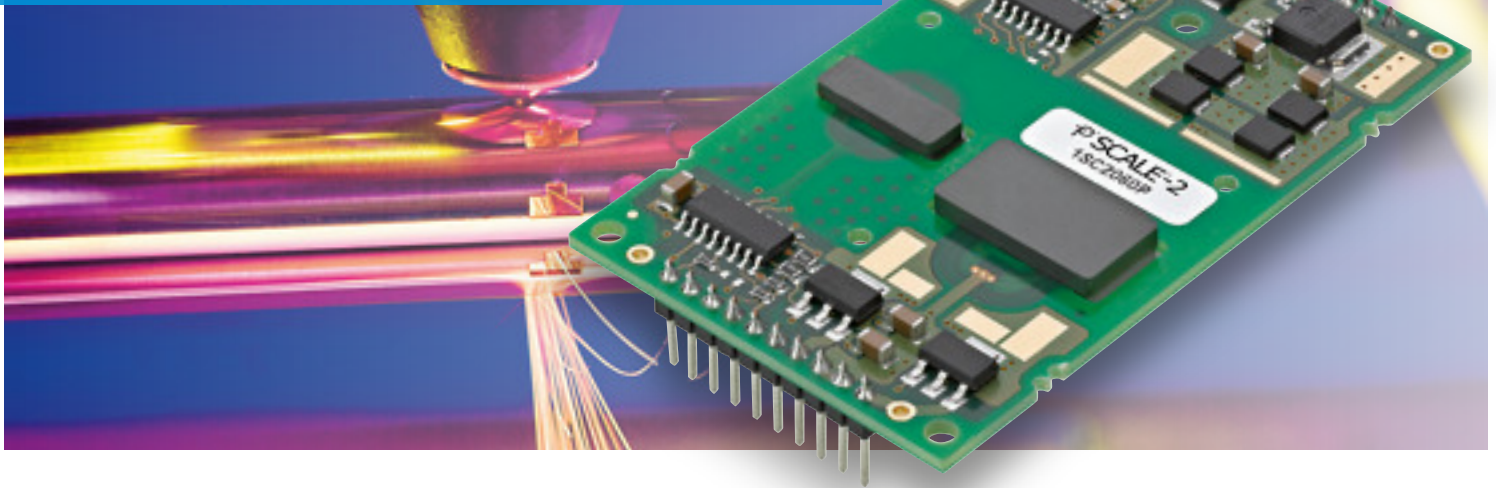


1SC2060P SCALE™-2 IGBT Gate Driver Planar Core



1SC2060P – Single-Channel Gate Driver Core with
60 A Gate Current for Driving Large IGBT Modules in Parallel 20 W
Output Power for High-Frequency Applications up to 500 kHz.

PRODUCT DESCRIPTION

The 1SC2060P is designed for high-power and high-frequency applications using high-power IGBTs and SiC MOSFETs. The gate driver supports switching at up to 500 kHz with best-in-class efficiency. The 1SC2060P effectively comprises a complete single-channel IGBT driver core, fully-equipped with an isolated DC/DC converter, short-circuit protection, Advanced Active Clamping, and supply-voltage monitoring.

With its compact outline of 44 mm x 74 mm and a total height of just 7 mm, the 1SC2060P delivers high power density in an attractive form factor. The highly-integrated SCALE™-2 chipset reduces components being cut by around 85 %. This leads to increased reliability and minimized costs.

APPLICATIONS

- High-frequency applications
- High gate-current driving applications
- Switched-mode power supplies (SMPS)
- Driving parallel-connected large IGBTs
- Wind power converters
- Traction propulsion converters
- Industrial drives
- Induction heating

KEY BENEFITS

Use of planar transformer technology leads to low transformer stray inductance, ultra-flat design and high power density.

