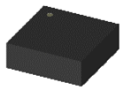
Preliminary

YC503

Passive Mixer

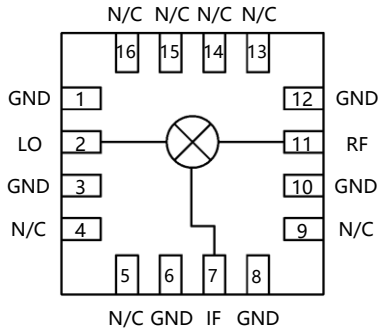


Description

The YC503 is a general purpose passive mixer that can be used for up-conversion or down-conversion.
The RF port is designed for the 18GHz to 24GHz band and the IF port is optimized for 2GHz to 4GHz operation
The YC503's high level of integration minimizes the total solution cost, board space and system level variation with its 3mm × 3mm package size.

Applications

- Satellite Communication Systems
- Point-to-Point Radios
- Military, aerospace, and defense applications
- Test and measurement instrumentation



Features

- Conversion Loss : 11.1dB @ fRF=22GHz
- 2 - 4 GHz Wideband IF
- 16 Lead 3x3 SMT Package

Electrical Specification

Parameters	Min	Typ	Max	Unit	Test Conditions
RF Frequency Range	18		24	GHz	
LO Frequency Range	16		24	GHz	
IF Frequency Range	2		4	GHz	
Conversion Loss		12		dB	Low Side LO, LO = 15dBm, RF Power = 0dBm
LO to IF Isolation		45		dB	Low Side LO, LO = 0dBm, RF = 50Ω
LO to RF Isolation		22		dB	Low Side LO, LO = 0dBm, IF = 50Ω
RF to IF Isolation		33		dB	LO = 0dBm

Note:
1) Test conditions unless otherwise noted : Temp. = 25℃, Z0 = 50Ω

Performance Data

Item	Low Side LO												Unit
RF Frequency	18	18	18	20	20	20	22	22	22	24	24	24	GHz
LO Frequency	14	16	17	16	18	19	18	20	21	23	20	22	GHz
IF Frequency	4	2	1	2	2	1.0	4.0	2.0	1.0	1.0	4.0	2.0	GHz
Conversion Loss	-13.9	-12.3	-11.6	-12.5	-11.3	-11.1	-14.0	-11.9	-11.1	-12.6	-14.7	-12.9	dB

Item	Hi Side LO												Unit
RF Frequency	18	18	18	20	20	20	22	22	22	24	24	24	GHz
LO Frequency	22	20	19	24	22	21	26	24	23	25	28	26	GHz
IF Frequency	4	2	1	4	2	1	4	2	1	1	4	2	GHz
Conversion Loss	-14.1	-12.8	-11.7	-12.6	-12.4	-11.6	-13.7	-11.7	-11.5	-12.1	-15.8	-13.1	dB

Note:
1) Test conditions unless otherwise noted : LO = 15dBm, RF Power = 0dBm, Temp. = 25℃, Z0 = 50Ω

Recommended Operating Condition

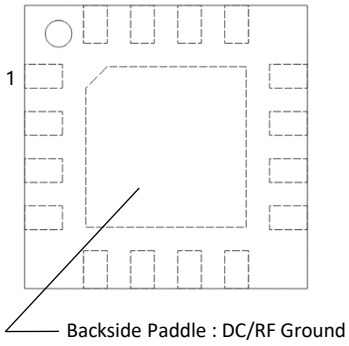
Parameter	Min	Typ	Max	Units
Operating Temperature	-40	25	85	°C
Storage Temperature	-55	-	150	°C

Absolute Maximum Ratings

Parameter	Rating	Units
Junction Temperature	TBD	°C
RF Input Power (CW)	TBD	dBm

Pin Description

Pin No.	Function	Description
2	LO	LO Input/Output.
7	IF	IF Input.
11	RF	RF Output/Input
1, 3, 6, 8, 10, 12	GND	Ground
4, 5, 9, 13~16	N/C	Not Connected



