9 Micron Metal Gate CMOS Process

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

	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	Å

MOSFET Electrical Parameters

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

Resistances (Ω /sq.)

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

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For More Information:
DALSA Semiconductor Sales
18 Boulevard de l'Aéroport
Bromont, Québec, Canada
J2L 1S7

Tel : (450) 534-2321 ext. 1448
(800) 718-9701
Fax (450) 534-3201
email: dalsasales@dalsasemi.com