

## 280MHz BAND APPLICATION

The characteristics of 280MHz band have evaluated as follows. The evaluation circuit structure and measured data are reviewed.

### 1-1 MEASURED DATA1 (DC)

General conditions:  $V_{DD}=2.7V$ ,  $T_a=+25^{\circ}C$ ,  $Z_s=Z_l=50\Omega$

PARAMETERS	SYMBOL	CONDITIONS	DATA	UNITS
Supply Voltage	$V_{DD}$		2.7	V
Operating Current	$I_{DD}$	RF OFF	3.23	mA

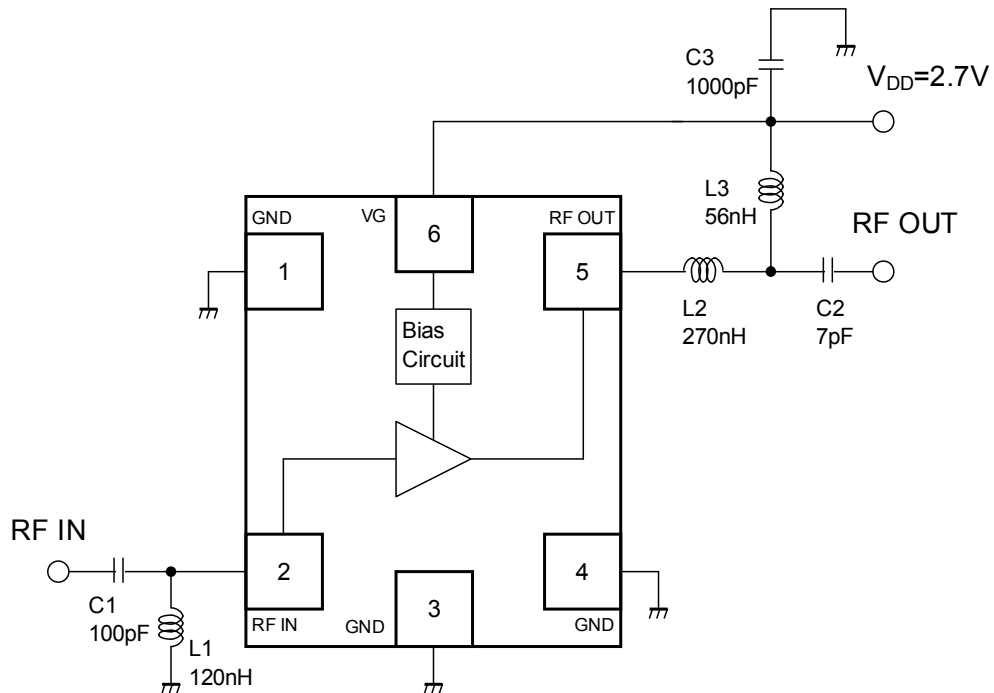
### 1-2 MEASURED DATA2 (RF)

General conditions:  $V_{DD}=2.7V$ ,  $f_{RF}=280MHz$ ,  $T_a=+25^{\circ}C$ ,  $Z_s=Z_l=50\Omega$

PARAMETERS	SYMBOL	CONDITIONS	DATA	UNITS
Frequency	$f_{RF}$		280	MHz
Small Signal Gain	Gain		11.52	dB
Noise Figure	NF	Exclude PCB, Connector Losses (0.025dB)	0.93	dB
Input Power 1dB Compression	P-1dB(IN)		-8.5	dBm
Input 3rd Order Intercept Point	IIP3	$f1=f_{RF}$ , $f2=f_{RF}+100kHz$ , Pin=-28dBm	+4.3	dBm
RF IN VSWR	VSWRi		1.48	-
RF OUT VSWR	VSWRo		1.07	-