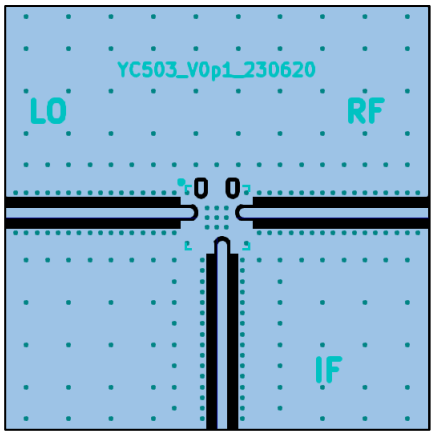
MSL Rating

MSL Rating : TBD
Test : TBD
Standard : TBD

ESD Sensitivity Ratings

ESD Rating : TBD
Test : TBD
Standard : TBD

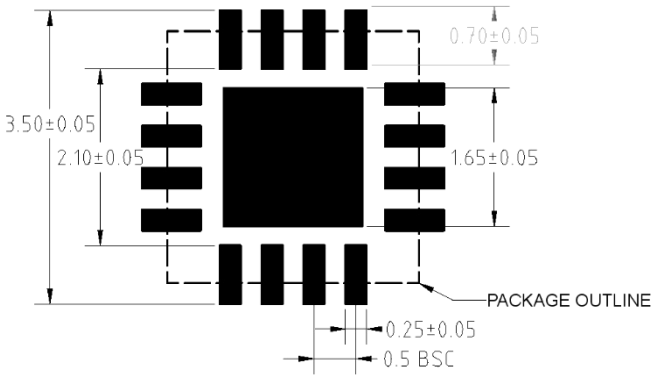
Evaluation Board PCB Information



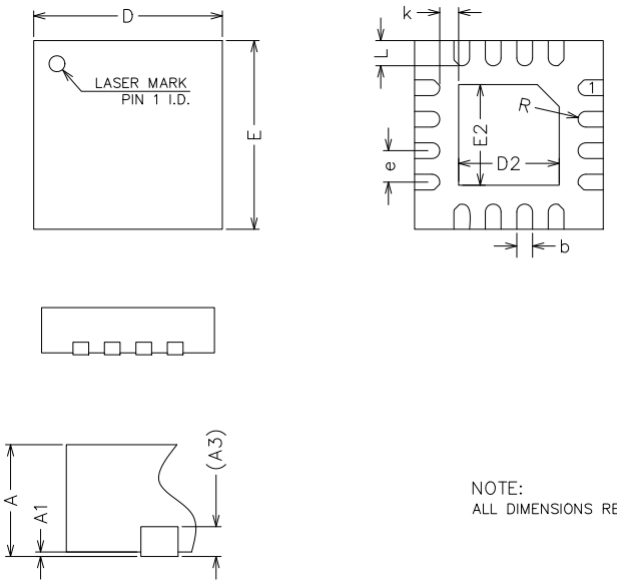
Layer		Material	Layer Thickness (mm)	Note
Top	Copper	RO4003C	0.018	1/2 oz
Core	Core		0.203	10 mil
Inner 1	Copper		0.018	1/2 oz
Prepreg	Prepreg	FR4	0.110	
Inner 2	Copper	FR4	0.018	1/2 oz
Core	Core		0.200	
Bottom	Copper		0.018	1/2 oz

Package Marking

PCB Land Pattern



Package Outline Drawing



NOTE:
ALL DIMENSIONS RE

DIM / SYMBOL	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
A1	0	0.02	0.05
A3		0.20 REF	
b	0.20	0.25	0.30
D	2.90	3.00	3.10
E	2.90	3.00	3.10
D2	1.55	1.65	1.75
E2	1.55	1.65	1.75
e	0.40	0.50	0.60
L	0.35	0.40	0.45
K	0.20	-	-
R	0.09	-	-