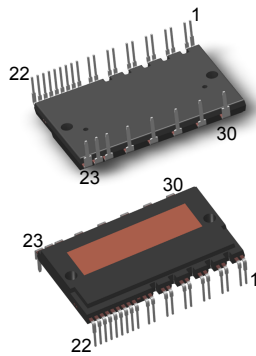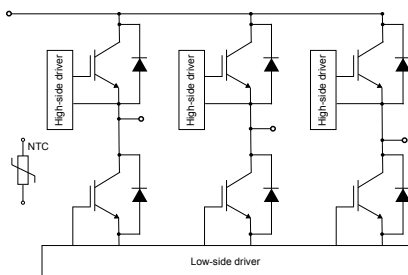# SLLIMM high power IPM, 3-phase inverter, 50 A, 650 V short-circuit rugged IGBT



**SDIPHP-30L**



GADG121020201109GT



## Features

- IPM 650 V, 50 A 3-phase inverter bridge including control ICs for gates driving
- 3.3 V, 5 V TTL/CMOS inputs with hysteresis
- Under-voltage lockout of gate drivers
- Built-in bootstrap diodes
- Short-circuit protection
- Shutdown input/fault output
- Separate open emitter outputs
- Comparator for fault protection
- Short-circuit rugged
- Very fast, soft recovery diodes
- Fully isolated package
- Isolation rating of 2500 Vrms/min
- 100 kΩ NTC for temperature monitoring

## Applications

- HVAC
- GPI
- Servo motor

## Description

This new IPM (intelligent power module) is part of the high power SLLIMM (small low-loss intelligent molded module) family and provides a compact, high-performance AC motor drive in a simple, rugged design. It combines driver control with improved short-circuit rugged 650 V trench gate field-stop IGBTs, resulting ideal for 3-phase inverters motor drives.

| Product status link |
|---|
| STGIK50CH65T |

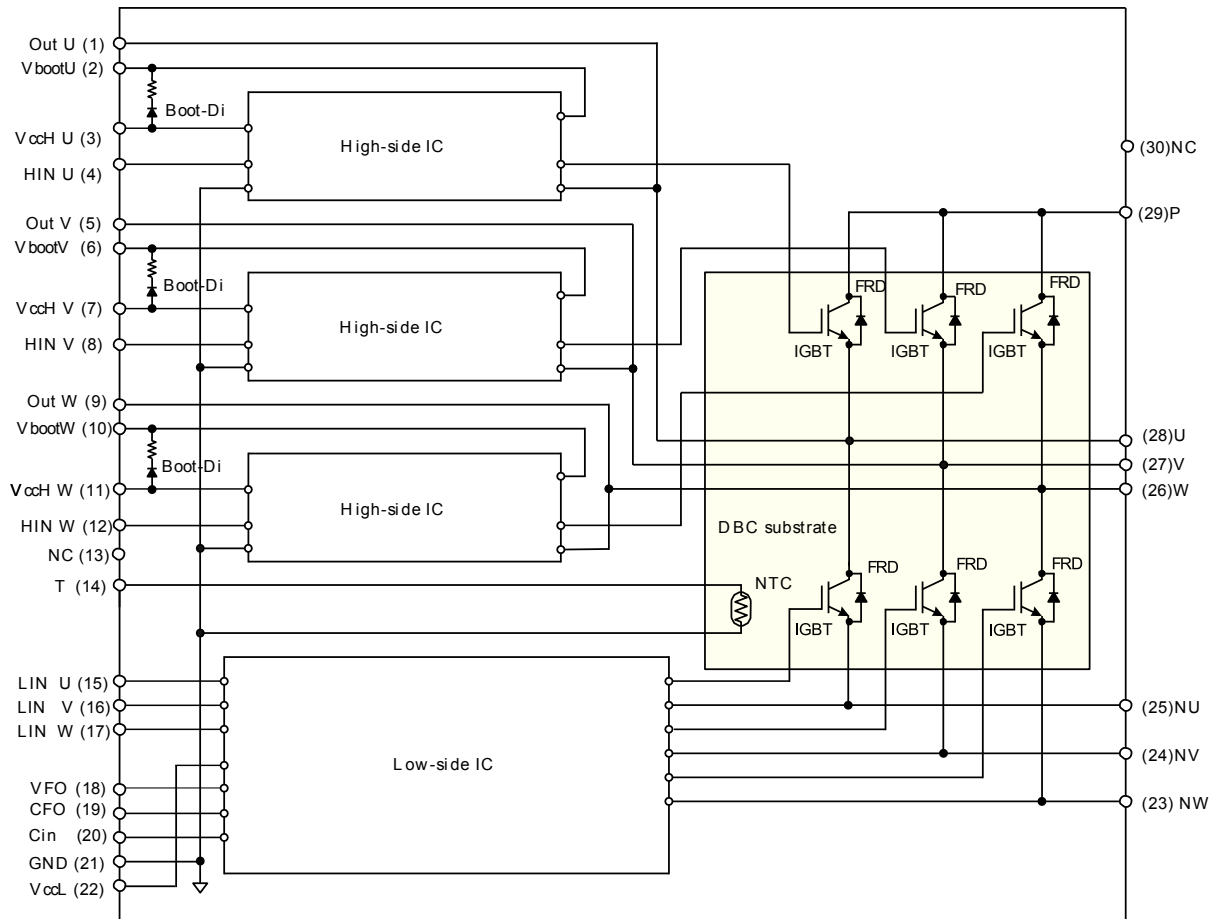| Product summary | |
|---|---|
| Order code | STGIK50CH65T |
| Marking | GIK50CH65T |
| Package | SDIPHP-30L |
| Packing | Tube |