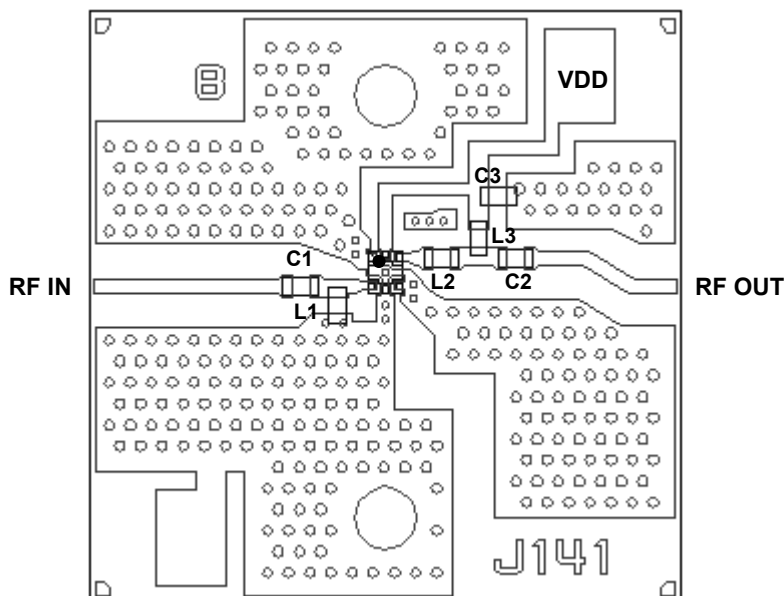
## 1-3 APPLICATION CIRCUIT

Top View



## 1-4 PCB DESIGN

Top View



PARTS LIST

Parts ID	Comment
L1~L3	TAIYO-YUDEN (HK1005 Series)
C1~C3	MURATA (GRM15 Series)

PCB (FR-4) :

t=0.2mm

MICROSTRIP LINE WIDTH

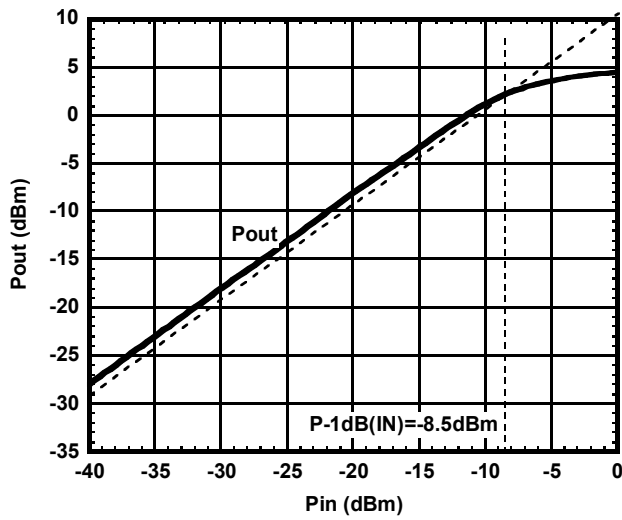
=0.4mm ( $Z_0=50\Omega$ )

PCB SIZE=16.8mm × 16.8mm

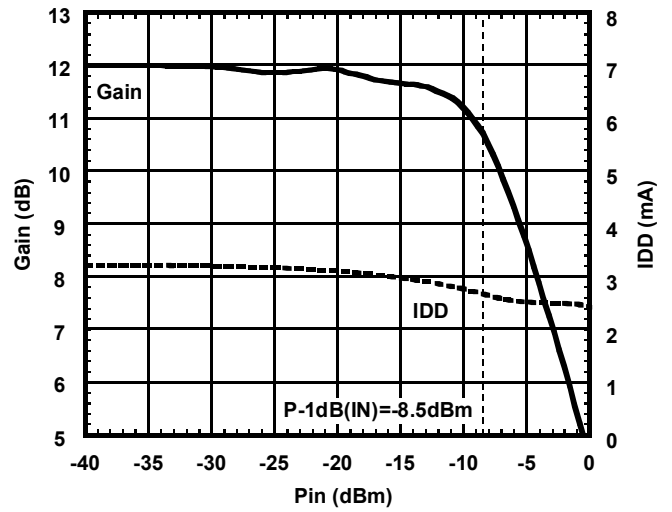
## 1-5-1 CHARACTERISTICS

General conditions:  $V_{DD}=2.7V$ ,  $f_{RF}=280MHz$ ,  $T_a=+25^\circ C$ ,  $Z_s=Z_l=50\Omega$

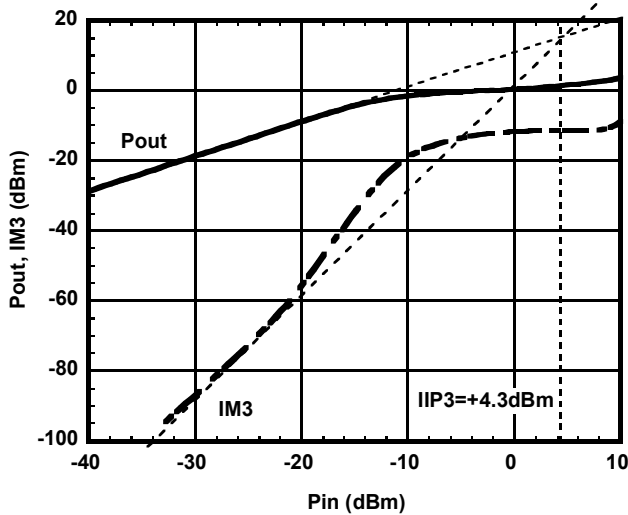
Pout vs. Pin at 280MHz



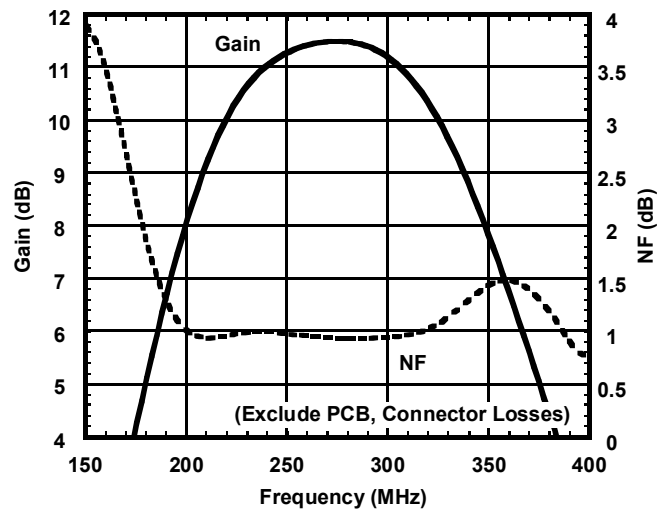
Gain, IDD vs. Pin at 280MHz



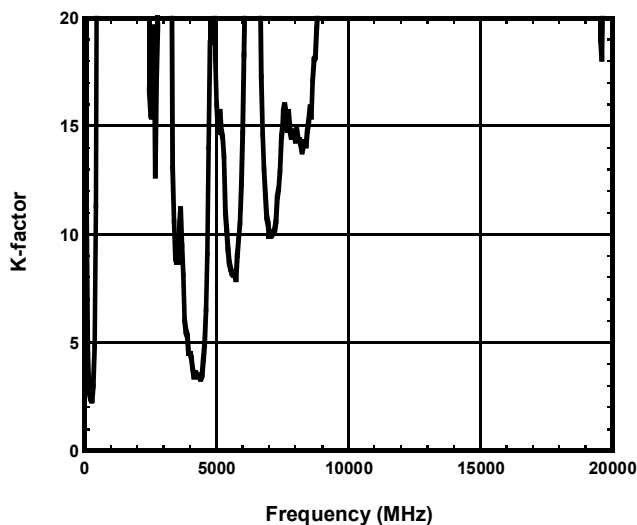
Pout, IM3 vs. Pin at 280MHz



Gain, NF vs. Frequency

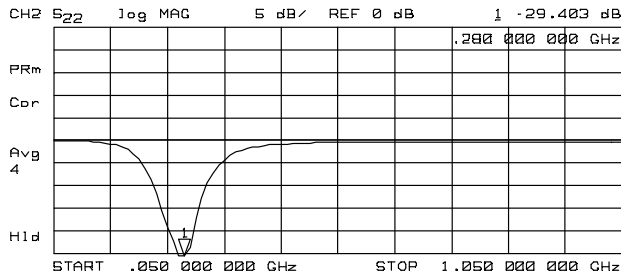
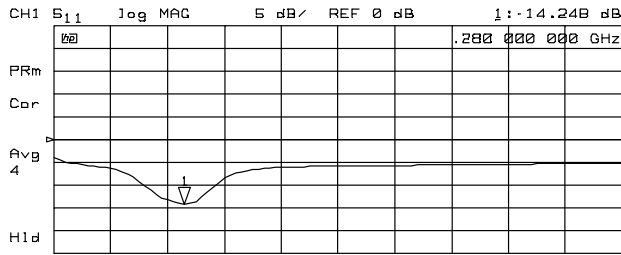


