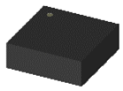
Preliminary

YC502R

Passive Mixer

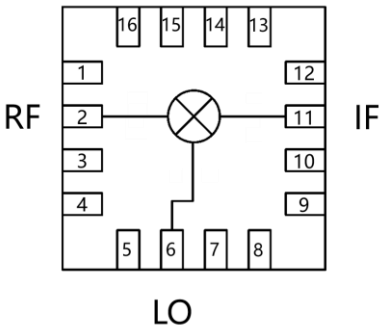


Description

The YC502R is a passive mixer for cellular infrastructure with broad LO drive range of up to 23dBm with GaAs technology.
The mixer is integrated with a matching network at the RF, IF and LO ports. It provides a single-ended interface, eliminating the need for external matching such as RF baluns.

Applications

- Cellular infrastructure
- Base Station Receivers
- Wireless Access Points
- High Dynamic Range Infrastructure System



Features

- Conversion Loss : 7.1 dB @fRF=2600MHz
- LO Drive Level : 10 to 23dBm
- Optimized for 2.6GHz Band
- Single-Ended Interface

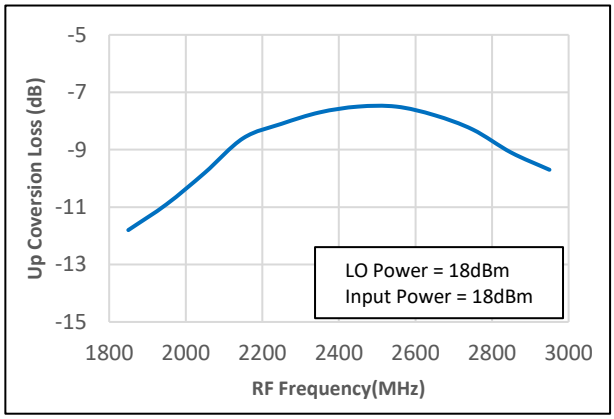
Electrical Specification

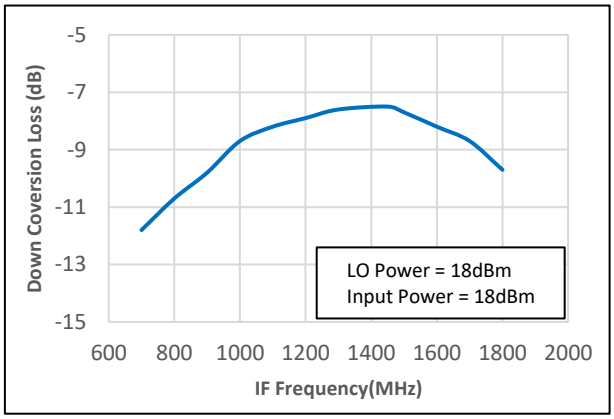
Parameters	Min	Typ	Max	Unit	Test Conditions
RF Frequency Range	1850		2950	MHz	
LO Frequency Range	1150		1150	MHz	Low-Side LO
IF Frequency Range	700		1800	MHz	
Up-Conversion Loss		7.1		dB	fLO = 1150MHz, fIF = 1450MHz, fRF = 2600MHz,
Down-Conversion Loss				dB	LO power = 14dBm, Input Power = 18dBm
LO to RF Isolation		28.9		dB	LO Power = 18dBm, fRF = 2600MHz
LO to IF Isolation		13.2		dB	LO Power = 18dBm, fIF = 1450MHz
IF to RF Isolation		14.4		dB	LO power = 18dBm, fIF = 1450MHz, fRF =2600MHz
ACLR[2], Pout=3dBm	-41		-39	dBc	LO power = 20dBm, fRF = 1850MHz
	-44		-42	dBc	LO power = 20dBm, fRF = 2600MHz
	-43		-41	dBc	LO power = 20dBm, fRF = 3000MHz