**DB4324 - Rev 1 - October 2020**
For further information contact your local STMicroelectronics sales office.

www.st.com

# 1 Internal schematic and pin description

**Figure 1. Internal schematic diagram and pin configuration**



GADG121020200908GT

## Table 1. Pin description

| Pin | Symbol | Description |
|---|---|---|
| 1 | Out U | High-side reference output for U phase |
| 2 | Vboot U | Bootstrap voltage for U phase |
| 3 | VccH U | High-side low voltage power supply U phase |
| 4 | HIN U | High-side logic input for U phase |
| 5 | Out V | High-side reference output for V phase |
| 6 | Vboot V | Bootstrap voltage for V phase |
| 7 | VccH V | High-side low voltage power supply V phase |
| 8 | HIN V | High-side logic input for V phase |
| 9 | Out W | High-side reference output for W phase |
| 10 | Vboot W | Bootstrap voltage for W phase |
| 11 | VccH W | High-side low voltage power supply W phase |
| 12 | HIN W | High-side logic input for W phase |
| 13 | NC | Not connected (cut pin) |
| 14 | T | NTC thermistor output |
| 15 | LIN U | Low-side logic input for U phase |
| 16 | LIN V | Low-side logic input for V phase |
| 17 | LIN W | Low-side logic input for W phase |
| 18 | VFO | Shutdown/fault output |
| 19 | CFO | Capacitor for fault output setting |
| 20 | Cin | Comparator input |
| 21 | GND | Ground |
| 22 | VccL | Low-side low voltage power supply |
| 23 | NW | Negative DC input for W phase |
| 24 | NV | Negative DC input for V phase |
| 25 | NU | Negative DC input for U phase |
| 26 | W | W phase output |
| 27 | V | V phase output |
| 28 | U | U phase output |
| 29 | P | Positive DC input |
| 30 | NC | Not connected |

# 2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

## 2.1 SDIPHP-30L package information

Figure 2. **SDIPHP-30L package outline**



BOTTOM VIEW

X= 31 mm; Y= 52.5 mm; Z = 5.6 mm

SIDE VIEW
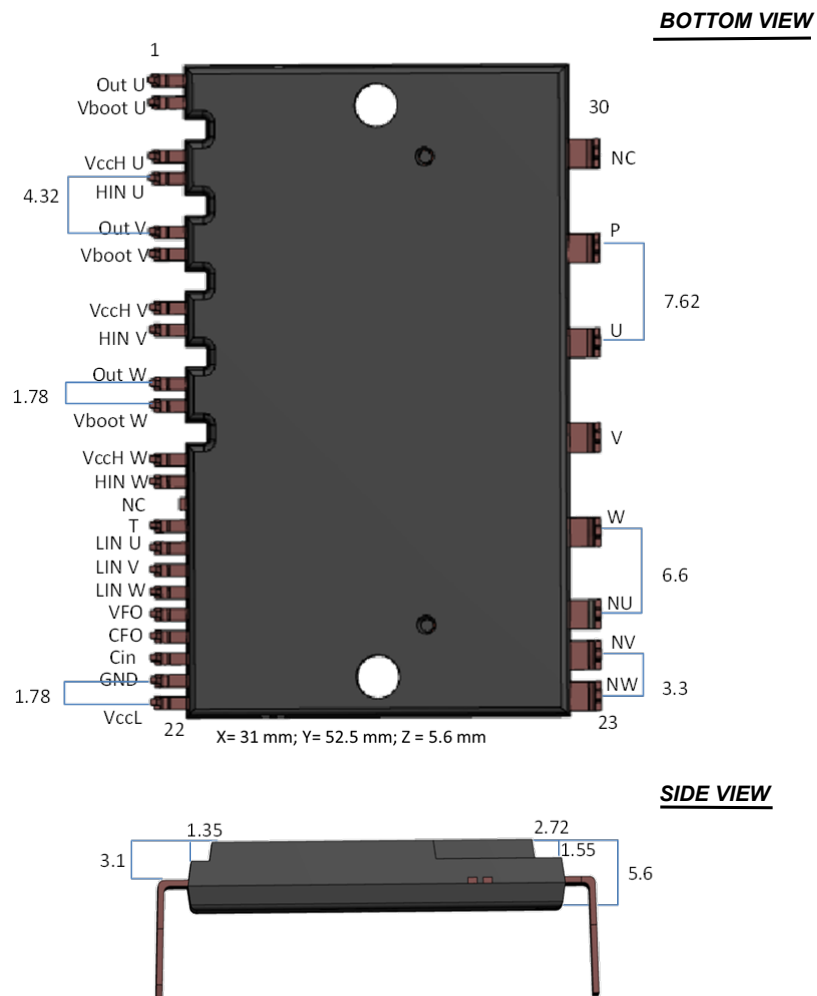
(Dimensions are in mm)

# Revision history

**Table 2.** Document revision history

| Date | Version | Changes |
|------|---------|---------|
| 20-Oct-2020 | 1 | First release. |

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