

FEATURES

- Surface-mount W-band transmitter
- WR10 for the RF output
- LO x 8 with buffer

DESCRIPTION

gMTX0018 is a surface-mount GaAs transmitter for the 94 GHz frequency band. The receiver offers a wide IF bandwidth from DC to 6 GHz suitable for direct conversion or IQ. The package input features a WR-10 aperture for low-loss connection to a rectangular waveguide.

TYPICAL APPLICATIONS

- Point-to-point communication
- Instrumentation
- Active imaging
- General purpose

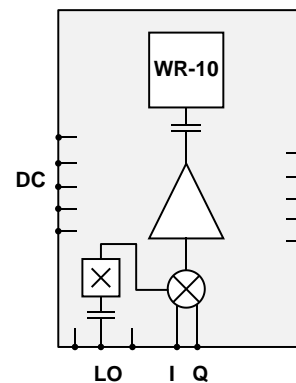


Figure 1. Block diagram of the receiver.

ELECTRICAL PERFORMANCE

Table 1. Electrical performance $T_A=25^\circ\text{C}$

Parameter	Min	Typ	Max	Unit
RF frequency	92		94	GHz
IF frequency	DC		6	GHz
LO input frequency	11.5		11.75	GHz
LO input power		2		dBm
LO multiplication factor		8		
Conversion gain		5		dB
OP1dB		8		dBm
OIP3		TBD		dBm
NF		TBD		dB
LO rejection ¹		0		dBc
RF return loss		4		dB
IF return loss		10		dB
LO return loss		10		dB
Power consumption		490		mW

¹ No LO cancellation in mixer (IQ-mixer).

RECOMMENDED OPERATING CONDITIONS

Bias should first be applied to the gates (VG...) followed by the drains (VD...). The gate voltages must be adjusted within the min/max range indicated in **Table 2** to obtain the specified drain currents. The drain currents are stated with all input signals off.

Table 2. Electrical settings

Pad No.	Pad name	Bias settings (V/mA)			I/O	Sequence	
		Min	Typ	Max			
1	NC						
2	NC						
3	VD_X		3.3 / 2			2	
4	VG_X	-1.1	-0.9	-0.7		1	
5	VG_X_AMP	-0.8	-0.5	-0.3		1	
6	VD_X_AMP		3.3/78			2	
7	LO		+ 2dBm		I	2	
8	I		$Z_o = 50 \text{ Ohm}$		I	2	
9	Q		$Z_o = 50 \text{ Ohm}$		I	2	
10	NC						
11	NC						
12	VG_MIX		-0.8			1	
13	VD_AMP	1.4	3.3 / 80	3.3		2	
14	VG_AMP	-0.6	-0.33	-0.2		1	
15	NC						
16	RF OUT	Waveguide WR-10					

MEASURED PERFORMANCE

TO BE UPDATED

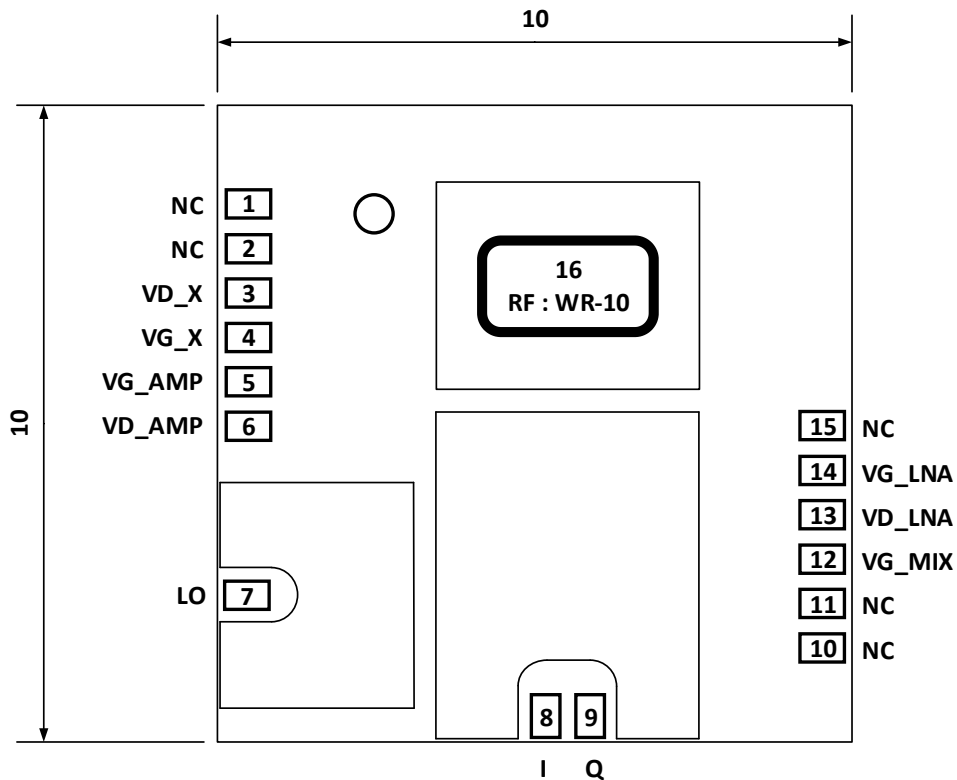


Figure 2. Pin configuration and outline drawing. Dimensions in [mm].

ABSOLUTE MAXIMUM RATINGS

Table 3. Absolute Maximum Ratings

Parameter	Value
Gate-source voltage	-2 to +0.7 V
Drain-source voltage	4.5 V
Gate-drain breakdown voltage	8 V
RF in power max	+7 dBm
LO driver	+15 dBm
Operating temperature	-40 to + 85°C
Storage temperature	-65 to +150°C