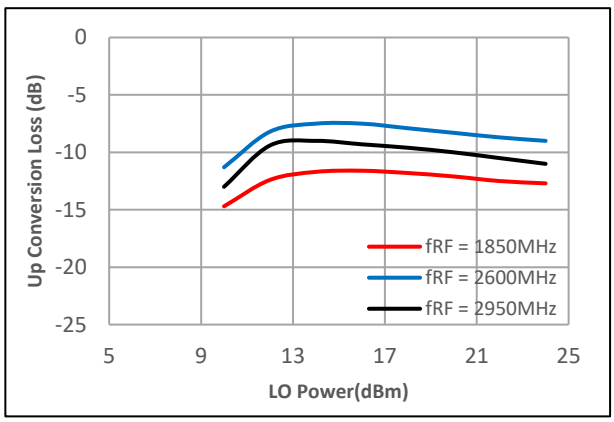
Notes:
1) Test conditions unless otherwise noted : Temp. = 25℃, Z0 = 50Ω.
2) Tested under modulated signal (LTE 100MHz 1c, PAR 8.7dB at 0.01% probability on CCDF)

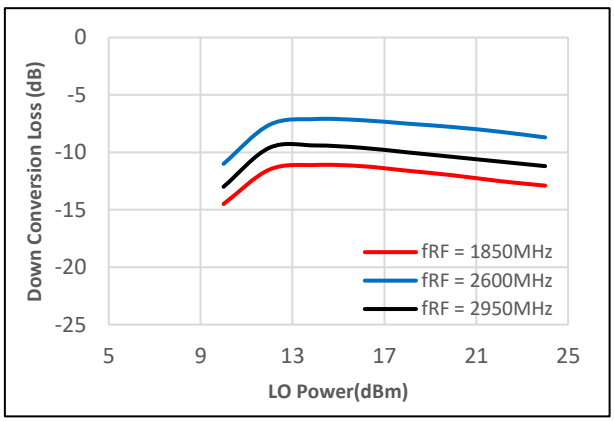
Performance Plots

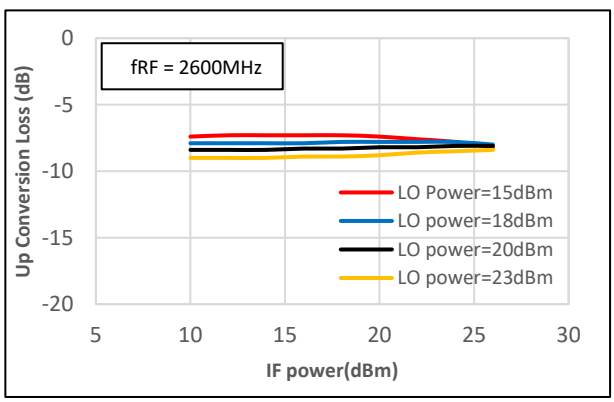
Unless otherwise noted : LSB, fLO = 1150MHz, Input Power = 18dBm @25℃, Z0 = 50Ω.