K-factor vs. Frequency

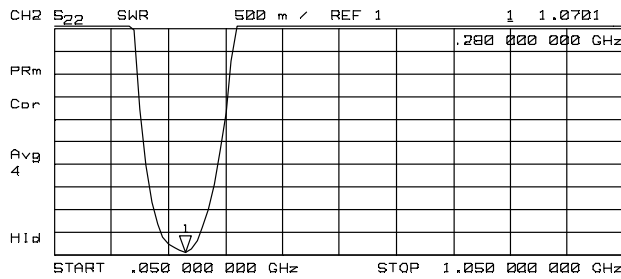
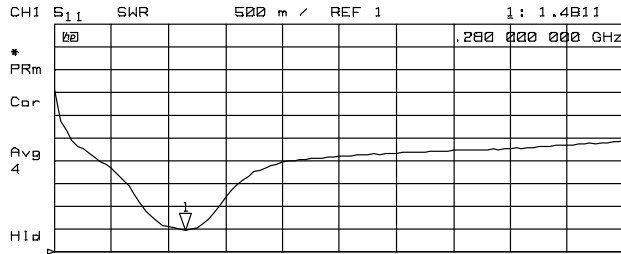


## 1-5-2 CHARACTERISTICS

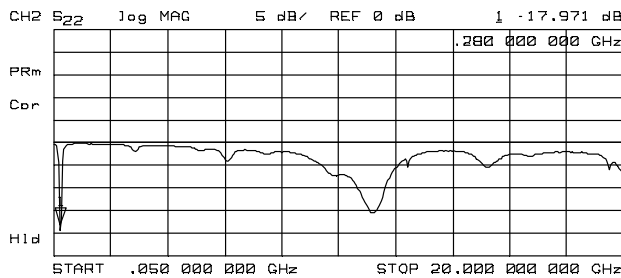
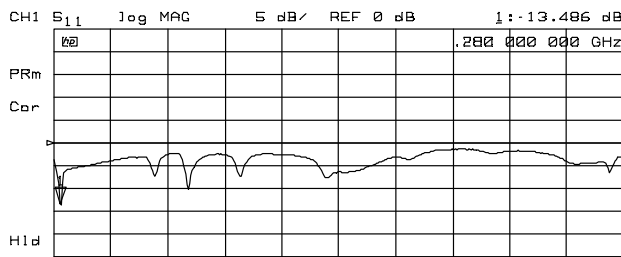
General conditions:  $V_{DD}=2.7V$ ,  $T_a=+25^{\circ}C$ ,  $Z_s=Z_l=50\Omega$



