



5 Micron CMOS Process Family

Features

- Double Poly / Single Metal
- 10 μm Poly and Metal I Pitch

Description

The 5 μm process is a double poly/double metal CMOS process with an operating voltage range from 5 to 12 volts.
(13 Volts Maximum Operating Voltage.)

	5 μm 12 volts	Units
Metal I pitch (width/space)	5 / 5	μm
Poly pitch (width/space)	5 / 5	μm
Contact	5x5	μm
Via	5x5	μm
Gate geometry	5	μm
P-well junction depth	6.3	μm
N+ junction depth	2.0	μm
P+ junction depth	1.4	μm
Gate oxide thickness	800	$\text{\AA}$
Inter poly oxide thick.	700	$\text{\AA}$

MOSFET Electrical Parameters

	5 MICRON - 12 volts						Units	Conditions
	N Channel			P Channel				
	min.	typ.	max.	min.	typ.	max.		
Vt (50x5μm)	0.40	0.65	0.90	0.40	0.65	0.90	V	saturation
Ids (50x5μm)	20			6			μA/μm	Vds=Vgs=3v
Body Factor (50x50μm)	1.2			0.5			√V	
Bvdss	18	24		18	24		V	Ids=1 μA
Field Threshold	18	>30		18	25		V	Ids = 14μA
L Effective	1.8			2.8			μm	L drawn = 5μm

Resistances (Ω /sq.)

	min.	typ.	max.
Pwell		2700	
Pfield in Pwell	1000	2000	3000
N+	6	10	14
P+	70	90	110
Poly gate	14	20	26
Poly capacitor	30	55	80
Metal I	0.032		

Capacitances (fF/ μm^2)

	min.	typ.	max.
Inter-poly	0.35	0.50	0.65
Gate oxide	0.41	0.43	0.46
N+ Junction	0.34		
P+ Junction	0.14		

Bipolar gain

	min.	typ.	max.	Condition
NPN vertical		275		V _{ce} = 5 Volts



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