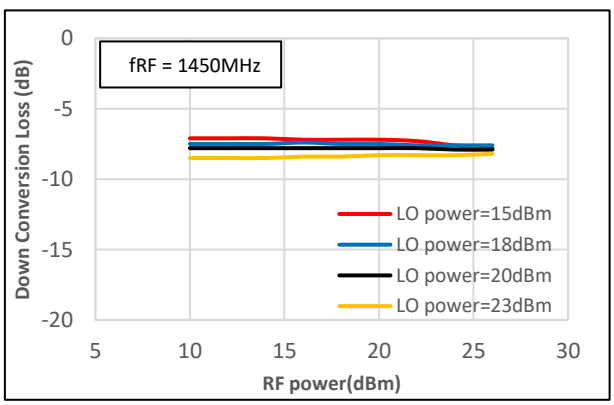






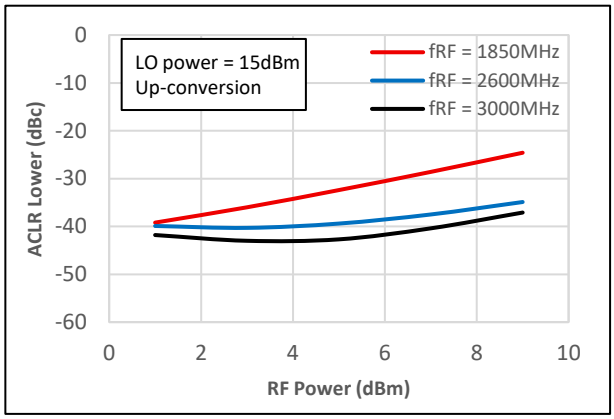


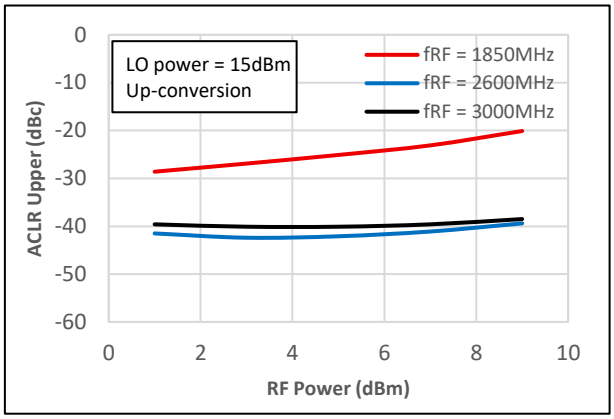


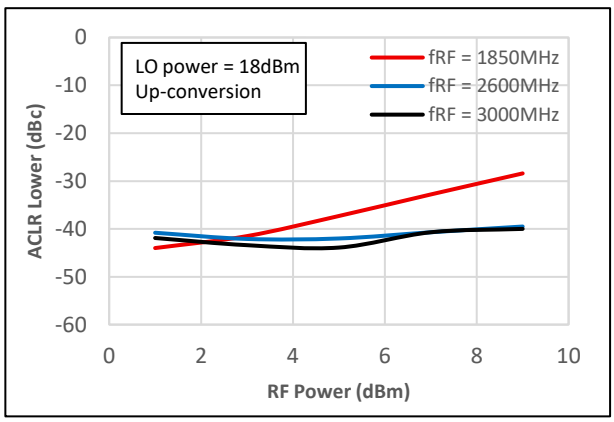


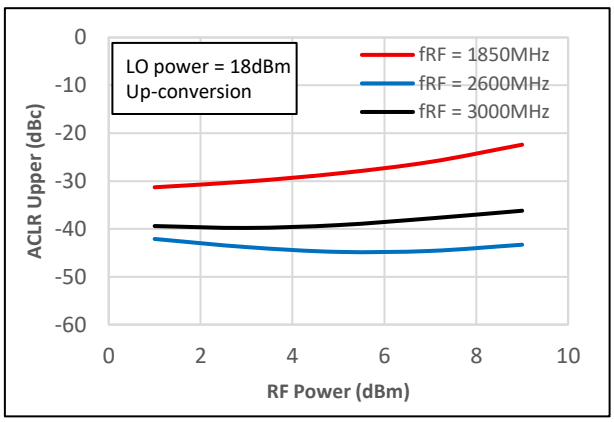
Performance Plots

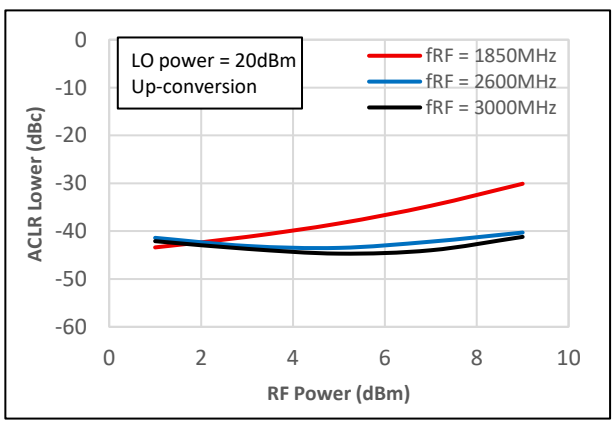
Unless otherwise noted : LSB, fLO = 1150MHz @25℃, Z0 = 50Ω.
Source Signal : LTE 100MHz 1c, PAR 8.7dB at 0.01% probability on CCDF.

