

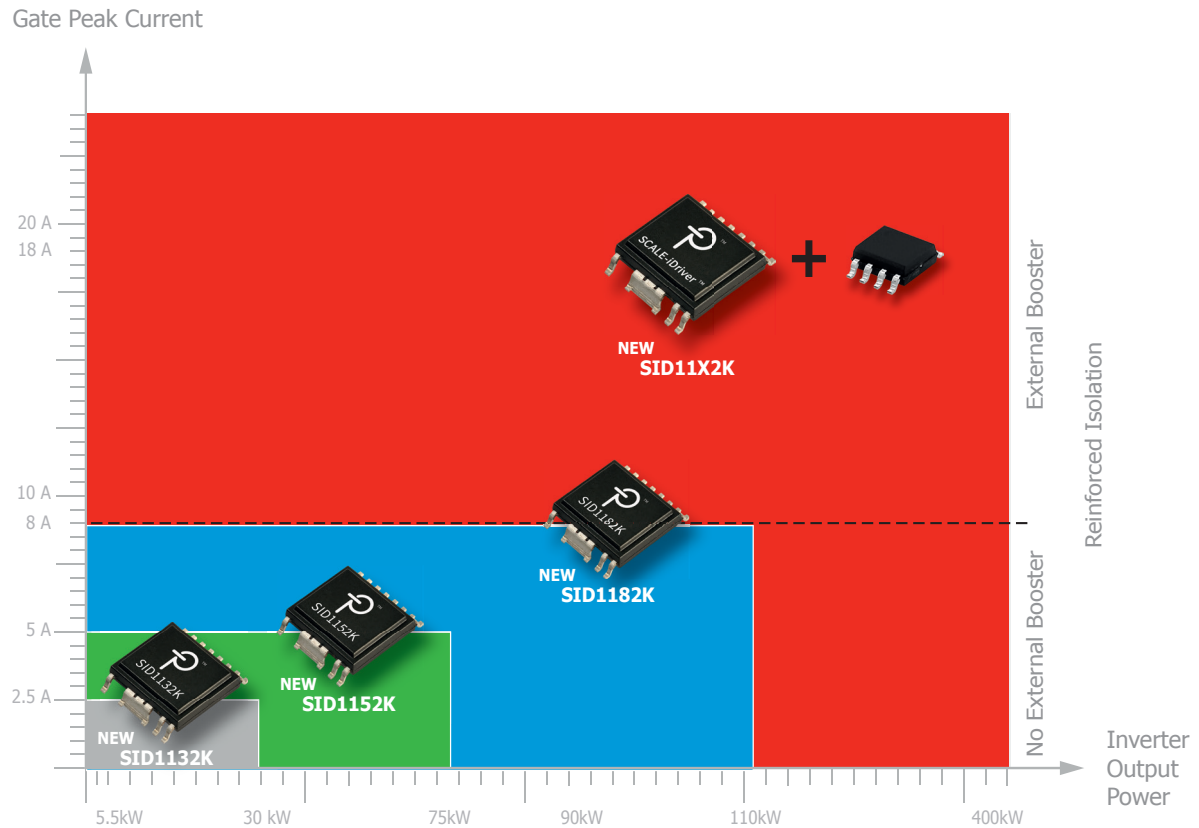
SCALE-iDriver™ Family



SCALE-iDriver -- galvanically isolated single-channel gate driver ICs ranging in output current from 2.5 A to 8 A; drives inverters up to 110 kW while reducing total component count



SCALE-iDriver Gate Driver: SID1132K, SID1152K, SID1182K



KEY FEATURES

- Family of reinforced isolated gate drivers with three output currents: SID1182K (8 A), SID1152K (5 A), SID1132K (2.5 A)
- Suitable for power semiconductors 600 V / 650 V / 1200 V IGBT and MOSFET switches
- -40 °C to +125 °C operating ambient temperature
- User friendly, simple 2-layer PCB design
- VDE 0884-10, VDE 0884-17 pending
- Meets IEC 60664-1, IEC 61800-5-1 and UL 61800-5-1 on creepage and clearance with new "9.5mm" package
- FluxLink™ with bidirectional signal transfer
- Up to 250kHz switching frequency



KEY BENEFITS

- Highest output peak current to 8 A
- 9.5 mm creepage and clearance
- Low profile 2.67 mm packaging
- Desaturation monitoring, selectable resistor chain
- Low component count
- Integrated voltage regulator
- Advanced Soft Shut Down (ASSD), no external components needed

