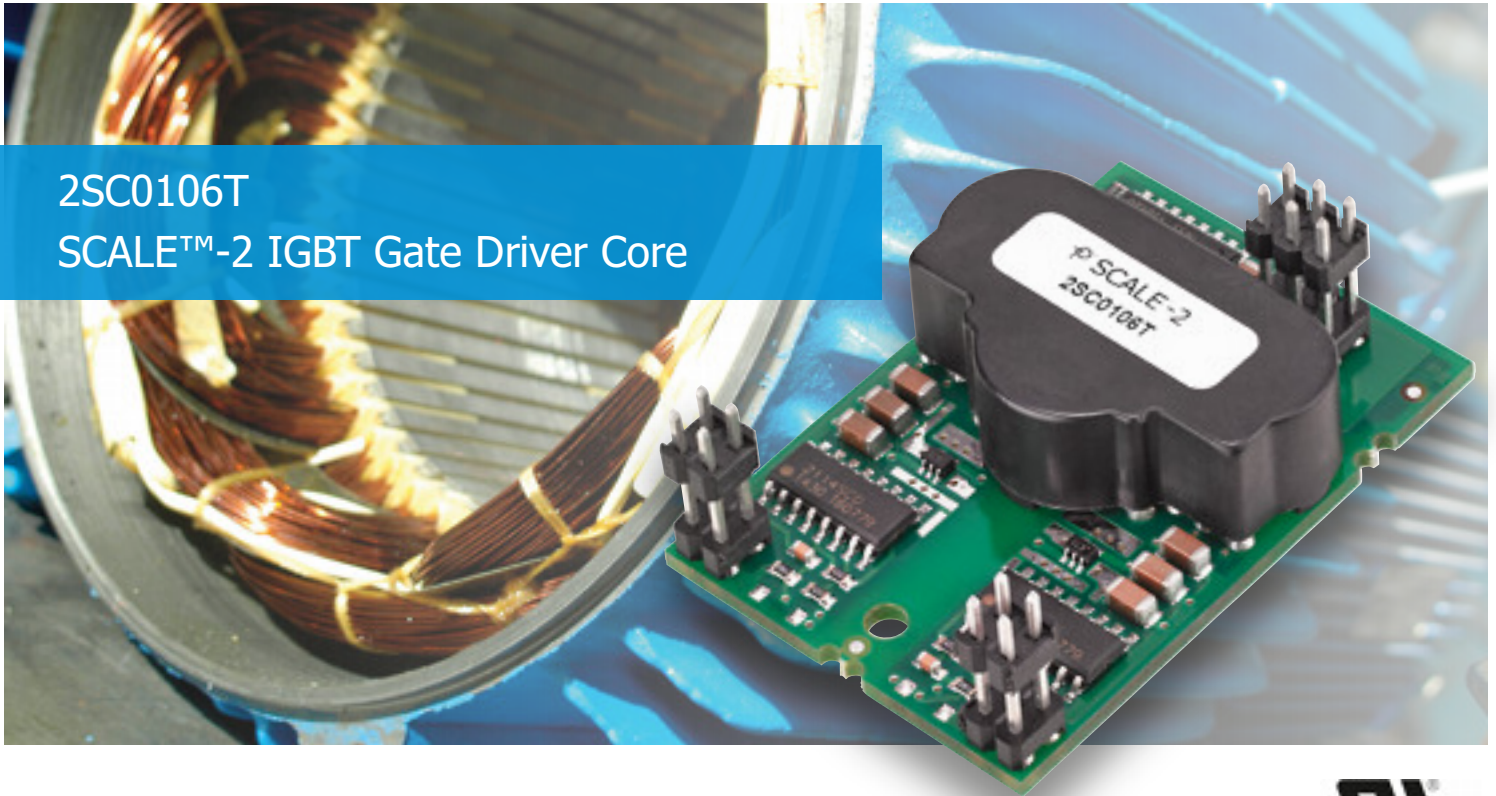


2SC0106T SCALE™-2 IGBT Gate Driver Core



2SC0106T – Dual-Channel Driver Core for 1200 V IGBTs – the Alternative to Opto-Coupler Driver Solutions for Inverter Designs Requiring Reinforced Insulation in the 37-110 kW Power Range.

PRODUCT DESCRIPTION

New SCALE™-2+ technology enables Soft Shut Down (SSD) to be implemented in the event of a short circuit without requiring additional components. This is particularly beneficial in applications with low stray-inductance where full Advanced Active Clamping may not be necessary.

The 2SC0106T dual-channel gate driver core is suitable for inverter designs in the 37 - 110 kW power range. It drives 600 V to 1200 V IGBTs with collector currents up to 450 A and switches at frequencies up to 50 kHz. The 2SC0106T complies with all standards for safety and reinforced insulations.

The new cost-effective SCALE™-2+ dual-driver core 2SC0106T combines unrivalled compactness with broad applicability. The driver was designed for universal applications requiring high reliability. The 2SC0106T drives all standard IGBT modules up to 450 A/1200 V or 600 A/650 V. It delivers all the necessary functionality required for an advanced dual-channel IGBT gate driver including an isolated DC/DC converter, soft start, short-circuit protection, Soft Shut Down (SSD) and supply-voltage monitoring.

Each of the two channels is electrically isolated from the primary side and the other channel.

The 2SC0106T is the most compact driver core available for industrial applications, with a footprint of only 45.5 x 31 mm and a height of 13 mm, so even very space-restricted designs can be efficiently accommodated. Compared with conventional drivers, the use of the highly integrated SCALE™-2+ chipset results in the component count being cut by around 85 %. This leads to increased reliability and minimized cost.