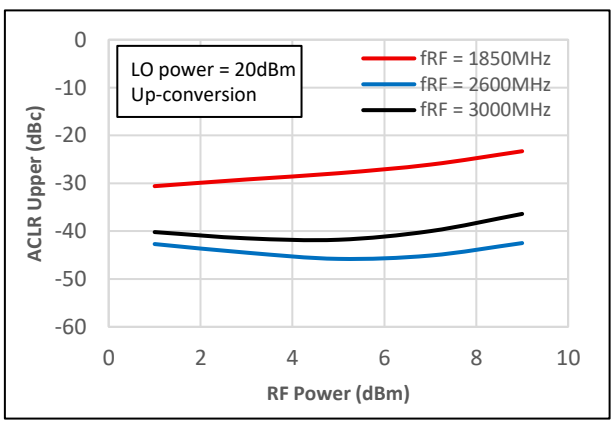






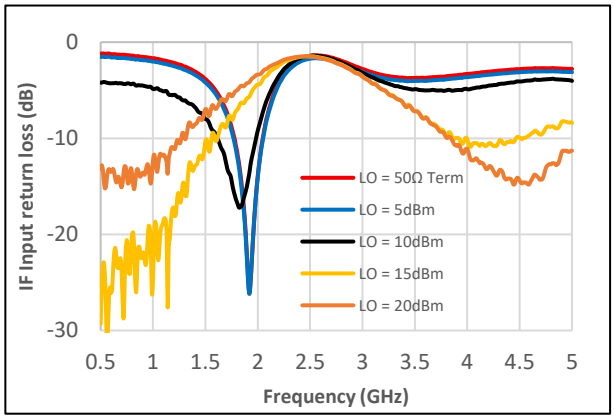


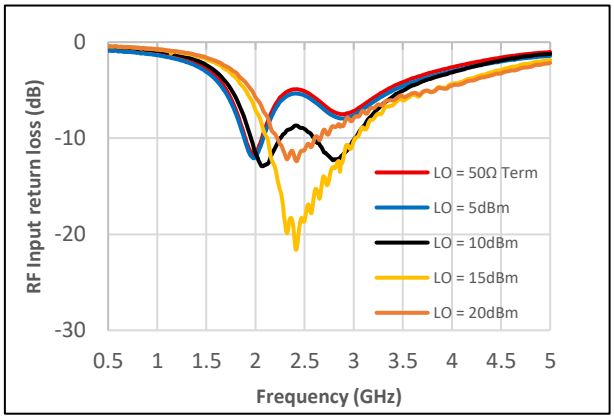


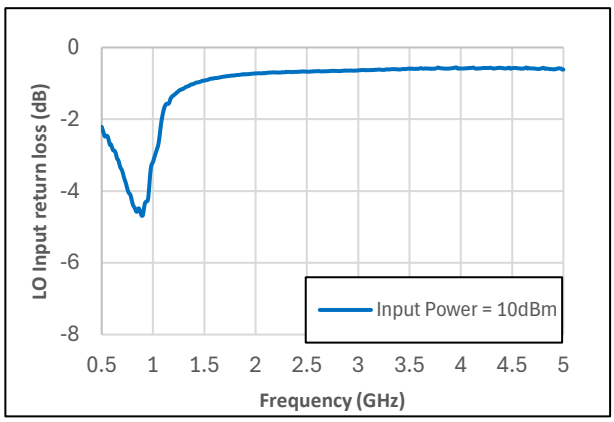


Performance Plots

Unless otherwise noted : S-parameters are de-embedded @25℃, Z0 = 50Ω, Input Power = 0dBm.







Recommended Operating Condition

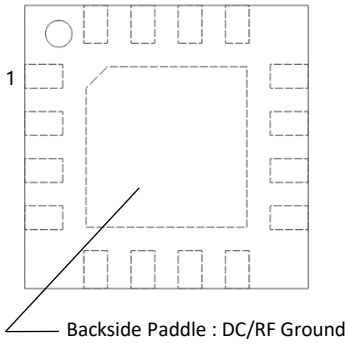
Parameter	Min	Typ	Max	Unit
Operating Temperature	-40	25	85	°C
Storage Temperature	-55	-	150	°C

Absolute Maximum Ratings

Parameter	Rating	Unit
Junction Temperature	TBD	°C
Input Power (CW)	35	dBm

Pin Description

Pin No.	Function	Description
2	RF	RF Input/Output.
6	LO	LO Input.
11	IF	IF Output/Input
1, 3~5, 7~10, 12~16	NC	Not Connected.



