

TowerJazz's TS100PM (700V) Technology

Newly developed Power Management technology that provides devices that support high voltage range switching (450V, 700V) and the low voltage (6.5V to 30V) to facilitate the integration required to drive greener AC to DC solutions.

The design package includes analog components (Resistors, BJT, capacitor and Zener), and LDMOS, and JFET Transistors, as well as standard 6.5V Transistors.

Key features

The process technology has fully developed process with the following features:

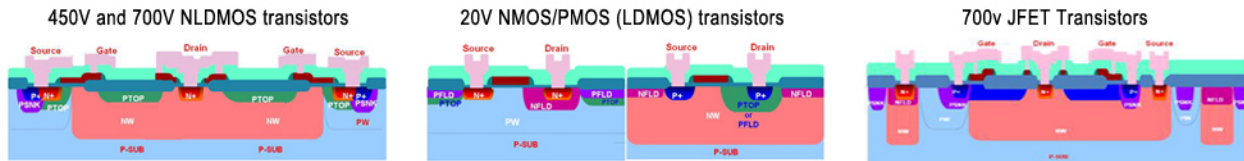
- Non EPI Wafers
- LOCOS Isolation
- Single Poly (minimum size 1.0 μ m) single Gate-oxide, that can tolerate 30V
- Double Metal. Minimum contact (via) size 1.0 μ m
- Planarized passivation with thick polyimide
- Selection of devices, including Bipolar transistors, Zener Diode, resistors, including highly linear HIPO resistor (add masks), and poly capacitor
- Total 16 masks for base process
- Maximum operation current tolerance 1.0Amp
- Operation temperature tolerance -40C – 125 C, high voltage devices are tested up to 150C

The design kit fully supports the following devices:

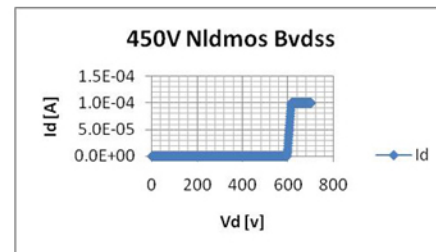
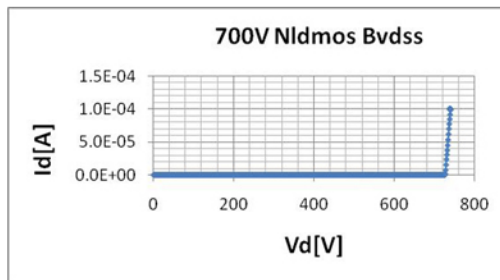
Key device / process features

1	450V LDMOS transistor	RDSON 16 Ohm*mm ² BVDSS>600V
2	700V LDMOS transistor	RDSON 30.6 Ohm*mm ² BVDSS>750V
3	20V PNP	Beta=300 BVcbo=96V, BVebo=30V
4	Zener Diode	BV=6.0V (V@I=100uA)
5	6.5V Nmos transistor	Vt=1.05V ; Id=210uA/um (Id @Vgs=Vds=6.5V, Vbs=0V)
6	6.5V Pmos transistor	Vt=0.83V ; Id=83uA/um (Id @Vgs=Vds=6.5V, Vbs=0V)
7	20V Nmos transistor	Vt=1.05V ; Id=141uA/um (Id @Vgs=Vds=20V, Vbs=0V)
8	20V Pmos transistor	Vt=0.86V ; Id=265uA/um (Id @Vgs=Vds=20V, Vbs=0V)
9	700V JFET	Vp=29V@Id=10nA ; Id=3mA (@Vgs=6.5V Vds=700V, Vbs=0V)
10	Metal 1	Rs= 37 Ohm/ Square
11	Top Metal	Rs= 27 Ohm/ Square

Sample Crosssections



HV LDMOS Breakdown Voltage



Customer Service and Support

- <https://portal.towerjazz.com>
- File Exchange for design kits and online documentation
- Online WIP, Tape-Out and Help Ticket System
- Dedicated Sales and Engineering Support

Supported Models

- **MOSFETs:** Binned BSIM4 models, mismatch, statistical and noise models
- **NPNs:** Scalable HiCum, mismatch, statistical and noise models
- **Resistors:** Mismatch, statistical and noise models

Analog Mixed-Signal Design Kit Features

- Cadence®-based Design Kit
- Cadence® Assura™ DRC/LVS/RCX
- Support for Mentor® Calibre interactive/XRC
- Support for Spectre, ADS (& RFDE), HSPICE simulators
- Includes basic ESD structures

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), the global specialty foundry leader and its fully owned U.S. subsidiary Jazz Semiconductor, operate collectively under the brand name TowerJazz, manufacturing integrated circuits with geometries ranging from 1.0 to 0.13-micron. TowerJazz provides industry leading design enablement tools to allow complex designs to be achieved quickly and more accurately and offers a broad range of customizable process technologies including SiGe, BiCMOS, Mixed-Signal and RFCMOS, CMOS Image Sensor, Power Management (BCD), and Non-Volatile Memory (NVM) as well as MEMS capabilities. To provide world-class customer service, TowerJazz maintains two manufacturing facilities in Israel and one in the U.S. with additional capacity available in China through manufacturing partnerships. For more information, please visit www.towerjazz.com.