

FEATURES

- V-band coverage
- IIP₃: -4 dBm
- Gain: 14 dB
- Direct conversion or IF down-conversion
- Size: 12 x 15 x 4 mm
- Evaluation board available

DESCRIPTION

gMRX0060 is a surface-mount GaAs receiver for the 57 - 66 GHz frequency band. The receiver offers a wide IF bandwidth from DC to 10 GHz suitable for direct conversion or IF modulation/demodulation. The package input features a WR-15 aperture for low-loss connection to a rectangular waveguide.

TYPICAL APPLICATIONS

- Point-to-point communication
- Radar and imaging
- Instrumentation
- Fiber over radio

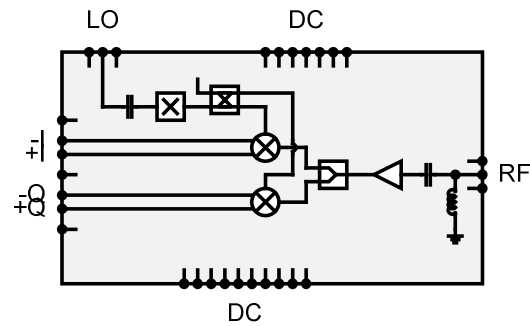


Figure 1. Circuit block diagram.

ELECTRICAL PERFORMANCE

Table 1. Electrical Performance. T_A=25°C, nominal bias.

Parameter	Min	Typ	Max	Unit
RF frequency (performance)	57		66	GHz
RF frequency (extended) ¹	52		72	GHz
IF frequency	DC		10	GHz
LO input frequency	8.7		12	GHz
LO input power		10		dBm
LO multiplication factor		6		
Conversion gain		14		dB
Gain temperature slope		-0.04		dB/°C
Image rejection ratio (IRR)	20			dB
IIP2		8		dBm
IIP3		-4		dBm
NF		4.5		dB
RF return loss		10		dB
IF return loss		10		dB
LO return loss		10		dB
PDC (quiescent)		0.6		W

Table 2. Absolute maximum ratings

Parameter	
Gate-source voltage	-2 to +0.7 V
Drain-source voltage	4.5 V
Gate-drain breakdown voltage	8 V
Operating temperature	-40 to + 85°C
Storage temperature	-65 to +150°C

¹ Operational, but full performance not guaranteed

PIN CONFIGURATION AND BIAS

Always apply the gate supplies first followed by the drain supplies. It is recommended to initially set all gates to -1.6 V and adjust the gate supplies to obtain the specified drain currents. The typical gate voltage can vary by up to 0.2 V from what is noted. The drain currents are listed with all RF input signals off.

Note: Not connected (NC) pins are floating and must not be grounded.

Table 3. Pin functions and electrical settings

Pin	Reference	Supply (V)	Current (mA)	Function
1	NC			
2	NC			
3	NC			
4	VG_LNA	-0.5 (typ)		Bias
5	NC			
6	VD_LNA	2.0	60	Bias
7	VG_MIX	-0.7 (typ)		Bias
8	NC			
9	NC			
10	NC			
11	NC			
12	NC			
13	NC			
14	NC			
15	NC			
16	NC			
17	Q+	Zo = 100Ω differential impedance, DC-coupled		Output
18	Q-			Output
19	I+	Zo = 100Ω differential impedance, DC-coupled		Output
20	I-			Output
21	NC			
22	NC			
23	NC			
24	VG_AMP_X2	-0.5 (typ)	(80)	Bias
25	VD_AMP_X2	3.3	85 (80+5)	Bias
26	VG_X2	-0.9 (typ)	(5)	Bias
27	VD_X3	3.3	50	Bias
28	VG_X3	-0.5 (typ)		Bias
29	LO	Zo = 50Ω, AC-coupled		LO
30-32	NC			
33	RF IN	WR-15		Input
34-44	GND			GND

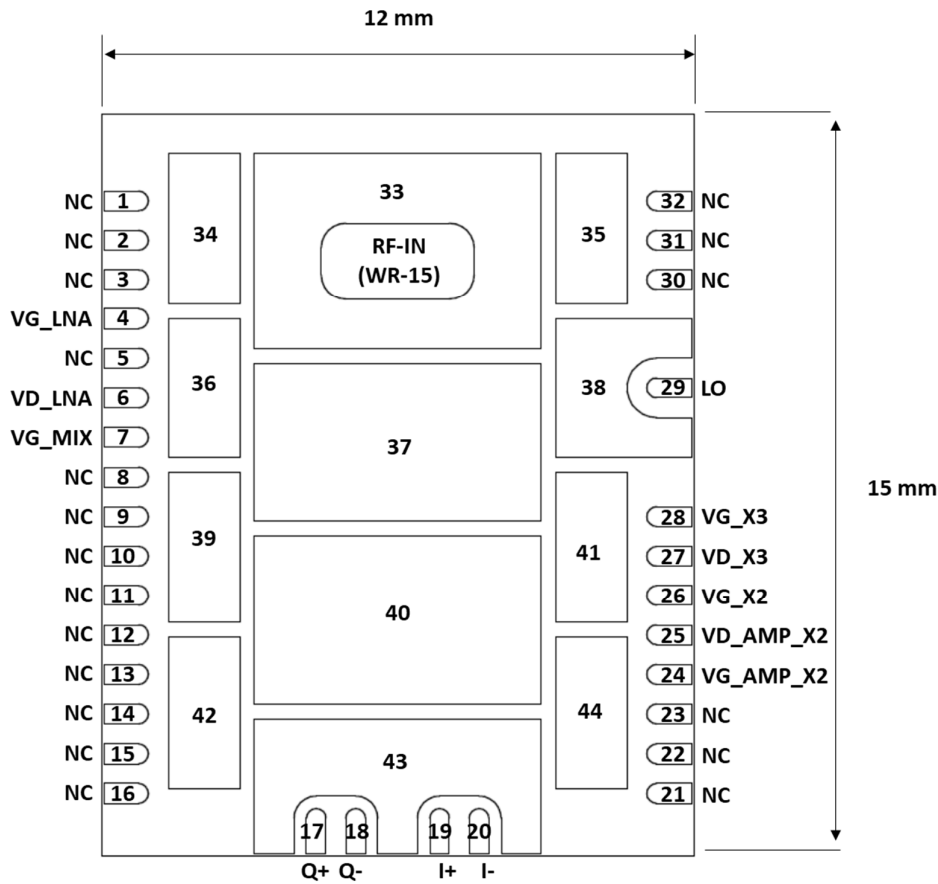


Figure 2. Pin configuration.