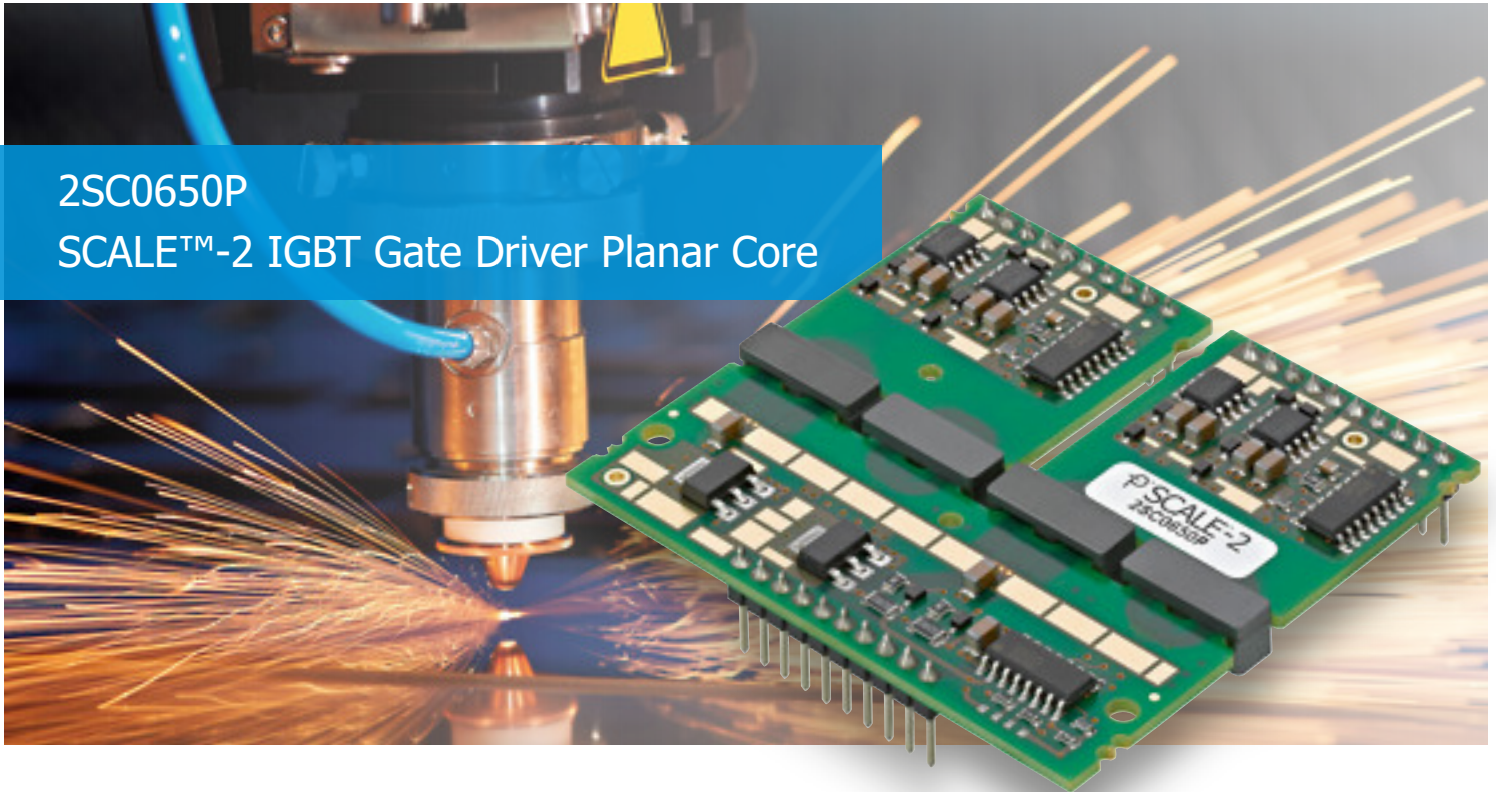


## 2SC0650P SCALE™-2 IGBT Gate Driver Planar Core



2SC0650P – Dual-Channel IGBT Gate Driver Core with Planar Transformers. Highest Power Density for High-Power and High-Frequency. 50 A Gate Current and 2 x 6 W Output Power.

### PRODUCT DESCRIPTION

The 2SC0650P driver core combines high power density with broad applicability. The driver is designed for both high-power and high-frequency applications requiring maximum reliability. It is suitable for IGBTs with reverse voltages up to 1700 V and also SiC MOSFET.

The highly integrated SCALE™-2 chipset reduces the component count by up to 85 % compared to conventional solutions, thus significantly increasing reliability and reducing costs. SCALE™-2 technology enables the driver core to operate at switching frequencies of up to 150 kHz – at best-in-class efficiency.

The 2SC0650P has a profile of only 6.5 mm and a footprint of 57 x 62 mm. It combines a complete two-channel driver core with all components required for driving, such as an isolated DC/DC converter, short-circuit protection, Advanced Active Clamping as well as supply voltage monitoring. Each of the two output channels is electrically-isolated from the primary side and the other secondary channel.

### APPLICATIONS

- High gate-current driving applications
- High-frequency applications
- Switched-mode power supplies (SMPS)
- Wind power converters
- Induction heating
- Industrial drives
- Traction applications
- Electro/hybrid drive commercial vehicles

### KEY BENEFITS

Ultra-flat due to planar transformers and highest power density. Low transformer stray inductance.

