Report on OVP-GaN Testing

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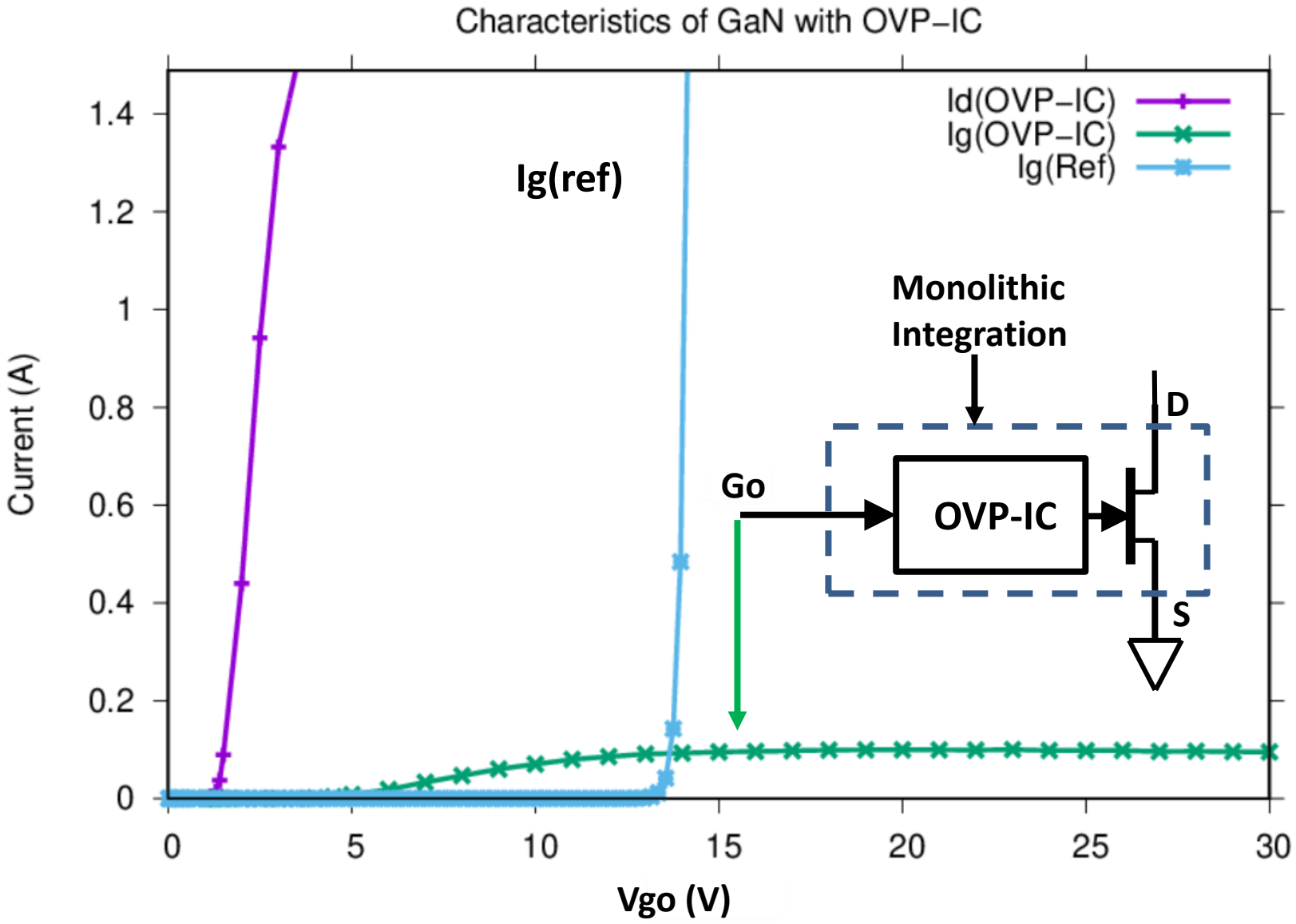
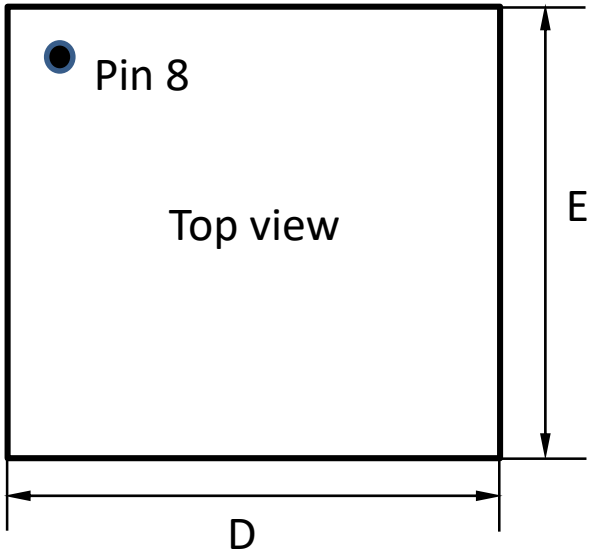
GaNPower New Product: GaN EHEMT with Integrated Over-Voltage Protection Circuit