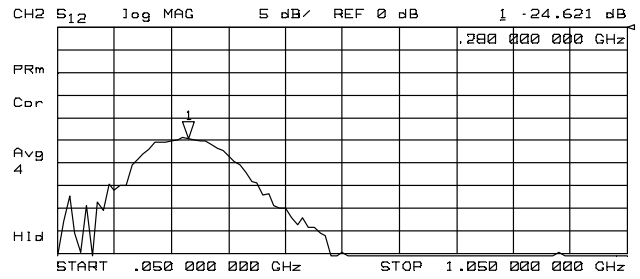
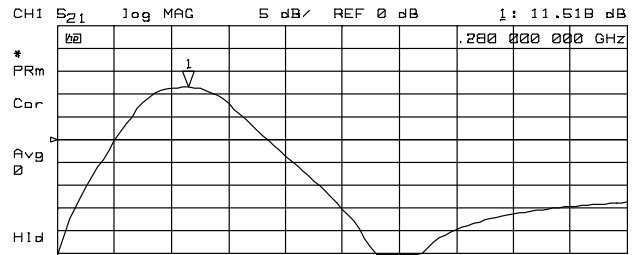
**S<sub>11</sub>, S<sub>22</sub>**



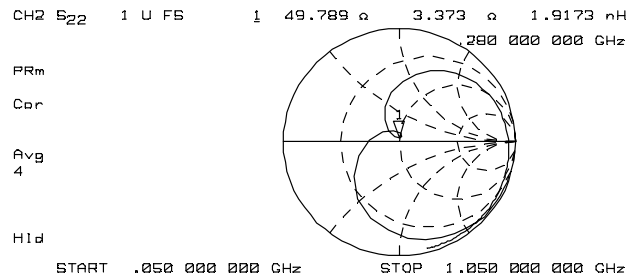
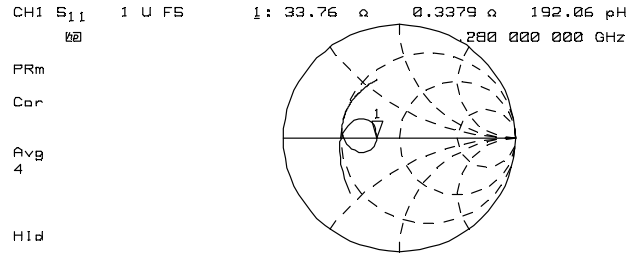
**VSWR**



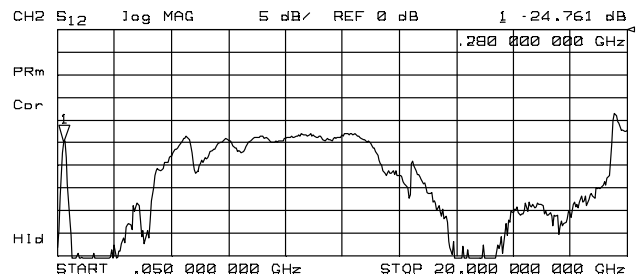
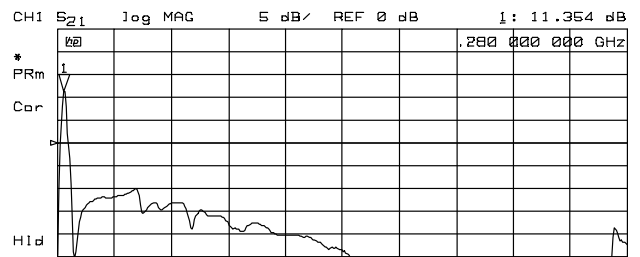
**S<sub>11</sub>, S<sub>22</sub> (~20GHz)**



**S<sub>21</sub>, S<sub>12</sub>**



**Z<sub>in</sub>, Z<sub>out</sub>**



**S<sub>21</sub>, S<sub>12</sub> (~20GHz)**