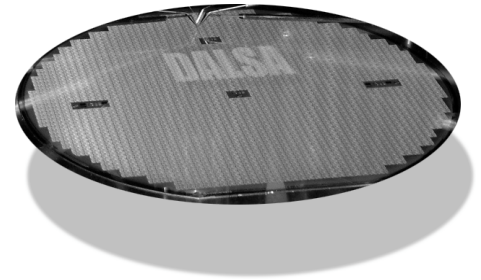


C20G 2.0 μm High Voltage CMOS/DMOS Process

5V CMOS integrated with high voltage lateral DMOS and extended drain PMOS—particularly cost effective for applications with a low digital gate count

C20G Overview

- Double poly, two metal layers
- P-type epitaxy over p+ substrate
- Allows the integration of 5V CMOS with high voltage lateral DMOS and extended drain PMOS.
- Particularly cost effective for applications with a low digital gate count.



Features

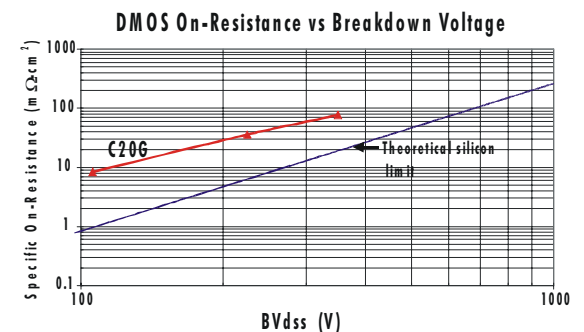
- 5V mixed signal CMOS
- Fully enhanced with 5V on the Gate
- DMOS Blocking Voltages from 72V to >300V
- High Voltage PMOS 72V to 300V
- Isolated vertical NPN
- High Value (10k/sq) and Low TCR poly resistors
- Low specific RON
- Low mask count
- Double resurf technique allows wide range of breakdown voltage to be attained simply through layout variation
- BSIM3v3.22 models available in Spectre and HSPICE format
- Cadence Foundry Design Kit (FDK) available
- Safe Operating Area characterised for high voltage devices

Analog Capabilities

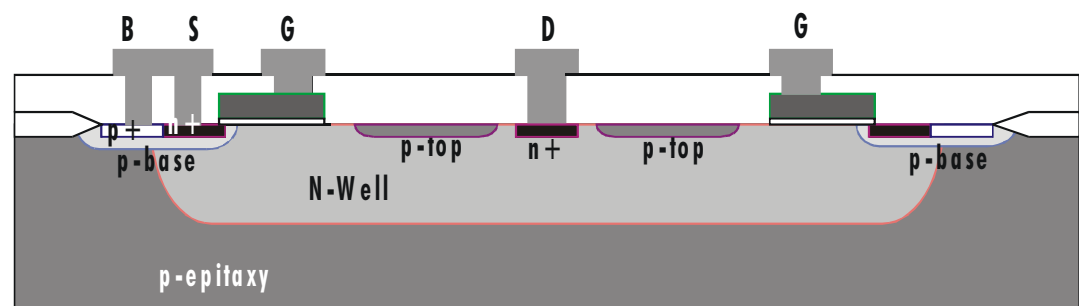
- Double Poly Capacitor ($C=0.75\text{fF}/\text{sq } \mu\text{m}^2$)
- Four types of poly resistors including high value and low TCR
- Isolated 10V vertical npn ($\beta = 75$)

Applications

- **Information Technology** - Ink jet printers heads, Digital Mirror Displays, Computer peripherals, Display drivers, Printer, Plotter
- **Biomedical** - Electrokinetics, LOAC, μ -Fluidics, Bio-particles Sorting, Drug Delivery, Ultrasound imaging
- **Telecom** - DWDM, VOAs, OADMs, OXCs, Electro-optics, Mirrors, μ -coils, RF amplifier, Multiplexer, SLIC, Ring generator
- **Automotive** - Most Applications : Speed, Angles, Acceleration, Pressure, I-MEMS
- **Industrial** – AC-DC converter, Relays, Linear amplifier, Current regulator, HV generator



Simplified Cross-Section of DMOS



DALSA
SEMICONDUCTOR

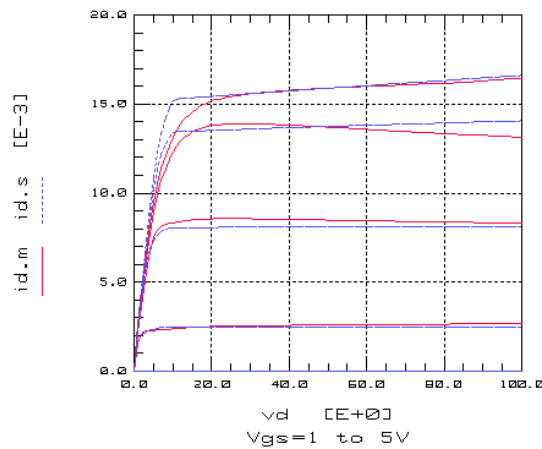
27-Sep-02
03-70-00149-00
www.dalsasemi.com

C20F 2.0 μ m 5/40V CMOS/DMOS Process

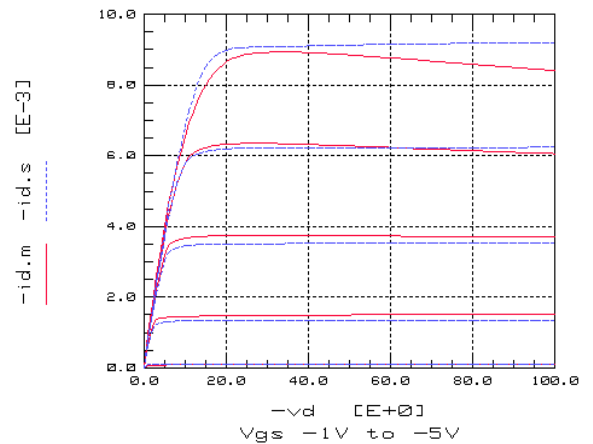
Electrical Parameters of Representative Transistors

Parameter	5V NMOS	5V PMOS	200V DMOS	100V EDPMOS
W x L (μ m)	50 X 2	50 X 2	120 X 0.8	148 X 3
VT (V)	0.7	-0.7	1.25	-0.7
I _{ds} (mA)	7.5	3.75	16	8.7
B _{vdss} (V)	15	14	225	135
I _{sub} (μ A/ μ m)	0.15	-	0.27	-
RON (Ω)	220	630	380	1100

200V DMOS
(L=0.8 μ m, W=120 μ m)



100V EDPMOS
(L=3 μ m, W=148 μ m)



For More Information

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