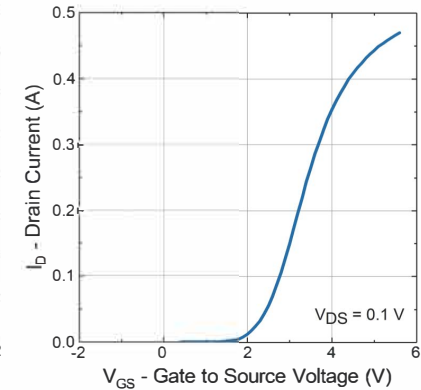
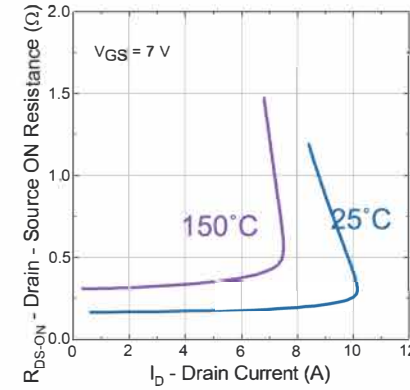
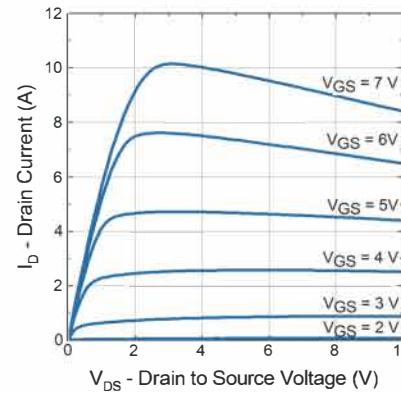
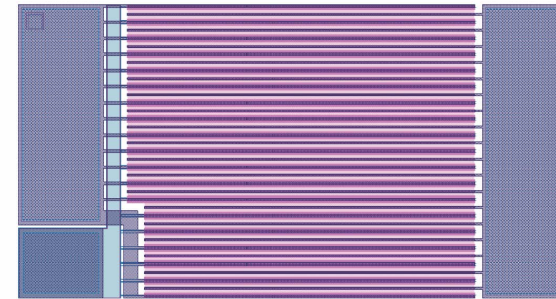


200MM GAN-ON-SI POWER DEVICES: 200V

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	200			Maximum V_{DS} Rating
BV_{DSS}	V	200			Lateral leakage: $<1\mu A/mm$ at 25C, $V_{GS}=0V$
Hard BV_{DSS}	V	400	500		To failure, 5 sites per wafer.
<u>Ron.W</u>	$\Omega.mm$			<10	at RT, on device at $V_{GS}=6V$
Ron.W	$\Omega.mm$			<20	at $T=150^\circ C$ at $V_{GS}=6V$
Dynamic $R_{DS,ON}$	%		<25	40%	Across the complete voltage and temperature range, 10 μs on, 90 μs off, substrate grounded
V_{th}	V	2.15			Measured at 10 $\mu A/mm$, $V_{DS}=V_{GS}$
Vth	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	$\leq 1\mu s$ pulse duration
I_{d,off_RT}	$\mu A/mm$			0.05	$V_{gs}=0V$, at $V_{ds}=200V$, at RT, substrate grounded
I_{d,off_150C}	$\mu A/mm$			0.2	$V_{gs}=0V$, at $V_{ds}=200V$, at $T=150^\circ C$, substrate grounded
I_{gs_RT}	$\mu A/mm$			10	$V_{gs}=6V$, $V_{ds}=0V$, substrate grounded



Example of typical characteristics of a 200V - 36mm gate width power transistor



Example of imec's design of a 200V - 36mm gate width power transistor