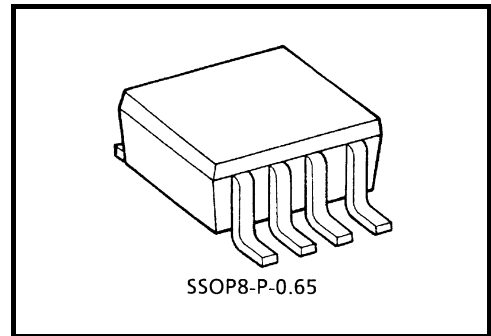


# TA4107F

1 GHz Band Down Converter Application  
 CATV Analog/Digital Tuner  
 Terrestrial Digital TV Tuner

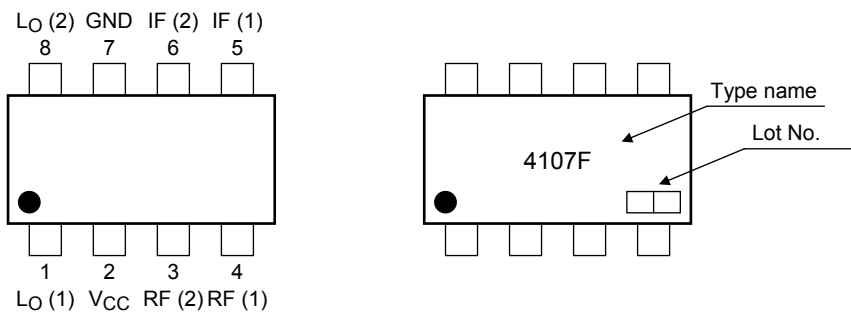
## Features

- Low distortion at high RF signal input (IIP3): +13dBmW
- Performance at low Lo signal input: -5dBmW
- Double balanced Mix circuit
- Small package: SM8 (2.9 × 4.0)
- Recommended operating voltage:  $V_{CC} = 4.25\sim 4.75$  V



Weight: 0.021 g (typ.)

## Pin Connection, Marking



## Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5.5	V
Power dissipation	$P_D$ (note 1)	375	mW
Operating temperature range	$T_{opr}$	-40~85	°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 and the operating ranges.

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: When mounted the glass epoxy board of 2.5 cm2 × 1.6 t

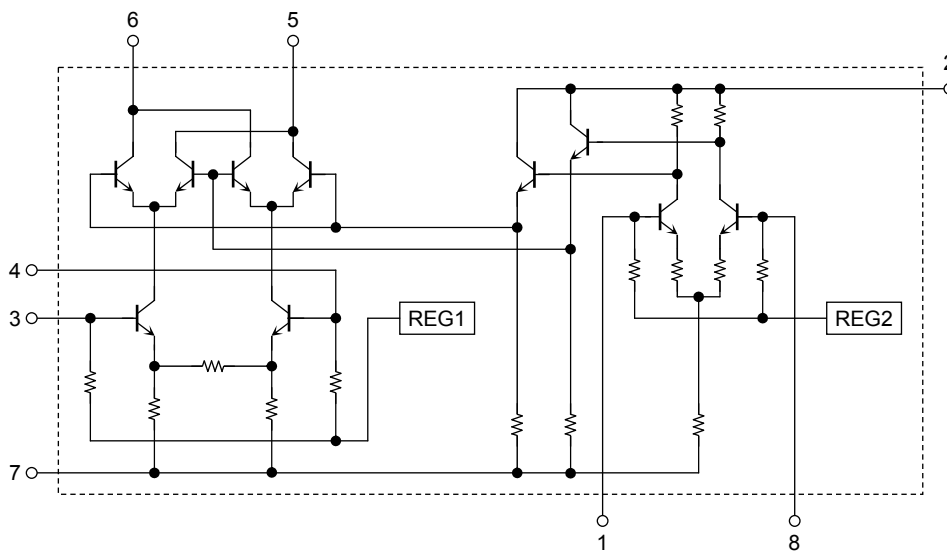
## Caution

This device is electrostatic sensitivity. Please handle with caution.

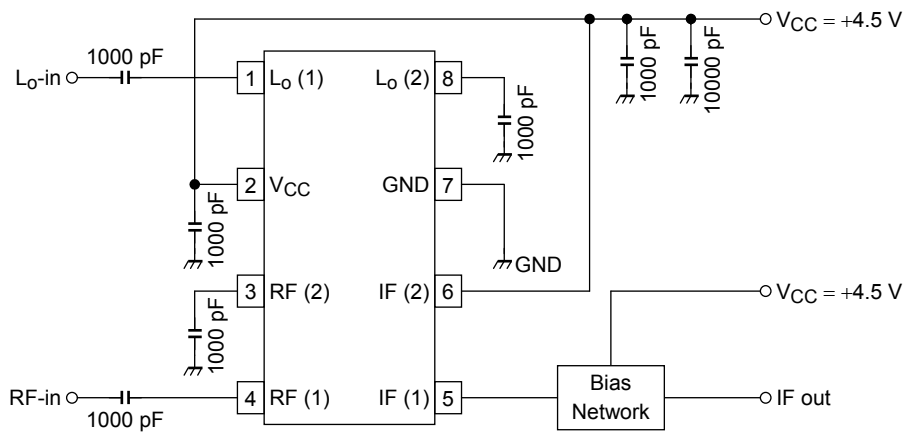
**Electrical Characteristics ( $V_{CC} = 4.5\text{ V}$ ,  $T_a = 25^\circ\text{C}$ ,  $Z_g = Z_l = 50\ \Omega$ )**