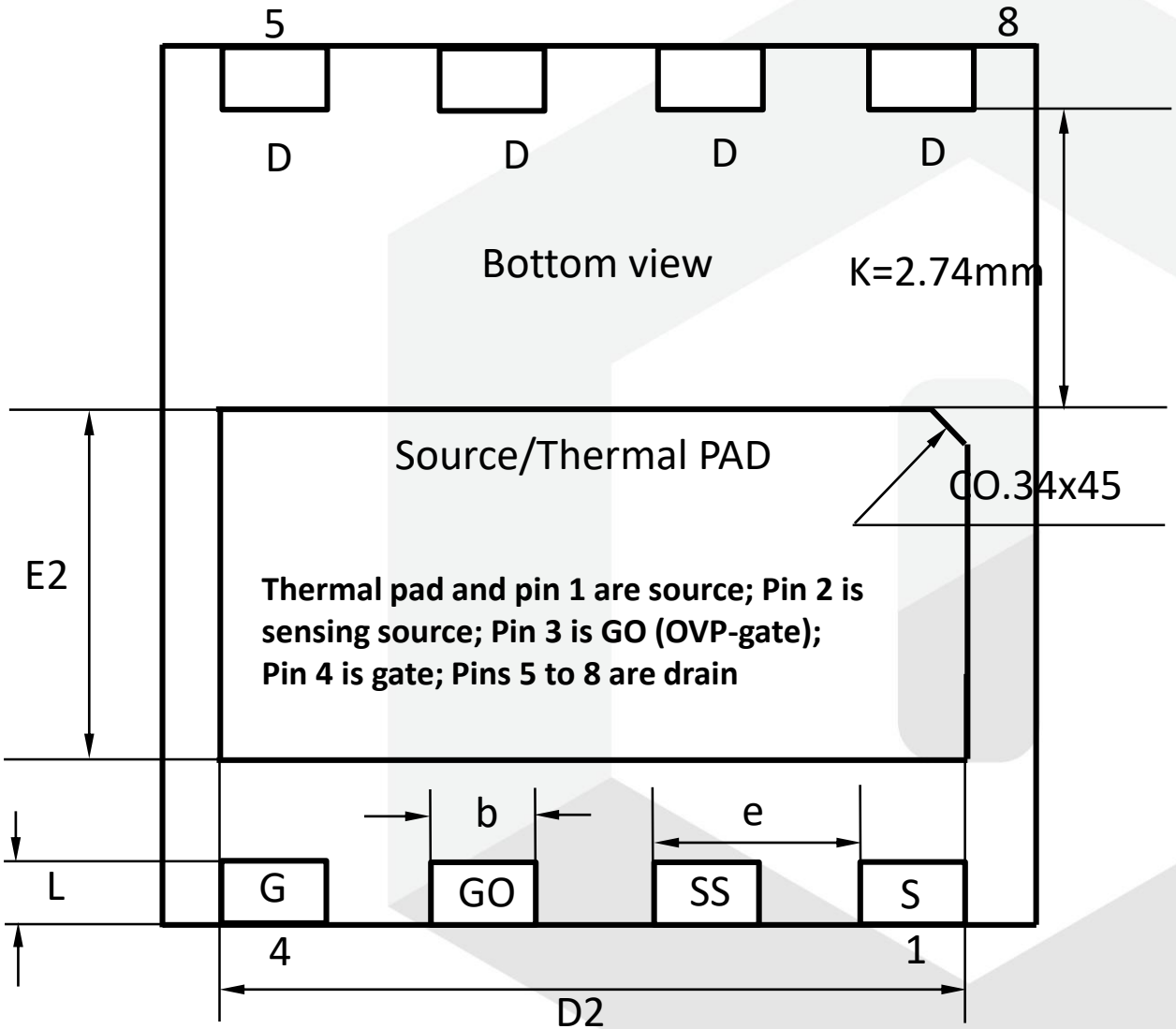
DFN8x8-OVP. Suggested driving range G: 5-6V; GO: 5-15V, protection > 30V