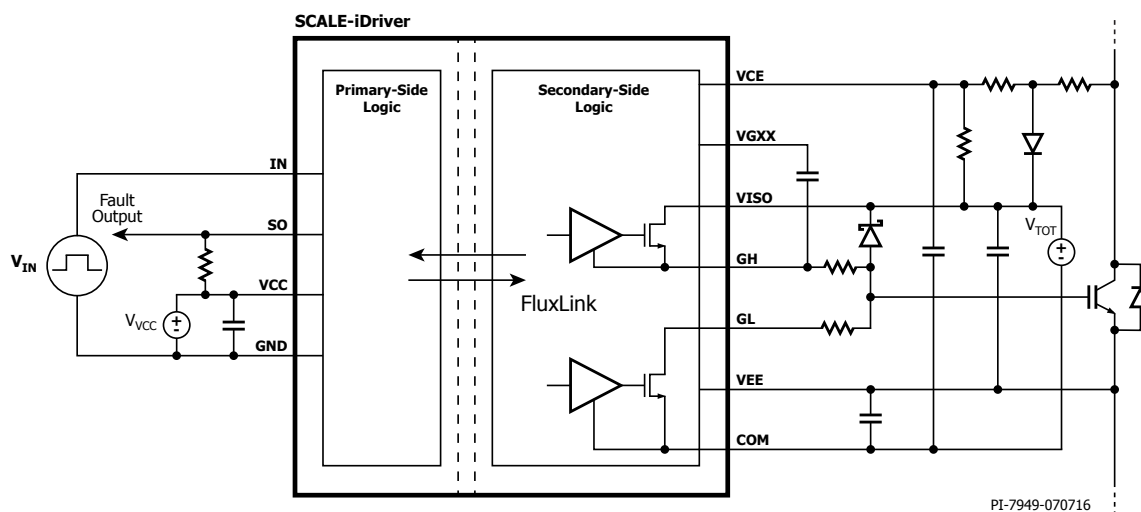
APPLICATIONS

- Industrial drives (GPD, AC drives and servo drives)
- Power supplies (UPS, all other power supplies e.g. large flat panel, industrial filter, lighting)
- Photo voltaic inverter (small power PV, large power commercial PV)
- Industrial application (welding, health care, plasma, inductive heating)
- EV charger supply and charger station

KEY DATA OVERVIEW

Parameter	Min	Typical	Max	Unit
Primary-side supply voltage (V_{VCC})	4.75	5	5.25	V
Secondary-side total Supply voltage (V_{TOT})	0.5		30	V
Maximum gate sourcing peak current (I_{GH})			8	A
Maximum gate sinking peak current (I_{GL})			8	A
Operating switching frequency (f_s)	0	20	250	kHz
Propagation delay jitter			+/-5	ns
Turn-on propagation delay time ($t_{D(ON)}$)		265		ns
Turn-off propagation delay time ($t_{D(OFF)}$)		260		ns
Minimum turn-on and off PWM pulses extension ($t_{GE(MIN)}$)		390		ns
Creepage distance primary-secondary (L2)	9.5			mm
Clearance distance primary-secondary (L1)	9.5			mm
Tracking resistance (comparative tracking index - CTI)		600		
Max. package dissipated power (T_s)			1.79	W
100% production withstanding isolation voltage test (V_{ISO})	6			kV _{RMS}
100% production partial discharge test ($V_{PD(m)}$)	2650			V _{peak}

APPLICATION CIRCUIT OF SID11X2K



ORDERING INFORMATION SCALE-iDriver GATE DRIVER CORE

Type Designation	Product rated current	IGBT collector current ratings	Ordering code
SID1132K	2.5 A	up to 100 A	SID1132K (delivered in tubes – 48pcs) SID1132K-TL (delivered in Tape & Reel -2500pcs)
SID1152K	5 A	up to 200 A	SID1152K (delivered in tubes – 48pcs) SID1152K-TL (delivered in Tape & Reel -2500pcs)
SID1182K	8 A	up to 450 A	SID1182K (delivered in tubes – 48pcs) SID1182K-TL (delivered in Tape & Reel -2500pcs)

RDHP-1526, 2-Channel and 15A Peak Output Current Gate Driver IC with SCALE-iDriver SID1182K

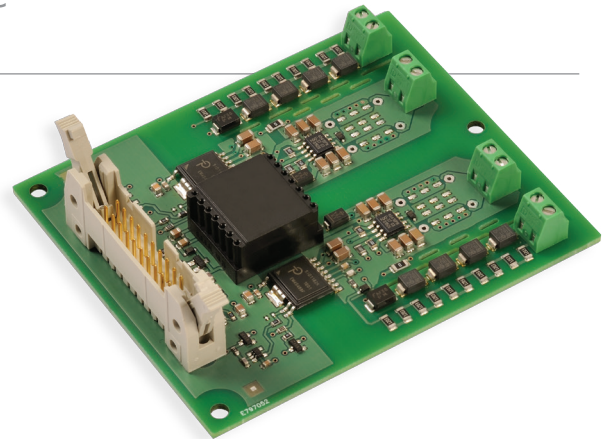
This two channel application related reference design board drives IGBT module or discrete IGBT/ MOSFET with blocking voltage up to 1200V. The external booster stage amplifies the 8 A output current of SCALE-iDriver IC to 15A peak output current. The reference design offers a variation of safety function including Active Clamping and Advanced Soft Shut Down. A compact reinforced isolated DC/DC converter provide unipolar secondary side supply voltage.

The main features of the design are:

- Suitable for power modules up to $V_{CES}=1200V$
- Integrated booster stage for high gate peak output current 15A
- Embedded isolated DC/DC power supply with 1.2W per channel
- Electrical 5V logic level interface
- Short-circuit detection
- Advanced Soft Shut down (ASSD)
- Undervoltage lock out primary and secondary side
- Basic Active Clamping (BAC)
- 5V supply voltage
- 2-layer PCB design

The design is proposed for the following application conditions:

- Maximum DC-link voltage of up to 800V under switching conditions
- Typical stray inductance (including the stray inductance of the IGBT power modules) of the commutation loop is 30nH



Gate Driver	Channels	Interface	Power Module Package	Voltage Class
SID1182K	2	Electrical	Various	Up to 1200V

RDHP-1608, 2-Channel and 8 A Peak Output Current Gate Driver IC with SCALE-iDriver SID1182K

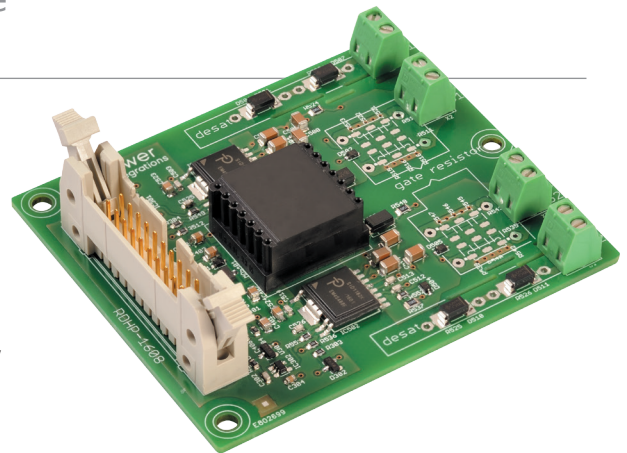
This two channel application related reference design board drives IGBT module or discrete IGBT with blocking voltage up to 1200V. The SCALE-iDriver IC provide peak output current of 8 A. The reference design offers a variation of safety function including short circuit measurement and Advanced Soft Shut Down (ASSD). An compact reinforced isolated DC/DC converter provide unipolar secondary side supply voltage.

The main features of the design are:

- Compact Gate Driver design with minimal external components
- Suitable for IGBT module and discrete IGBT/MOSFET up to $V_{CES}=1200V$
- Gate peak output current 8 A
- Embedded two channel isolated DC/DC power supply with 1.2W per channel
- Electrical 5V logic level interface
- Short-circuit detection
- Advanced Soft Shut down (ASSD)
- Undervoltage lock out primary and secondary side
- 5V supply voltage
- 2-layer PCB design

The design is proposed for the following application conditions:

- Maximum DC-link voltage of up to 800V under switching conditions
- Typical stray inductance (including the stray inductance of the IGBT power modules) of the commutation loop is 30nH



Gate Driver	Channels	Interface	Power Module Package	Voltage Class
SID1182K	2	Electrical	Various	Up to 1200V