KEY FEATURES

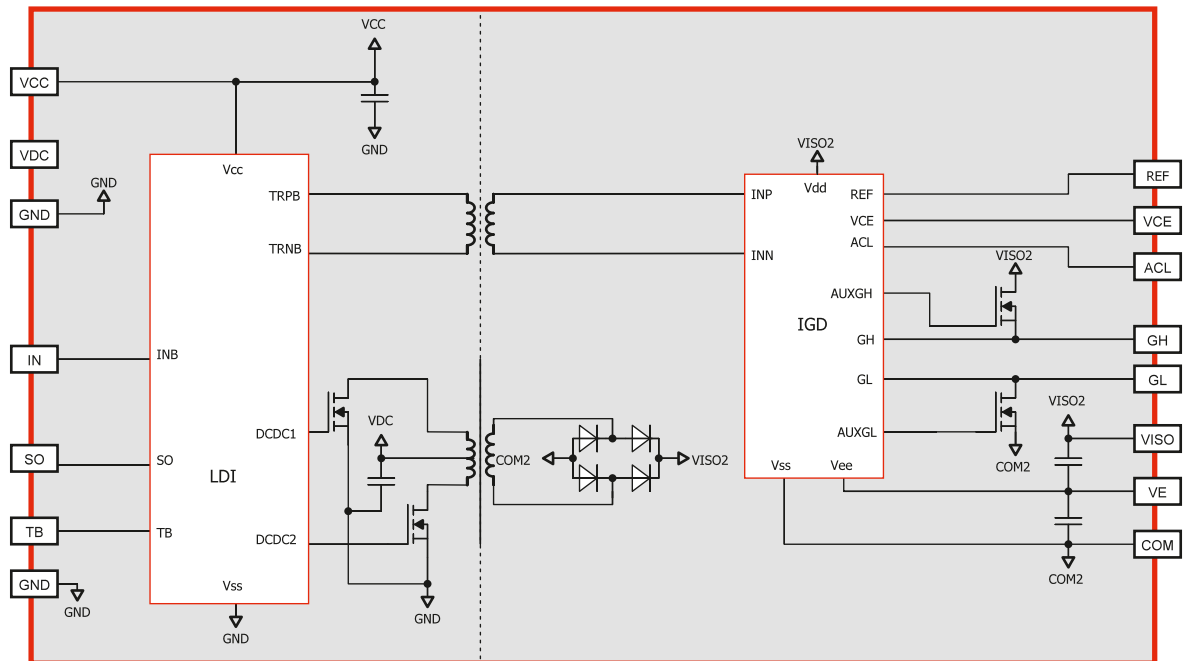
- Ultra-low-profile solution
- Planar transformer isolation
- Switching frequency up to 500 kHz
- IGBT blocking voltages up to 1700 V
- Very short delay time of <80 ns
- Extremely small jitter of <±1 ns
- High gate current ±60 A
- Compatible to all logic families
- IGBT short-circuit protection
- Advanced Active Clamping
- Isolated DC/DC converter
- 20 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		48		mA
Supply current, full load			2131	mA
Output power per channel			23	W
Gate voltage		+15/-10		V
Peak output current (gate current)	-60		+60	A
Switching frequency $f_{IN}^{1)}$			500	kHz
Duty cycle	0		100	%
Turn-on delay		75		ns
Turn-off delay		70		ns
Creepage distance primary-secondary	15			mm
Clearance distance primary-secondary	15			mm
Dielectric test voltage	5000	5050	5100	V _{AC}
Partial discharge extinction voltage	1768			V _{peak}
dv/dt immunity, input to output			100	kV/us
Operating temperature	-40		+85	degC

¹⁾ Maximum switching frequency depends on the IGBT gate charge. See data sheet for actual value of specific driver

BASIC SCHEMATIC OF THE 1SC2060P



ORDERING INFORMATION 1SC2060P SINGLE-CHANNEL SCALE™-2 GATE DRIVER PLANAR CORE

Type Designation	Description	Temp degC	Lead free	Pin length	
1SC2060P	1SC2060P2A0-17	Switching frequency up to 500 kHz	-40...85	no	5.84 mm