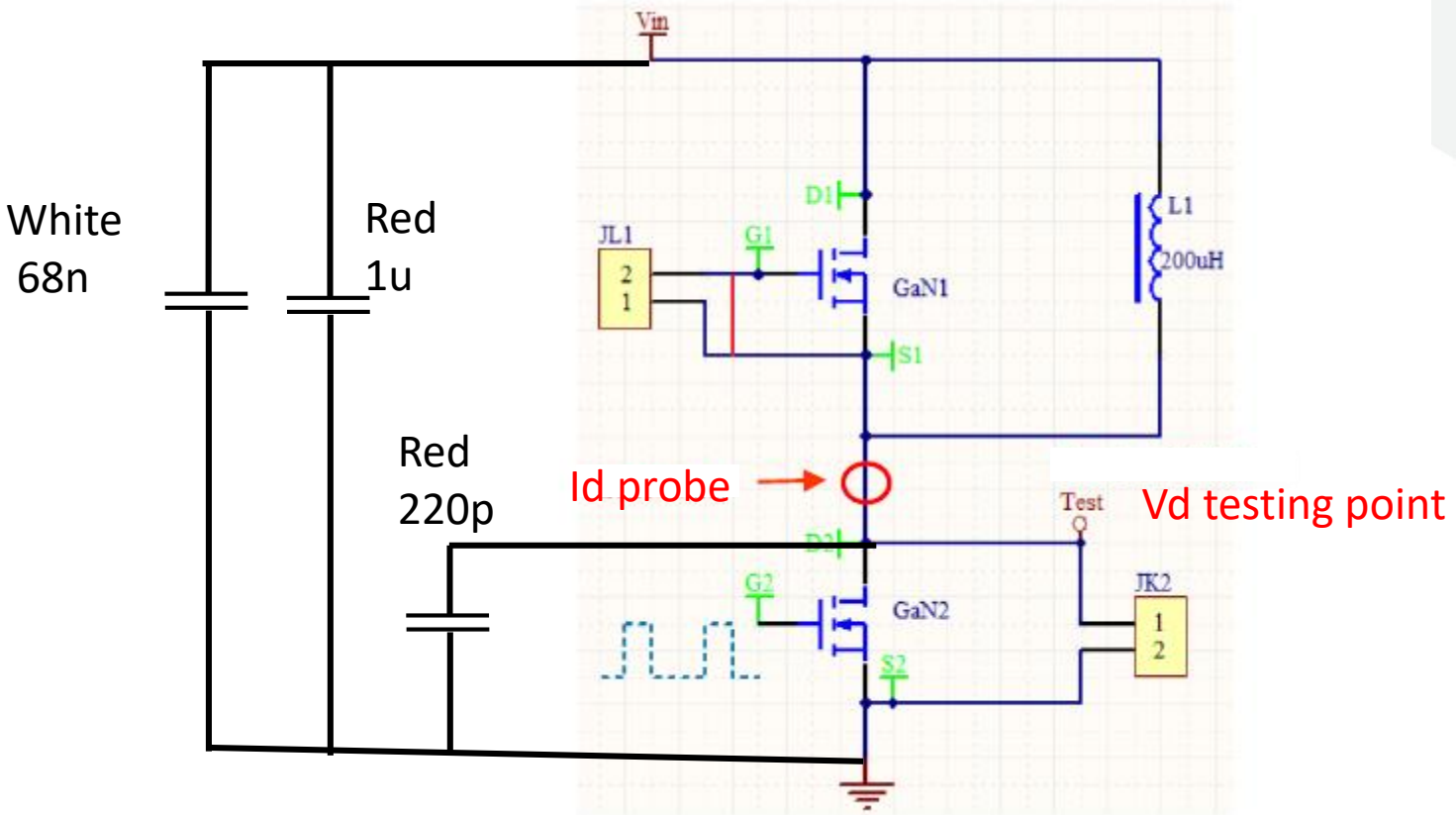


D=8; E=8; e=1.95; b=0.97;
L=0.57; D2=6.82; E2=3.19

8LEAD DFN (8x8x0.75mm, Pitch 1.95mm)