### KEY FEATURES

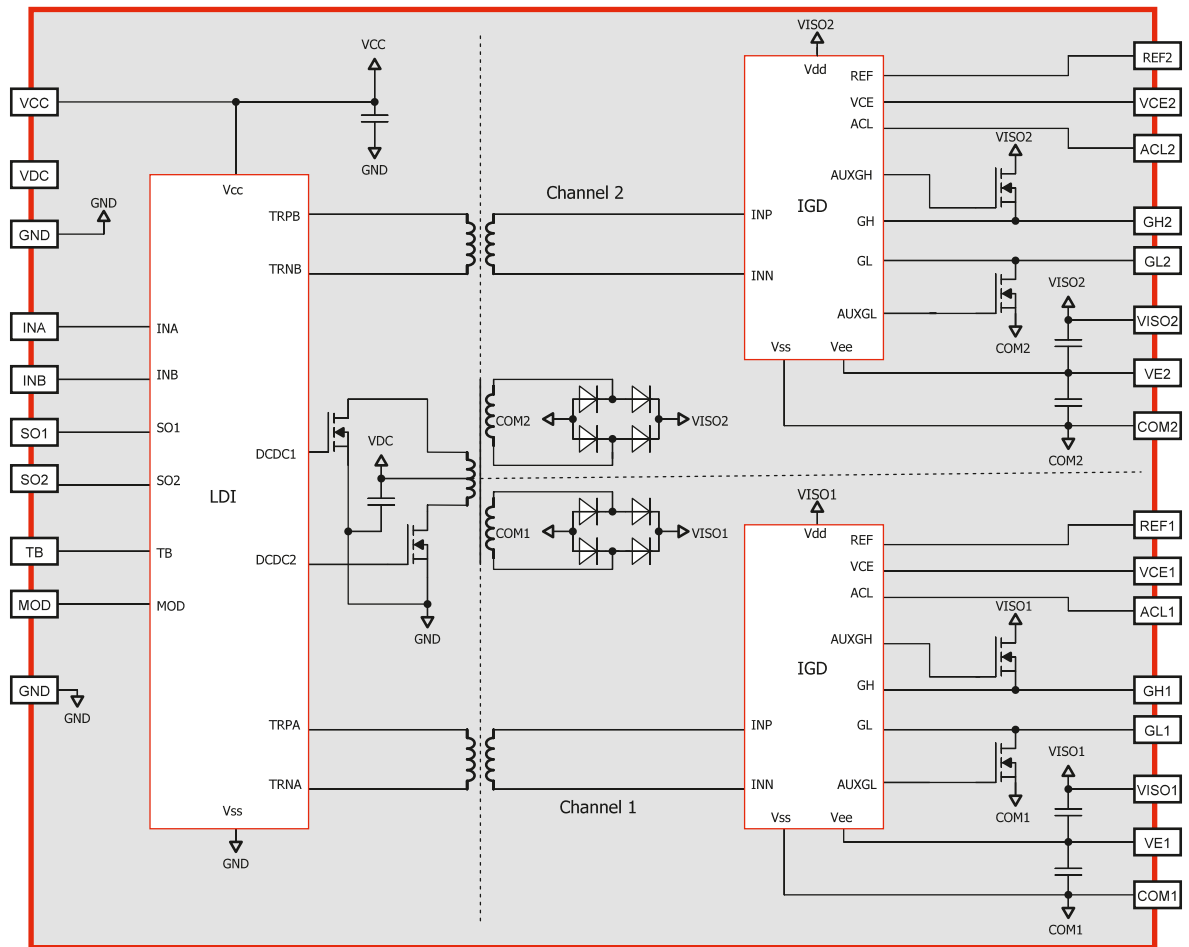
- Ultra-low-profile solution
- Planar transformer isolation
- IGBT blocking voltages up to 1700 V
- Switching frequency up to 150 kHz
- Very short delay time of  $\leq 80$  ns
- Extremely small jitter of  $\leq \pm 2$  ns
- High gate current  $\pm 50$  A
- Compatible to all logic families
- IGBT short-circuit protection
- Advanced Active Clamping
- 2 x 6 W output power
- Supply under-voltage lockout
- Safe isolation to EN50178
- UL compliant
- Superior EMC

## KEY DATA OVERVIEW

Parameter	Min	Typical	Max	Unit
Nominal supply voltage		15		V
Supply current @ $f_{IN}=0$ Hz		61		mA
Supply current, full load			1335	mA
Output power per channel			6.5	W
Gate voltage		+15/-10		V
Peak output current (gate current)	-50		+50	A
Switching frequency $f_{IN}^{1)}$			150	kHz
Duty cycle	0		100	%
Turn-on delay		80		ns
Turn-off delay		75		ns
Creepage distance primary-secondary		15		mm
Clearance distance primary-secondary		15		mm
Dielectric test voltage	5000		5100	V <sub>AC</sub>
Partial discharge extinction voltage	1768			V <sub>peak</sub>
dv/dt immunity, input to output			100	kV/us
Operating temperature	-40		+85	degC

<sup>1)</sup> Maximum switching frequency depends on the IGBT gate charge. See Data sheet for actual value of specific driver.

## BASIC SCHEMATIC OF THE 2SC0650P



## ORDERING INFORMATION 2SC0650P DUAL-CHANNEL SCALE™-2 GATE DRIVER PLANAR CORE

Type Designation	Description	Temp degC	Lead free	Pin length
2SC0650P	2SC0650P2A0-17	-40...85	no	2.54 mm
	2SC0650P2C0-17	-40...85	no	5.84 mm