

MT3S108FS

VCO OSCILLETOR STAGE

VHF-SHF Low Noise Amplifier Application

FEATURES

- Low Noise Figure :NF=0.9dB (@f=2GHz)
- High Gain:|S_{21e}|²=11.5dB (@f=2GHz)

Marking



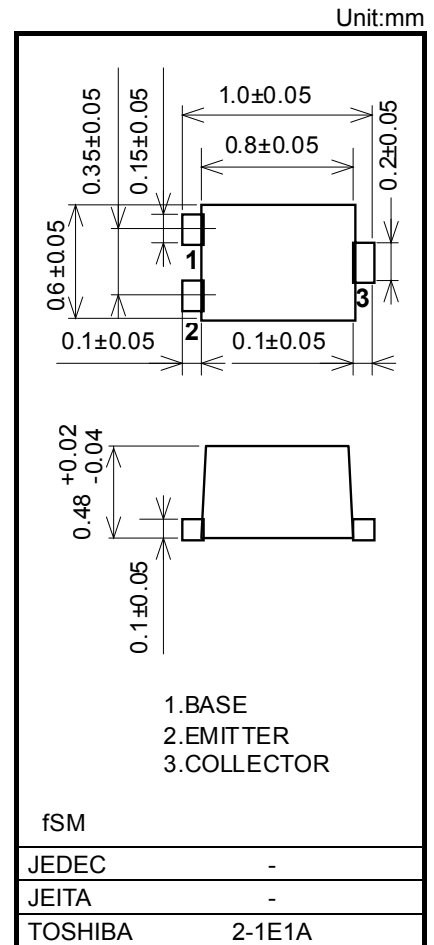
Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V _{CBO}	10	V
Collector-Emitter voltage	V _{CEO}	4.5	V
Emitter-Base voltage	V _{EBO}	1.5	V
Collector-Current	I _C	25	mA
Base-Current	I _B	12.5	mA
Collector Power dissipation	P _C (Note 1)	100	mW
Junction temperature	T _j	150	°C
Storage temperature Range	T _{stg}	-55~150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Device mounted on a glass-epoxy PCB(1.0 cm² x 1.0 mm (t))



Weight: 0.0006 g

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	f_T	$V_{CE}=1V, I_C=10mA$	10.5	13	-	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE}=1V, I_C=5mA, f=2GHz$	-	9	-	dB
	$ S_{21e} ^2(2)$	$V_{CE}=3V, I_C=10mA, f=2GHz$	9.5	11.5	-	dB
Noise Figure	NF	$V_{CE}=1V, I_C=7mA, f=2GHz$	-	0.9	1.5	dB

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	I_{CBO}	$V_{CB}=5V, I_E=0$	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=1V, I_C=0$	-	-	0.5	μA
DC Current Gain	hFE	$V_{CE}=1V, I_C=5mA$	75	-	125	-
Reverse Transistor Capacitance	C_{re}	$V_{CB}=1V, I_E=0, f=1MHz$ (Note 1)	-	0.3	0.45	pF

Note 1: C_{re} is measured by 3 terminal method with capacitance Bridge.

Caution:

This device is sensitive to electrostatic discharge due to applied the high frequency transistor process of $f_T=60GHz$ class is used for this product.

Please make enough tool and equipment earthed when you handle.

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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