IMPORTANT:Please connect the bottom thermal pad to the source electrode on PCB

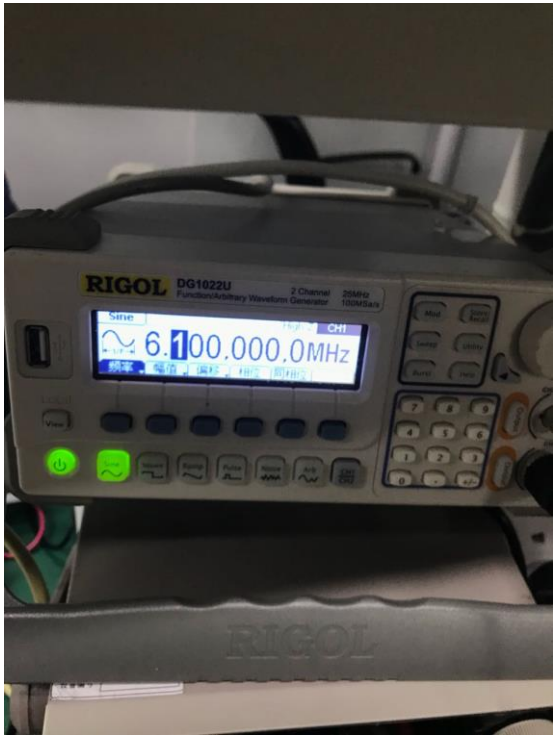


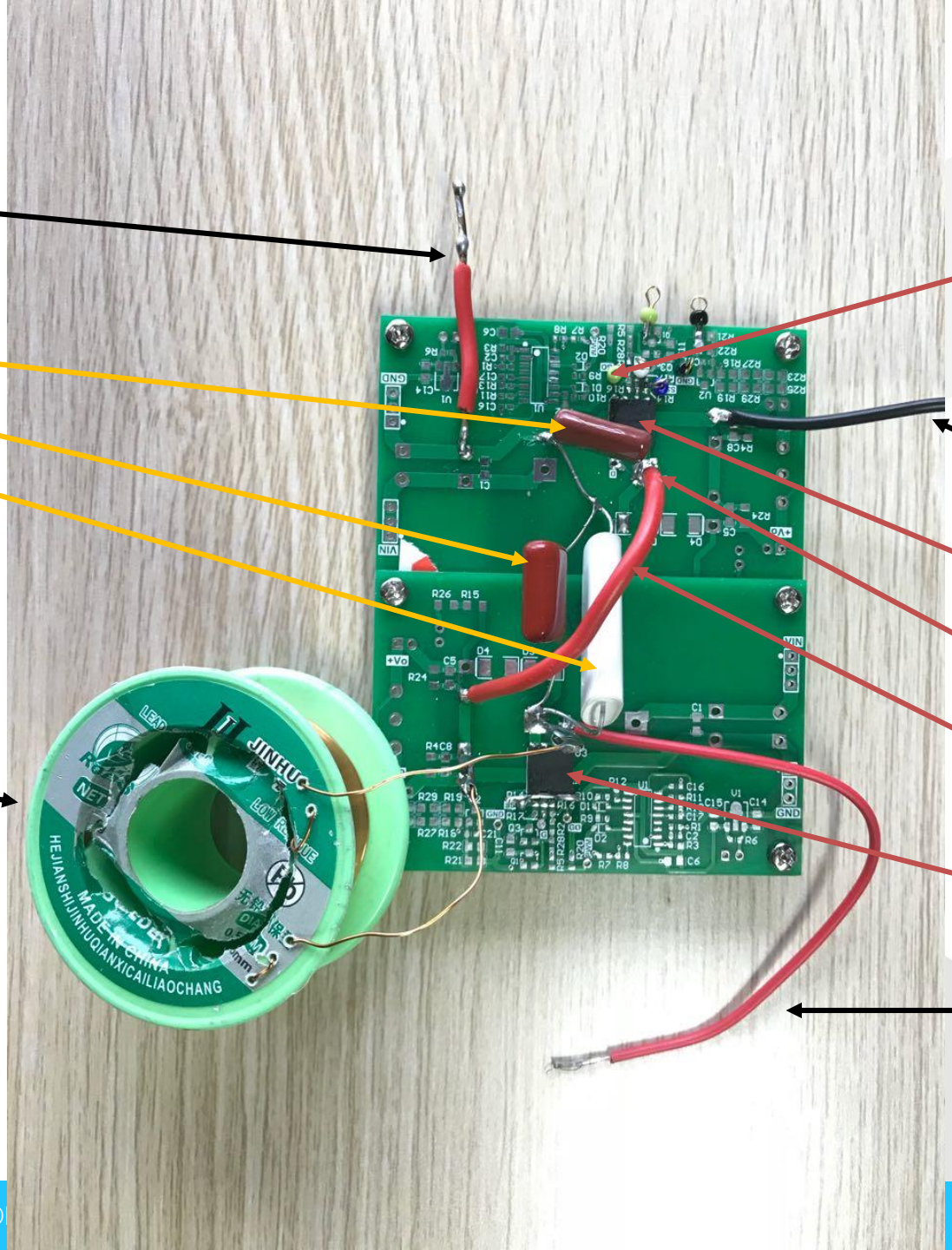


Double pulse unclamped inductive switching (UIS) testing at 10V driving pulses.

Experimental

- A general purpose power supply PCB were used with 8x8 DFN foot print compatible with GaNPower OVP-GaN device (product ID GPI60515DSOVP).
- A RIGOL DG1022U Waveform Generator were used as a driver to provide a maximum of 10V driving to Go lead of the OVP-GaN device. 10V double pulse equivalent to 100kHz were used to perform the experiment.
- A CYBERTEK CP8050A Current Probe were used to provide drain current measure for the low-side GaN device.



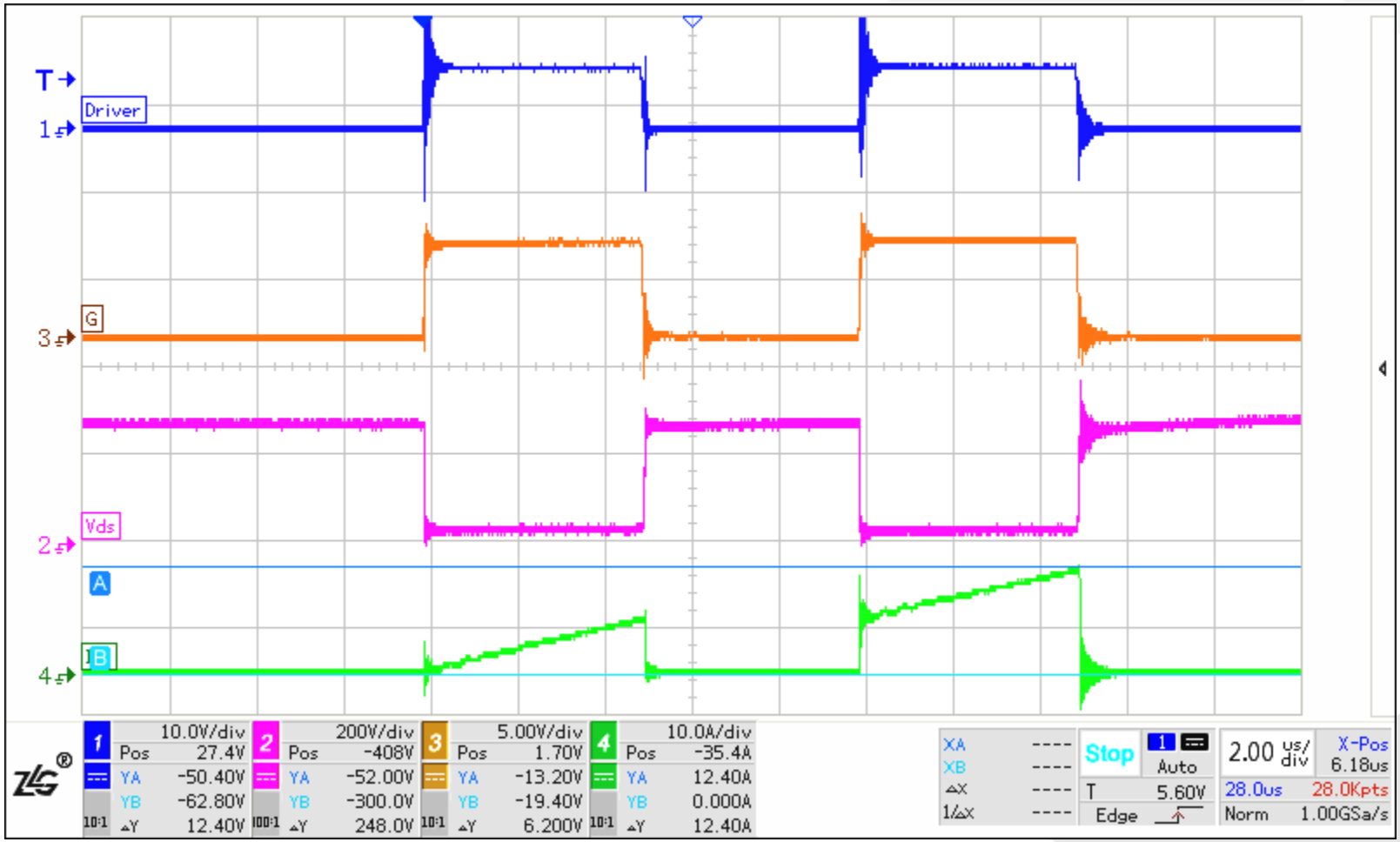

Ground
220pF
1uF
68nF
L1
200uH
OVP-Vg input
To wave generator
Ground
GaN2 (lo-side)
Vd testing point
Id probe
GaN1 (hi-side)
Vin (450V)

Measurement Summary

	A	B	C	D	E	F	G	
1	Test date	Waveform	Vin(V)	Freq(K)	Go(V)	Ids(A)	PCB setting	
67	2019-01-31	g67	250	100	10	12.4	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal
68	2019-01-31	g68	300	100	10	14.8	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal
69	2019-01-31	g69	350	100	10	17.2	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal
70	2019-01-31	g70	380	100	10	20.4	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal
71	2019-01-31	g71	400	100	10	21.6	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal
72	2019-01-31	g72	450	100	10	23.6	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal

Waveforms

	A	B	C	D	E	F	G	
1	Test date	Waveform	Vin(V)	Freq(K)	Go(V)	Ids(A)	PCB setting	
67	2019-01-31	g67	250	100	10	12.4	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal



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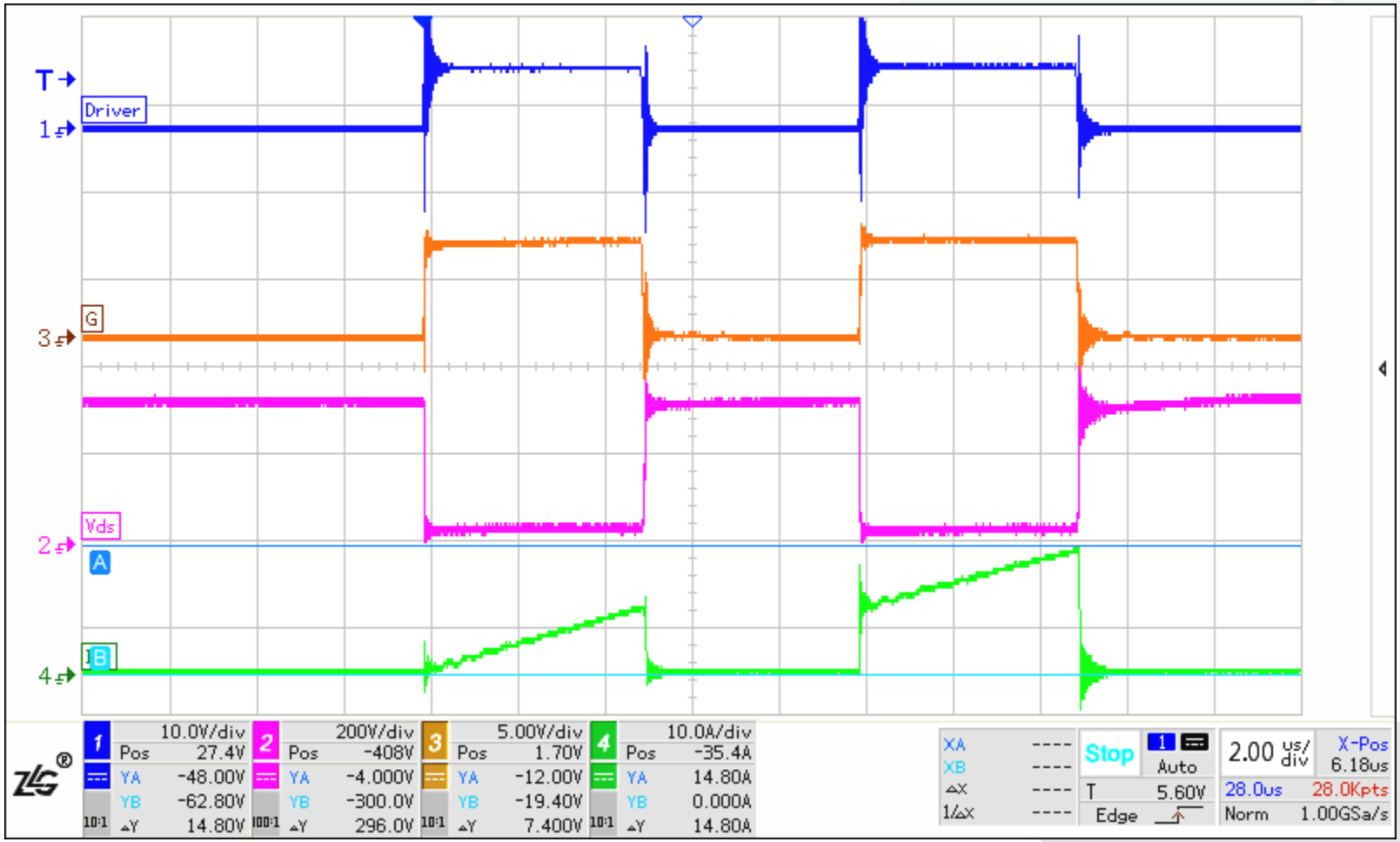
68	2019-01-31	g68	300	100	10	14.8	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal



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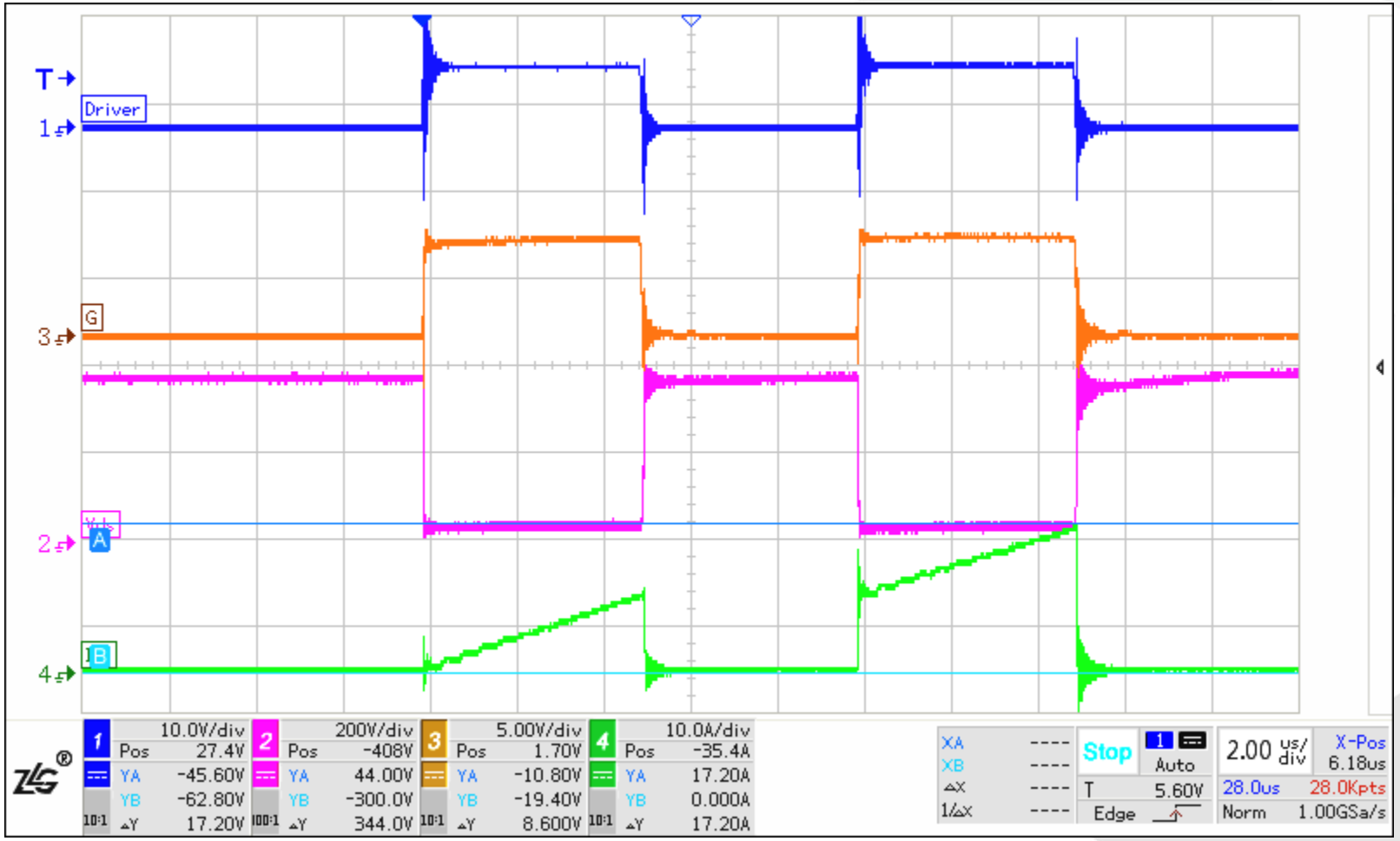
1	Test date	Waveform	Vin(V)	Freq(K)	Go(V)	Ids(A)	PCB setting	
69	2019-01-31	g69	350	100	10	17.2	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal



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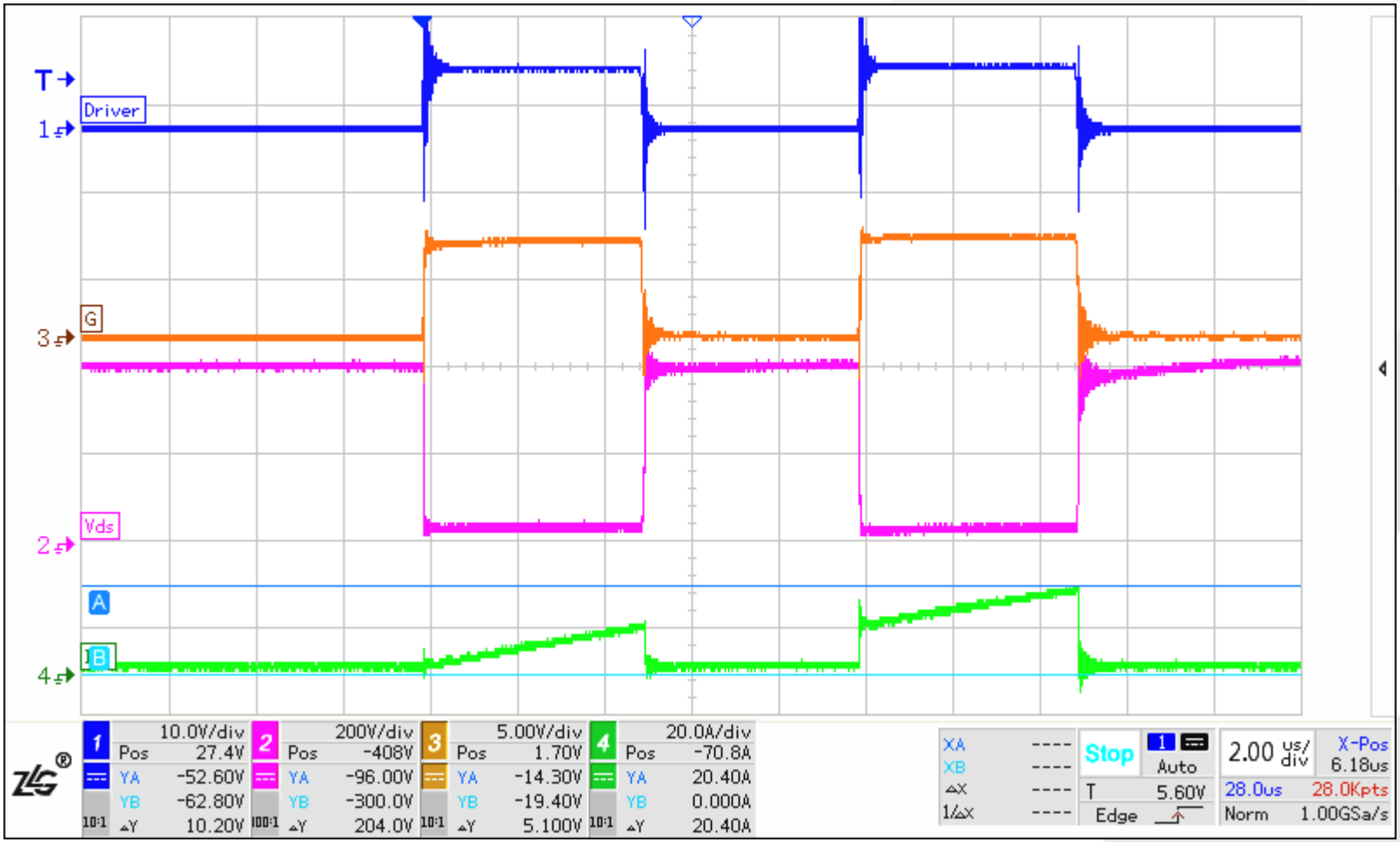
70	2019-01-31	g70	380	100	10	20.4	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal



Waveforms

	A	B	C	D	E	F	G	
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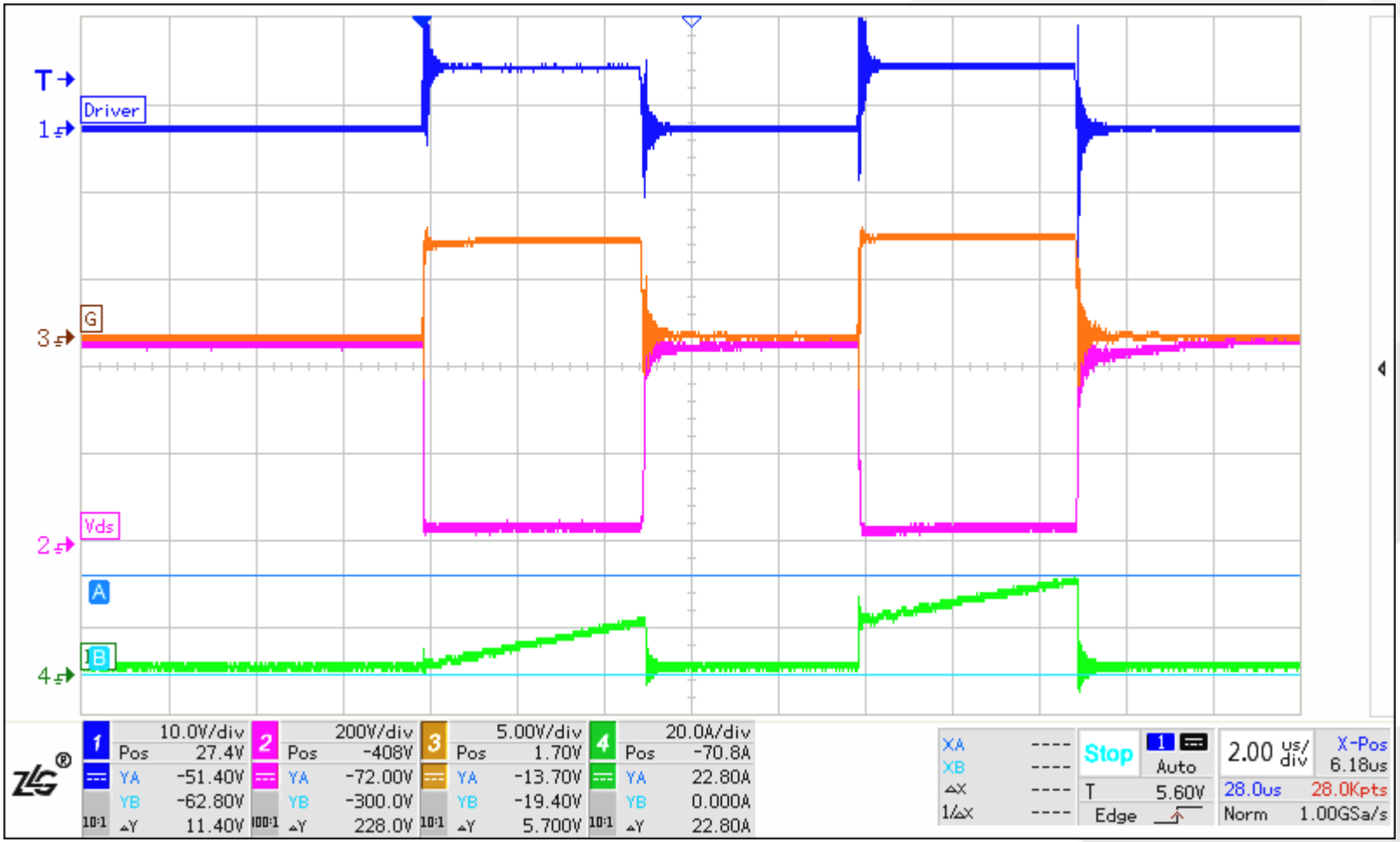
71	2019-01-31	g71	400	100	10	21.6	Input // 1uF+6.8nFCap+Lowside GaN DS//220pF	Normal



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	A	B	C	D	E	F	G	
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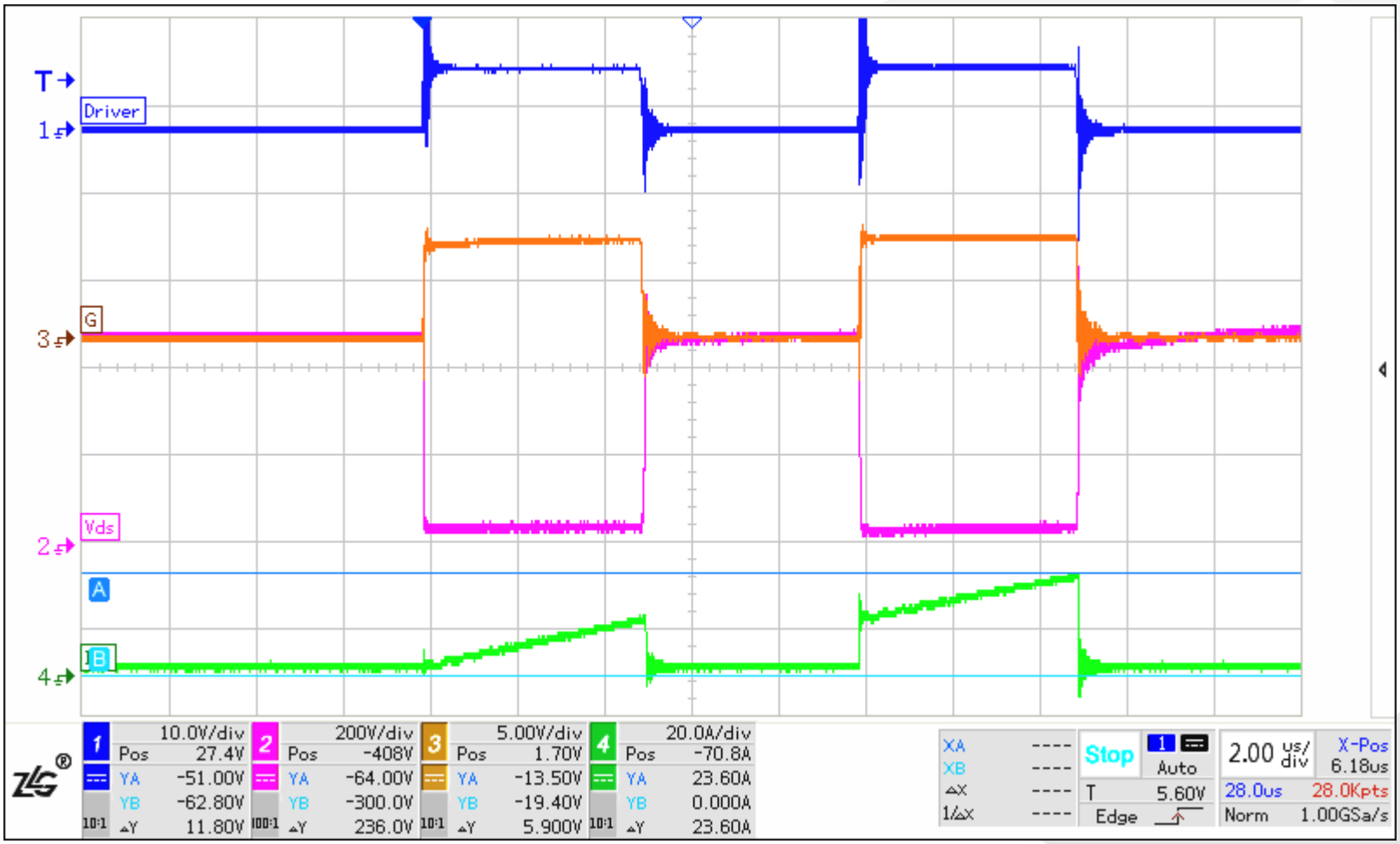

Conclusions

- Double pulse testing with unclamped inductive load has been succefully demonstrated for GaNPower's OVP-GaN devices up to 450V (limited by HV capacitor) and 24A.
- GaNPower's OVP-GaN device not only provides over-voltage protection but also enables larger gate driving voltage up to 15V.
- Under hard-switching condition, it is important to protect the low-side GaN switch using a filtering capacitor.

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Technology Innovation

Fast Growing

GaNPOWER

THANKS FOR YOUR PATIENCE AND SUPPORT

衷心感謝您的耐心與支持