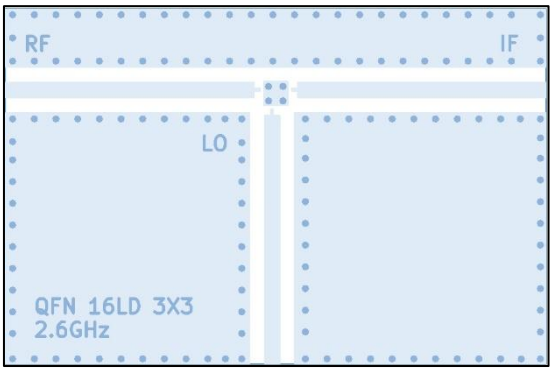
MSL Rating

MSL Rating : TBD
Test : TBD
Standard : TBD

ESD Sensitivity Ratings

ESD Rating : TBD
Test : TBD
Standard : TBD

Evaluation Board PCB Information

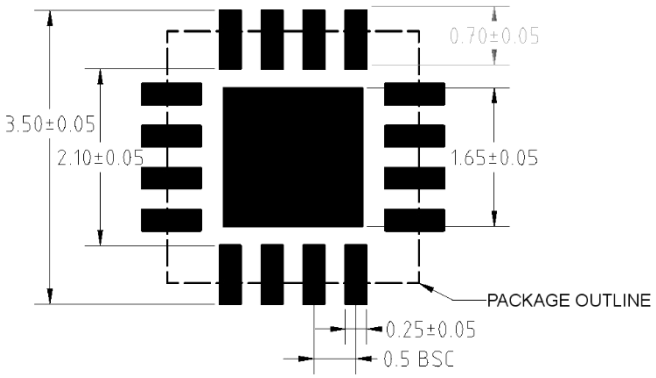


Layer		Material	Layer Thickness (mm)	Note
Top	Copper	RO4350B	0.035	1 oz
Core	Core		0.508	20 mil
Bottom	Copper		0.035	1 oz

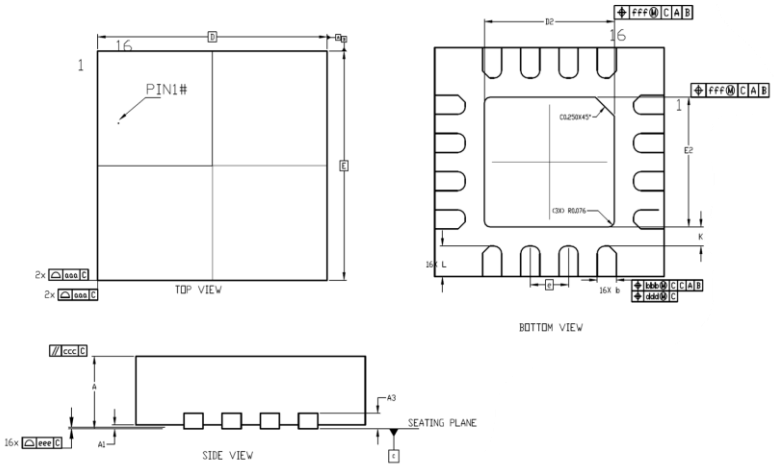
Note:
1) Transmission Line Width : 1.1 mm
2) PCB Thickness : 0.578 mm

Package Marking

PCB Land Pattern



Package Outline Drawing



DIM / SYMBOL	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
	0.80	0.85	0.90
A1	0	0.02	0.05
A3	-	0.20 REF	-
b	0.20	0.25	0.30
D		3.00BSC	
E		3.00BSD	
D2	1.60	1.70	1.80
E2	1.60	1.70	1.80
e		0.50BSC	
L	0.35	0.40	0.45
K	0.20		
aaa		0.15	
bbb		0.10	
ccc		0.10	
ddd		0.05	
eee		0.08	
fff		0.10	