APPLICATIONS

- Industrial motor drives
- Premium Drives
- Uninterruptible power supplies (UPS)
- Solar inverters
- Electro/hybrid drive vehicles
- Switched mode power supplies (SMPS)
- Medical (MRT, CT, X-Ray)
- Welding and Plasma cutters

KEY BENEFITS

Soft Shut Down is implemented in the event of a short circuit without requiring extra components. Space- and cost-saving alternative to opto-coupler driver solutions. Reinforced isolation for DC/DC and signals.

KEY FEATURES

- Dual-channel driver core for up to 1200 V
- ± 6 A gate current, +15 V/-8 V
- 1 W @ 8 degC per channel
- On-board power supply
- High reliability (reduced component count)
- Isolation technology meets international standards
- Direct paralleling capability
- Short-circuit protection, under-voltage lockout
- Delay time <100 ns, up to 50 kHz, Jitter ± 3 ns
- Isolation coordination according to IEC 60664-1
- -40...+85 degC (105 degC with derating)
- Lead-free
- Soft Shut Down (SSD)

PRODUCT DESCRIPTION

An output current of 6 A and 1 W drive power is available per channel, making the 2SC0106T an ideal driver platform for universal usage in small and medium power applications. The driver provides a gate voltage swing of +15 V/-8 V. The turn-on voltage is regulated to maintain a stable 15 V regardless of the output power level. Outstanding EMC performance enables safe and reliable operation even in harsh industrial environments.

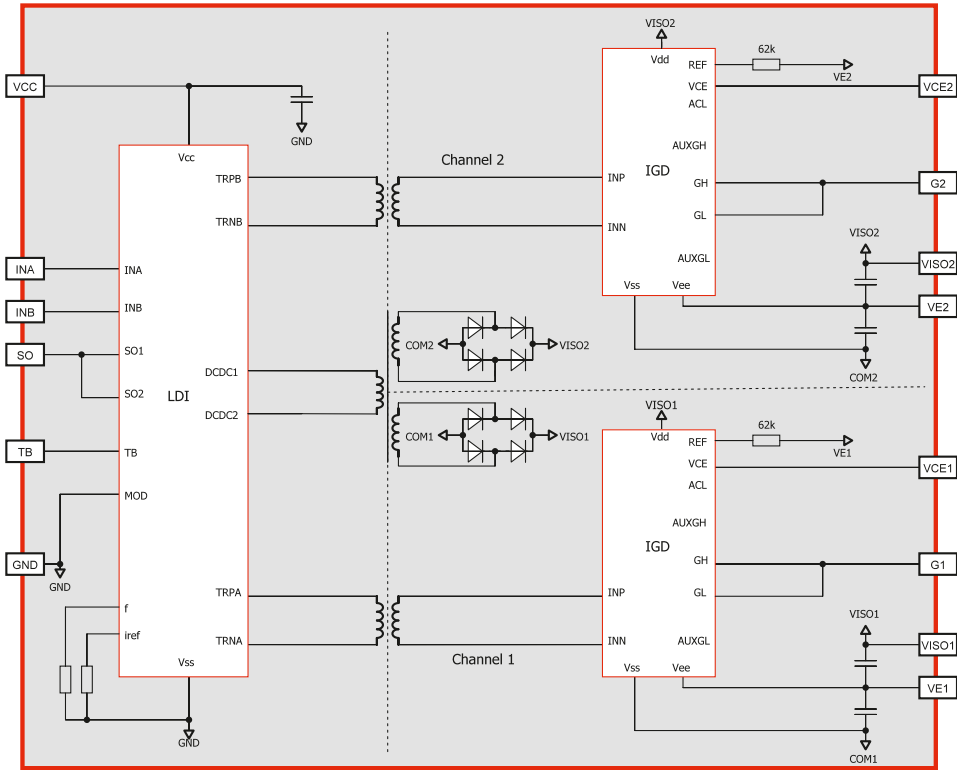
KEY DATA OVERVIEW

Parameter	Min	Typical	Max	Unit
Nominal supply voltage		15		V
Supply current @ $f_{IN}=0$ Hz		40		mA
Supply current, full load		300		mA
Output power per channel		1		W
Gate voltage		+15/-8		V
Peak output current (gate current)	-6		+6	A
Switching frequency $f_{IN}^{1)}$	0		50	kHz
Duty cycle	0		100	%
Creepage distance primary-secondary	9			mm
Creepage distance secondary-secondary	5.5			mm
Clearance distance primary-secondary	9			mm
Clearance distance secondary-secondary	5.5			mm
Dielectric test voltage	4000			V _{AC}
Partial discharge extinction voltage	1800			V _{peak}
dv/dt immunity, input to output			50	kV/us
Operating temperature	-40		+105	degC

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

BASIC SCHEMATIC OF THE 2SC0106T

The 2SC0106T is a cost-effective driver core equipped with Power Integrations' latest SCALE™-2+ chipset. The chipset consists of two ASICs that provide the main functions required to implement intelligent gate drivers. Devices include all functionality necessary for an advanced dual-channel IGBT gate driver: isolated DC/DC converter, short-circuit protection, Soft Shut Down (SSD) and supply-voltage monitoring.



ORDERING INFORMATION 2SC0106T DUAL-CHANNEL SCALE™-2+ GATE DRIVER CORE

	Type Designation	Description	Temp degC	SSD*	kHz
2SC0106T	2SC0106T2A1-12	Standard version	-40...+85	yes	50

* Soft Shut Down