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Circuit current	$I_{CC}$	non carrier	22.5	29.5	40.5	mA
Conversion gain	C. Gain	$R_{Fin} = 1\text{ GHz}/-15\text{dBmW}$ , $L_{oin} = 950\text{ MHz}/-5\text{dBmW}$	-3.5	-0.5	3.5	dB
Input IP3	IIP3	$R_F(1) = 996\text{ MHz}/-15\text{dBmW}$ , $R_F(2) = 1000\text{ MHz}/-15\text{dBmW}$ , $L_{oin} = 950\text{ MHz}/-5\text{dBmW}$	8	12	—	dBmW
Noise figure	NF	$L_{oin} = 950\text{ MHz}/-5\text{dBmW}$ , DSB	—	12	16	dB
RF $\rightarrow$ $L_o$ Leakage power	$P_{RF \rightarrow L_o}$	$R_{Fin} = 1\text{ GHz}/-15\text{dBmW}$	—	-57	—	dBmW
$L_o \rightarrow$ RF Leakage power	$P_{L_o \rightarrow RF}$	$L_{oin} = 950\text{ MHz}/-5\text{dBmW}$	—	-46	—	dBmW

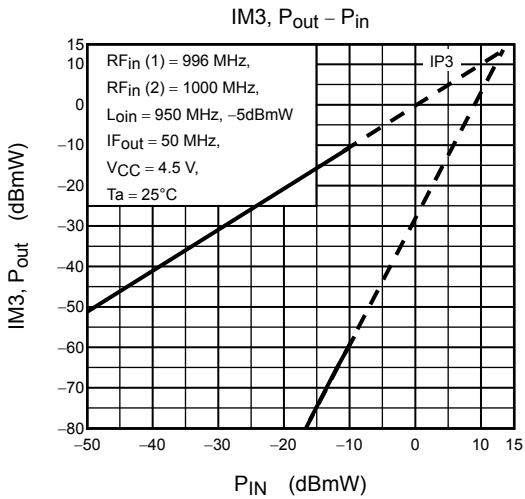
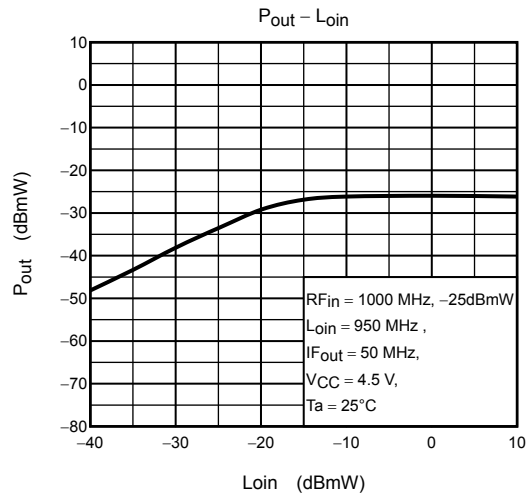
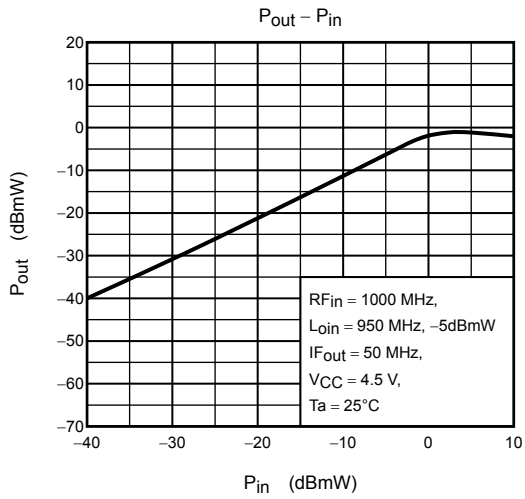
**Equivalent Circuit**



## Test Circuit



Please bias VCC, IF (1) and IF (2) terminals at the same time not to damage.

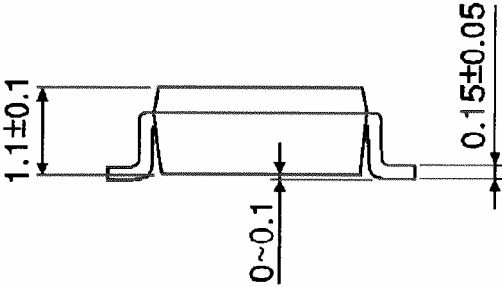
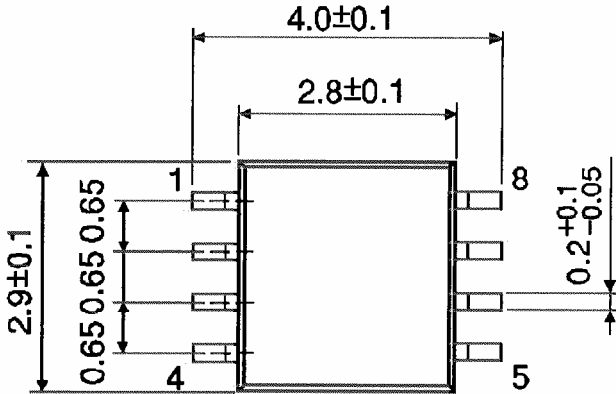




Package Dimensions

SSOP8-P-0.65

Unit : mm



Weight: g (typ.)

**RESTRICTIONS ON PRODUCT USE**

20070701-EN GENERAL

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