

Wafer datasheet

Baiyun/p2p120

(900V/120A)

(650V/120A)

Features

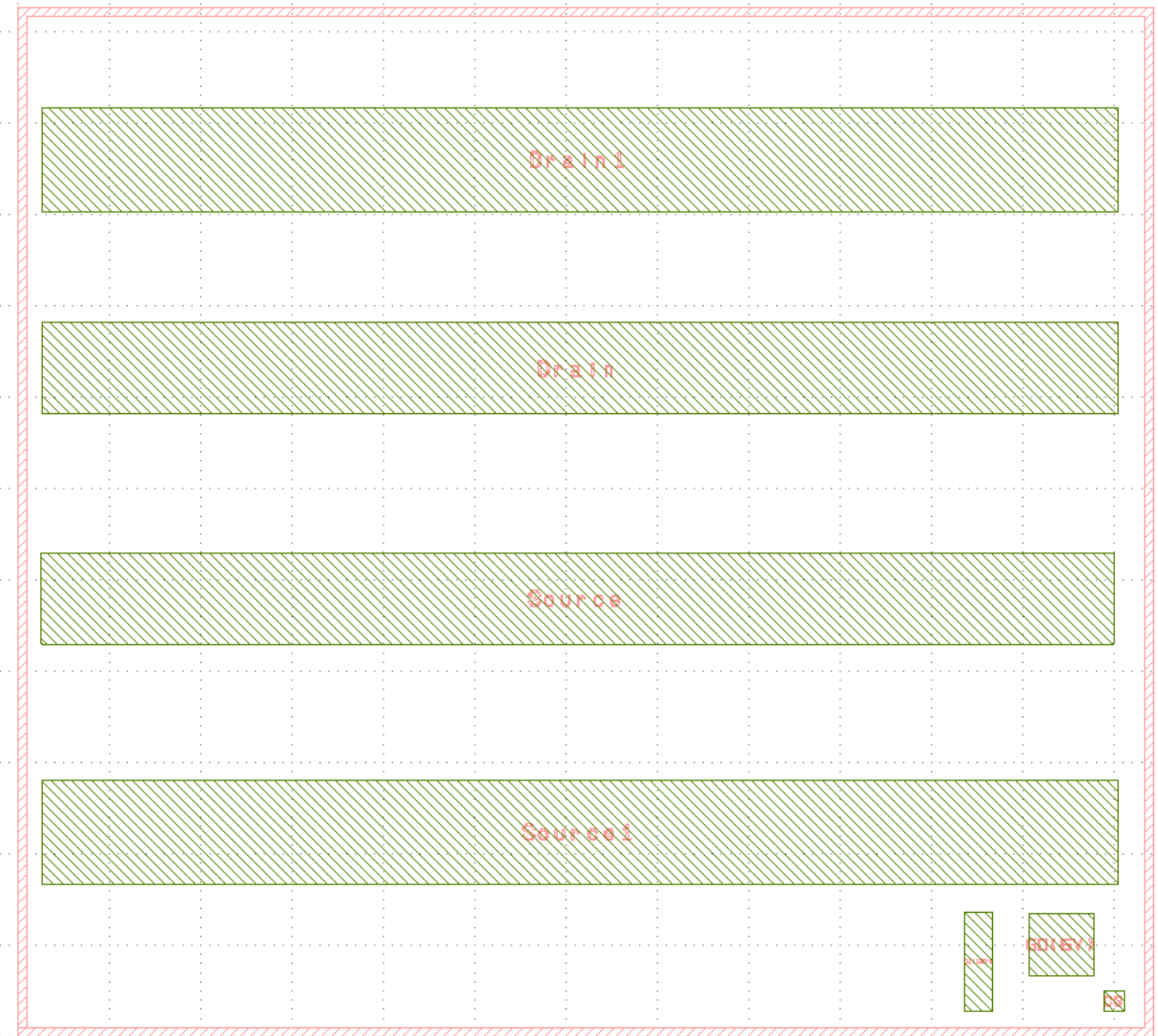
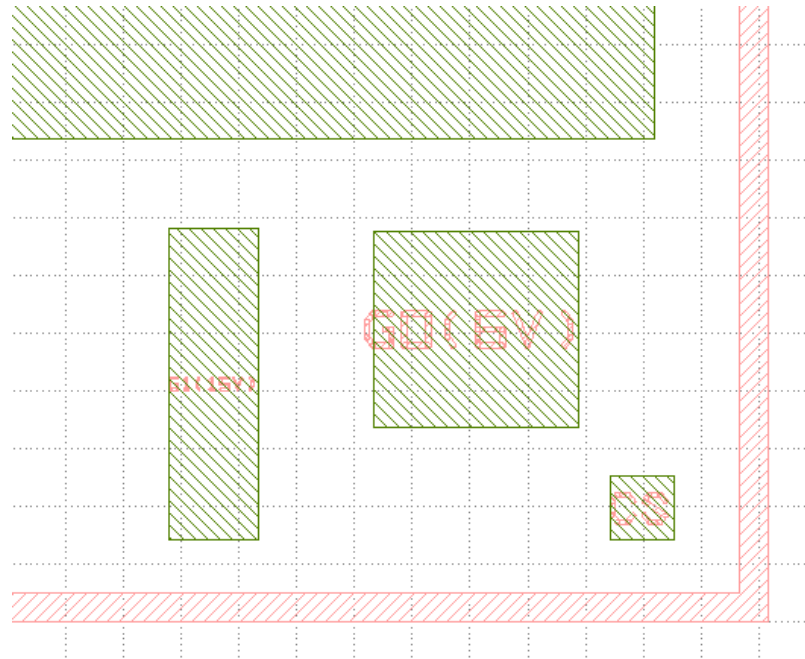
Choice of original 6V gate driving or 0-12 or 0-15V regulated gate driving

