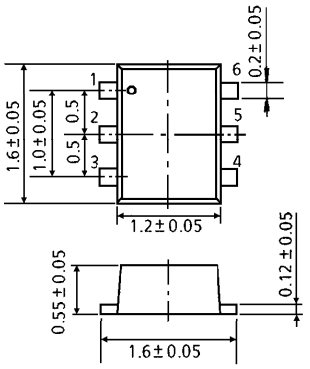
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT6L50AE

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

- TWO devices are built in to the super-thin and extreme super mini (6 pins) package : ES6



1. COLLECTOR 1	4. BASE 2
2. EMITTER 1	5. EMITTER 2
3. COLLECTOR 2	6. BASE 1
JEDEC	—
EIAJ	—
TOSHIBA	2-2N1C

MOUNTED DEVICES

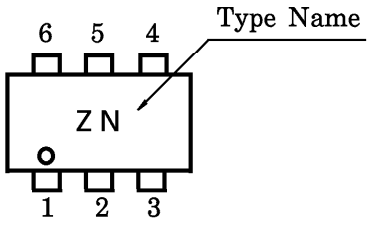
	Q1 : SSM (TESM)	Q2 : SSM (TESM)
Three-pins (SSM / TESM) mold products are corresponded.	2SC5256 (5256FT)	MT3S04AS (MT3S04AT)

MAXIMUM RATINGS (Ta = 25°C)

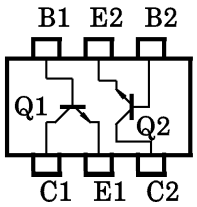
CHARACTERISTIC	SYMBOL	Q1	Q2	UNIT
Collector-Base Voltage	V_{CBO}	15	10	V
Collector-Emitter Voltage	V_{CEO}	7	5	V
Emitter-Base Voltage	V_{EBO}	1.5	2	V
Collector Current	I_C	40	40	mA
Base Current	I_B	20	10	mA
Collector Power Dissipation	P_C (Note 1)	100		mW
Junction Temperature	T_j	125		°C
Storage Temperature Range	T_{stg}	−55~125		°C

(Note 1) : Total power dissipation of Q1 and Q2.

MARKING



PIN ASSIGNMENT (TOP VIEW)



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ELECTRICAL CHARACTERISTICS Q1 (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 10 V, I_E = 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} = 5 V, I_C = 20 mA	50	—	160	—
Transition Frequency	f_T	V_{CE} = 5 V, I_C = 20 mA	10	12	—	GHz
Insertion Gain	$\|S_{21e}\|^2$	V_{CE} = 5 V, I_C = 20 mA, f = 2000 MHz	5	7.8	—	dB
Noise Figure	NF	V_{CE} = 5 V, I_C = 5 mA, f = 2000 MHz	—	1.5	3	dB
Reverse Transfer Capacitance	C_{re}	V_{CB} = 5 V, I_E = 0, f = 1 MHz (Note 2)	—	0.5	0.95	pF

ELECTRICAL CHARACTERISTICS Q2 (Ta = 25°C)

CHARACTERISTIC	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	4.5	—	GHz
	f_T (2)	V_{CE} = 3 V, I_C = 7 mA	5	7	—	GHz
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	—	dB
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	dB
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.