

Features

- Metal Gate Process
- 13 μm Metal Pitch
- 16 Volts Maximum Operating Voltage
- Simple Process (7 masks)
- Very Short Cycle Time
- Very High Yield

Description

The 9 μm process is a CMOS process with an operating voltage range from 5 to 16 volts. The gate material is metal; which is common in many mature designs. An advantage of this process is its simplicity and its short cycle time.

Process Parameters

Process Parameters	9 μm	Units
Metal pitch (width/space)	8 / 5	μm
Contact	8 x 8	μm
Gate geometry	9	μm
P-well junction depth	9	μm
N+ junction depth	2.4	μm
P+ junction depth	2.6	μm
Gate oxide thickness	1050	\AA

Resistances ($\Omega/\text{sq.}$)

	9 Micron - 15 volts		
	min.	typ.	max.
Pwell	1500		
N+	35	45	55
P+	40	70	100
Metal I	0.038		

MOSFET Electrical Parameters

Electrical Parameters	9 MICRON - 15 volts						Units	Conditions
	min.	N Channel typ. max.		P Channel typ. max.				
Vt (50x9 μm)	1.0	1.3	1.6	1.6	1.9	2.2	V	saturation
Ids (50x9 μm)		200		60			$\mu\text{A}/\mu\text{m}$	Vds=Vgs=3v
Gain β (50x9 μm)		700		200			$\mu\text{A}/\text{V}^2$	
Bvdss	20	28		20	30		V	Ids=1 μA
Field Threshold		23		20			V	Ids = 1 μA
L Effective		5.2		4.8			μm	L drawn = 9 μm

9 Micron Metal Gate CMOS Process

Notes: