

Half bridge evaluation board (with dedicated X-GaN driver + general isolator) for evaluating the performance of X-GaN power transistor

Overview

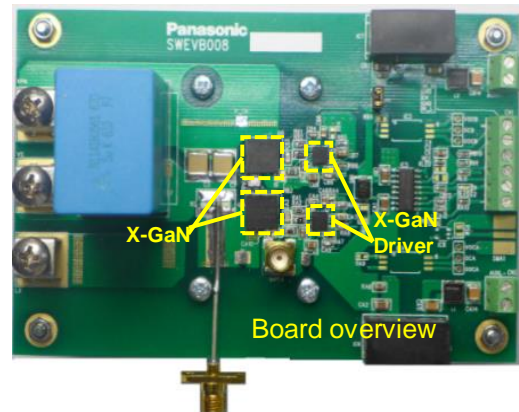
The PGA26ExxBA-SWEVB008 is a half bridge evaluation board for measuring the switching characteristics of the GaN power transistor and can be easily configured into any half bridge topology for power supply evaluation.

Features

- Maximum input voltage: DC 400V
- Support evaluation of switching characteristics using 2-pulse test
- Support continuous power supply test depending on thermal design (up to 400W / 800W using attached heatsink)
- Reference design for PCB layout and gate driver circuit
- High speed switching and high frequency operation performance
- Include isolated DCDC and able to configure to bootstraps design easily

Application

- Half bridge topology for power supply testing



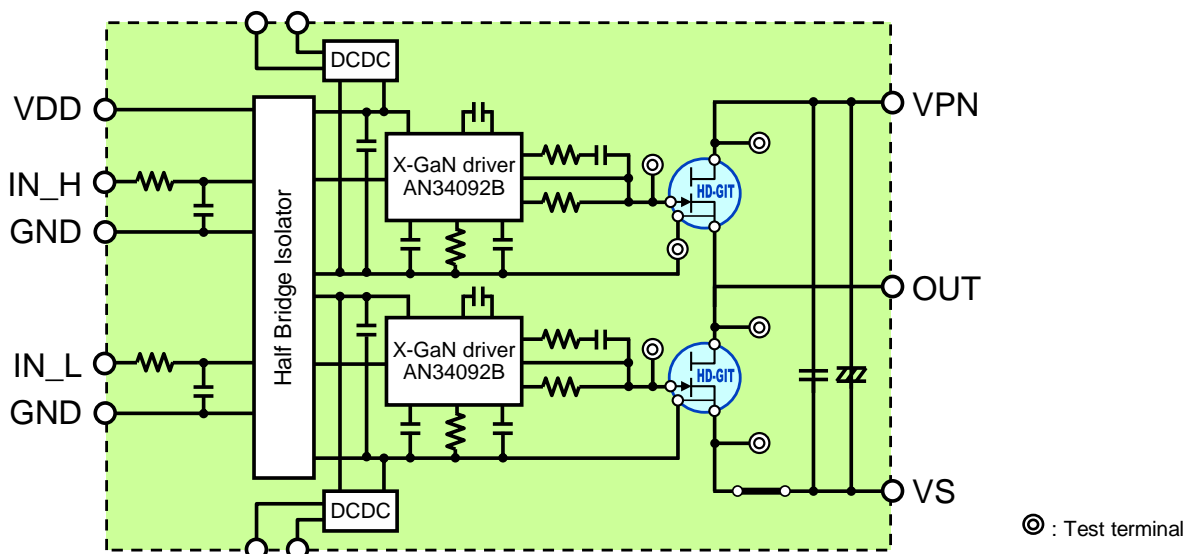
EVB Part Number

PGA26E07BA-SWEVB008
PGA26E19BA-SWEVB008

Key Device Part Number

X-GaN 70mΩ - PGA26E07BA
X-GaN 190mΩ - PGA26E19BA
X-GaN Driver - AN34092B
Isolator - SiLab Si8275

Block diagram outline



Terminal information

| Terminal Name | Function |
|---------------|---|
| IN_L | Low side input signal with 3.3V/5V CMOS logic option |
| GND | Input ground |
| IN_H | High side input signal with 3.3V/5V CMOS logic option |
| EN | Enable |
| VDD | Isolator input supply (3.3V ~ 5.5V) |
| AUXH+ | Auxiliary power supply |

| Terminal Name | Function |
|---------------|--------------------------------|
| AUXH- | Auxiliary power supply ground |
| AUXL+ | Auxiliary power supply |
| AUXL- | Auxiliary power supply ground |
| VPN | Half bridge input power supply |
| LX | Half bridge output |
| VS | Half bridge power ground |

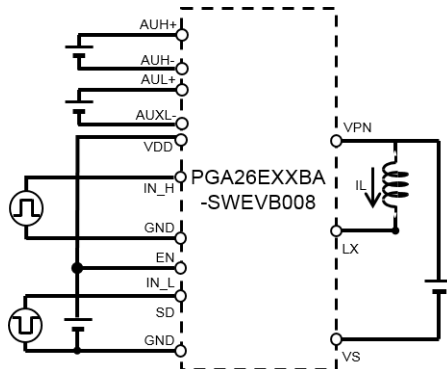
Recommended Operating Conditions

| Parameter | Condition |
|------------------------|-------------|
| DC power supply | 100V ~ 400V |
| Auxiliary power supply | 10V ~ 13V |

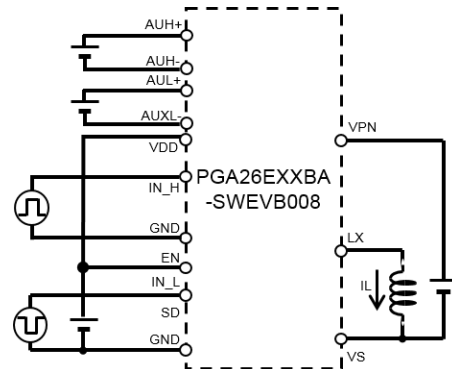
| Parameter | Condition |
|-----------------------|-----------|
| External clock signal | 3.3V ~ 5V |
| Temperature | 25°C |

Evaluation circuit diagram

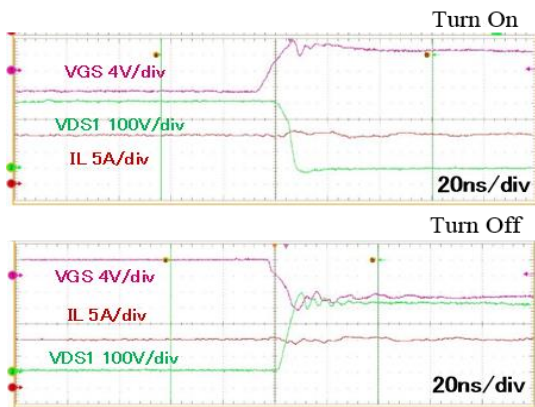
Low Side Test



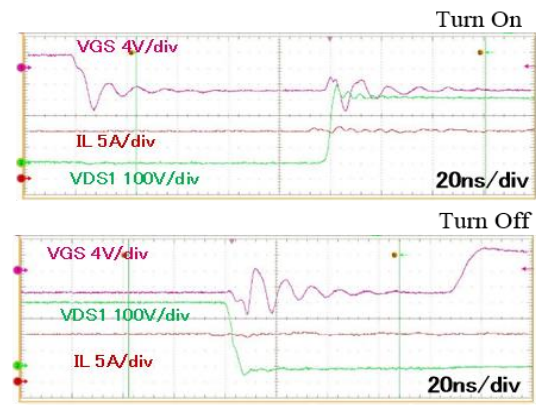
High Side Test



Examples of switching waveforms



Low Side: (VPN=400V, IDS=15A)



High Side: (VPN=400V, IDS=15A)

Important notice

- To avoid electric shock, please ensure to check the capacitor connected with line VPN and VS is discharged after evaluation.
- Depending on the conditions of the evaluation, please use an appropriate inductor for the DC superposition characteristics. Otherwise, there is possibility that GaN power transistor is damaged due to large current by magnetic saturation..
- To avoid damaging the GaN power transistor by overheating, please don't apply a constant positive voltage as a clock signal.
- Please adjust the pulse width so the maximum drain-source current rating is not exceeded.