Enhanced V_{gth} (2.7V) for reliability

Regulated gate driving enables anti-ringing Protection / ESD protection

Lossless source side current sensing

Device-name	x-size	y-size
p2p120	6217.05	5634.28



Main switch FET channel width: 1427464.88 um

PAD	Dx	Dy	Center_x	Center_y
Source	5868.47	500.00	3062.04	2397.14
Source1	5889.47	563.00	3074.54	1118.20
Drain	5889.47	500.00	3074.54	3657.14
Drain1	5889.47	570.00	3074.54	4798.48
G1(15V)	155.00	540.00	5254.92	411.83
G0(6V)	385.00	370.00	5709.35	505.67
CS	111.00	111.00	5997.77	196.30

Basic specifications

Back metal	None
Front metal	AlCu 4um
Wafer diameter	6 inch
Wafer thickness before dicing	1000 um
Recommended die thickness after dicing	250-300um
Street width	80 um
Recommended storage	N2 environment

Wire bonding suggestion

Larger pads use 10mil or 12mil Al .

Smaller pads use Cu, PdCu , or Au (1.5 mil – 2 mil)

Backside must be glued to backplate using conductive glue

Backplate must be connected to the source of the GaNFET using wire bonding

Characteristics

		Condition	min	typical	max	
Ids-max	Max current at 125C	Vgs=6/15 125C		120		A
Ids-max	Max current at 25C	Vgs=6/15 25C		240		A
Vds-max	D-S breakdown voltage	Vgs=0 25C < 100uA		900		V
Vg0s	Original gate voltage		-3		7	V
Vg1s	Regulated		-20		20	
Vgth (G0)	Gate threshold voltage	Vgs=Vds Ids=35mA		1.3		V
Vgth (G1)	Regulated threshold	Vg1s=Vds Ids=35 mA		2.7		V
Idss	Drain leakage	Vg1s=0 / Vg0s=0 25C Vds=900			100	uA
Igss	Forward gate leakage	Vg0s=6/Vg1s=15 Vds=0			1/150	mA
Rdson	On resistance	Vg0s=6/Vg1s=15 Ids=1A 25C		12		mOhm
Rdson	On resistance	Vg0s=6/Vg1s=15 Ids=1A 150C		26		mOhm
Vcs	Current sensing	Ids=+/-120A	-2.5		2.5	V
Qg	Gate charge	Vbus=500V Turn-off from Ids=1A Vg0s from 6 to 0 25C		29		nC

Application note on G1 (15V) driving

When using G1 for driving (either 0-12V or 0-15V):

Best to wire bond a bare die of low voltage diode (max rating 20V, max current 0.5A) between G0 and G1 such that the forward direction of the diode points from G0 to G1. If diode is not used, it is highly recommended -3 Vg be used for safe turn-off.

G1 comes with ESD protection and anti-ringing protection.

Recommended $R_{goff}=0$ $R_{gon}=0$ to 5 Ohm.

Application note on G0 (6V) driving

G0 is unprotected against ESD at this version and can be used as a standard EMODE p-GaN gate.
Recommended $R_{goff}=0$ $R_{gon}=5-10$ Ohm