

## Take advantage of low noise cost effective UMS PH25 GaAs process

United Monolithic Semiconductors is opening a shared foundry run on PH25 GaAs process. The launch date for the Multi-Project Wafer is **June 23, 2023**.

**PH25** is UMS most successful foundry process due to its cost effectiveness and ease of use ; it is optimized for the production of low noise, wideband and high volume high yield MMICs operating up to 45GHz.

**PH25** is highly recommended for the design of low noise amplifiers, switches, mixers, frequency doublers, attenuators, single chip receivers for applications such as Telecommunication Radios, Optoelectronic networks and Space Communication systems.

**PH25** is successfully evaluated for Space use and referenced in the European Preferred Part List by the European Space Agency – see: <https://escies.org/epplmanufacturer/show?id=124%20>

Designers are invited to share a **PH25** run at an affordable entry price of 1 800€/mm<sup>2</sup>.

### What are the main characteristics of PH25?

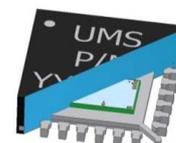
Element	Parameter	Typical value	Conditions
FET	Idss (mA/mm)	340	Vds = 2.5V, Vgs = 0V
	Gm (mS/mm)	550	Vds = 2.5V, Vgs = 0V
	Vbds (V)	7.5	Ids = Idss / 100
	Vp(V)	-0.75	Vds = 2.5V, Ids = Idss / 100
	Ft (cut off freq.) (GHz)	90	
MIM Cap.	Density (pF/mm <sup>2</sup> )	330	@ 1 MHz
MIM Cap. - High Density	Density (pF/mm <sup>2</sup> )	625	@ 1 MHz
TaN Resistor	Sheet Resistance ( $\Omega/\square$ )	30	
TiWSi Resistor	Sheet Resistance ( $\Omega/\square$ )	1000	
GaAs Resistor	Sheet Resistance ( $\Omega/\square$ )	120	
Wafer thickness	$\mu\text{m}$	100	

### Examples of microwave performance achieved by UMS catalogue MMICs designed on PH25 process:

Part Number	Freq (GHz)	Gain (dB)	Noise (dB)	P-1dB (dBm)	Case
<b>Low noise amplifier</b>					
CHA3688aQDG	12.5-30	26	2	14	QFN
CHA2394-99F	36-40	21	2.5	8	Die
<b>Down-converter</b>					
CHR3762-QDG	5.5-9	14	1.7	-5	QFN
CHR3662-QDG	7-16	13	3	-8	QFN
Part Number	Freq (GHz)	Loss (dB)	Noise (dB)	P-1dB (dBm)	Case
<b>Switch</b>					
CHS2411-QDG	23-26	2.9	-	23.5	QFN
Part Number	Freq (GHz)	Input Power (dBm)	Noise (dB)	Output Power (dBm)	Case
<b>Multiplier</b>					
CHX2092a99F	36-40	12	-	11	Die



By choosing MMIC dimensions which are compatible with QFN high volume packaging capability, your project is on track for future industrial success.



### How to participate to this shared foundry run?

So to start designing, please apply [on-line](#) for process Design Kit link. Before the deadline, please send your layout to: [founry@ums-rf.com](mailto:founry@ums-rf.com)

<b>INFORMATION</b>	<b>Lowest cost guaranteed</b>				
	Simply provide your layout <b>before June 23, 2023</b>				
<b>DELIVERY</b>	20 chips				
<b>CONDITIONING</b>	Gel-Pak®				
<b>AVAILABLE DIE SIZE (mm)</b>	1	1.4	2.4	3.4	4
<b>MAX RATIO</b>	1:3				
Die size include 70µm dicing street - Launching date flexibility is +/- 2 weeks					
Minimum order is 4mm² - Price is valid until June 23, 2023					
Order to be placed before June 9, 2023					
Important Notes:					
<ul style="list-style-type: none"> <li>• UMS may cancel the run in case of insufficient number of participants.</li> <li>• For some countries a specific dedicated export license may be required before delivery.</li> </ul>					

	<b>1</b>	<b>1.4</b>	<b>2.4</b>	<b>3.4</b>	<b>4</b>
<b>1</b>	1	1.4	2.4		
<b>1.4</b>	1.4	2	3.4	4.8	5.6
<b>2.4</b>	2.4	3.4	5.8	8.2	9.6
<b>3.4</b>		4.8	8.2	11.6	13.6
<b>4</b>		5.6	9.6	13.6	16

PH25 Available die size (mm)

### How many dies will I receive and how much does it cost?

You will receive 20 dies of your circuit in Gel-Pak® box from a PH25 PCM good wafer with PCB. The price is based on your circuit dimensions on the mask tile multiplied by the mm² unit price. For example, if your circuit is 1.4 x 3.4 mm², the price is 1.4 x 3.4 x 1 800€= 8 568€

### Which processes are regularly offered in shared foundry?

