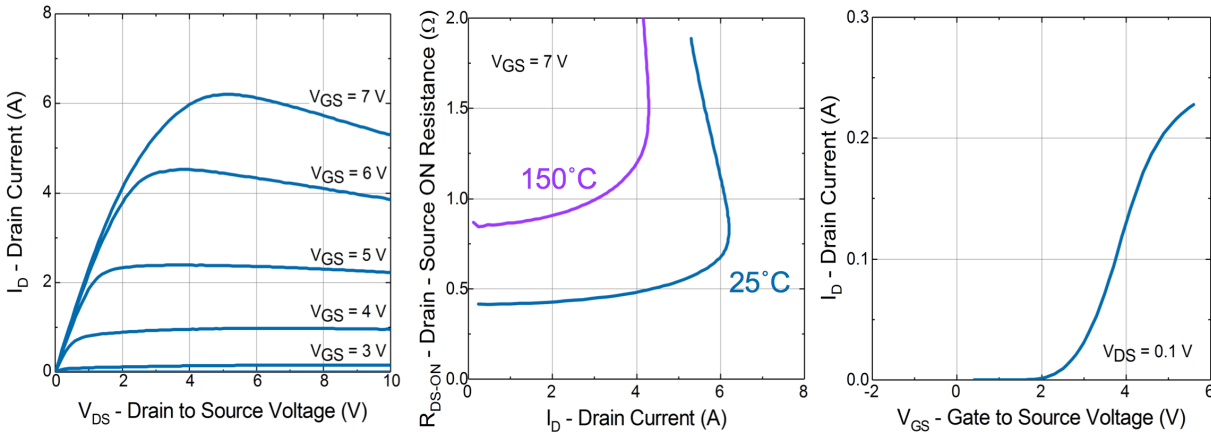
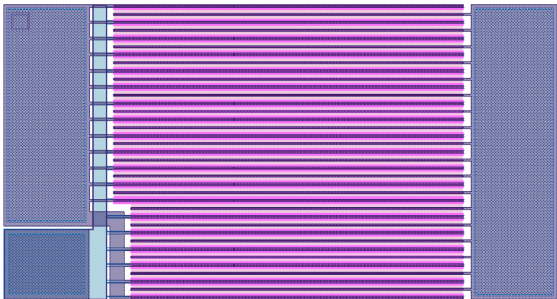


200MM GAN-ON-SI POWER DEVICES: 650V

Parameter	Unit	Min	Typical	Max	Note
Temperature	°C			150	Max Junction temperature
W _g	mm		36		Device Total Gate Width, W _g
Max V _{DS}	V	650			Maximum V _{DS} Rating
BV _{DSS}	V	650			Lateral leakage: <1µA/mm at 25C, V _{GS} =0V
Hard BV _{DSS}	V	900	1000		To failure, 5 sites per wafer.
Ron.W	Ω.mm			<20	at RT, on device at V _{GS} =6V
Ron.W	Ω.mm			<40	at T=150 °C at V _{GS} =6V
Dynamic R _{DS-ON}	%		<20	25%	Across the complete voltage and temperature range, 10µs on, 90us off, substrate grounded
V _{th}	V	2.15			Measured at 10µA/mm, V _{DS} =V _{GS}
V _{th}	V	2.9			At Gm_max
Vt hysteresis	mV			200	V _{gs} sweep from -2V to +7V, then sweep from +7V to -2V. Vth shift less than value specified
Vgs Abs Max	V			7	Absolute maximum with no device failure, not HTGB. Transient measurement only
V _{gs-pulse}	V	-10		+7	≤ 1 µs pulse duration
I _{d-off_RT}	µA/mm			0.05	V _{gs} =0V, at V _{ds} =650V, at RT, substrate grounded
I _{d-off_150C}	µA/mm			0.2	V _{gs} =0V, at V _{ds} =650V, at T=150 °C, substrate grounded
I _{gs_RT}	µA/mm			10	V _{gs} =6V, V _{ds} =0V, substrate grounded



Example of typical characteristics of a 650V - 36mm gate width power transistor



Example of imec's design of a 650V - 36mm gate width power transistor