PRELIMINARY TECHNICAL INFORMATION

HIGHLIGHTS

- IGBT driver board based on 2ED300C17-S
- Direct PrimePACK™ interface with SCiCoreAdaptPP
- Optical interface version also available
- Under voltage lockout and short circuit protection



non-contractual image

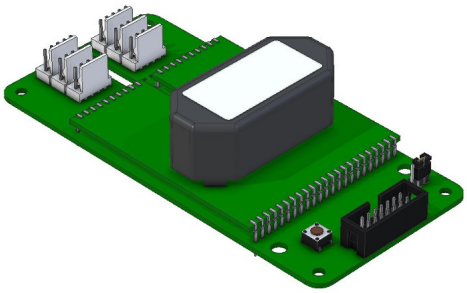
SCiCoreDrive67 is an IGBT driver based on IGBT driver 2ED300C17-S suitable for 600 V, 1200 V and 1700 V IGBT modules like: IHM, 62 mm, EconoDUAL™, EconoPACK+™ and PrimePACK™. For any further or more accurated technical information about the IGBT driver board itself, please read the driver's datasheet. Configuration other than the specific ones predefined by IGBT module reference are available under order, in such case, please contact with us.

ELECTRICAL CHARACTERISTICS

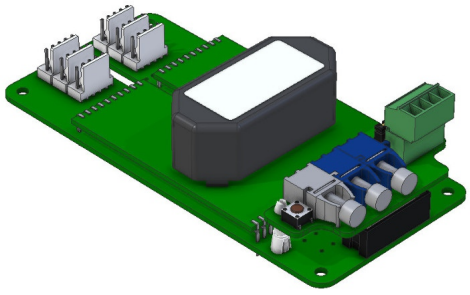
Symbol	Parameter	Notes / test conditions	Min	Typ	Max	Units
V_{DC}	Supply voltage		14	15	16	V
I_{SUPP}	Supply current	*Stand by, INA & INB = 0*	-	110	-	mA
V_{IN_H}	PWM & reset high state input voltage		11	-	15	V
V_{IN_L}	PWM & reset low state input voltage		0	-	4	V
V_{FLT}	Fault high state output voltage		-	-	V_{DC}	V
V_{RST}	Reset input (active high)		-	-	V_{DC}	V

CONFORMALS	
Conformal coating	MIL-1-46058, Type UR
Security	EN60950-1, UL60950-1

VERSIONS AVAILABLE



SCiCoreDrive67 - Electrical interface



SCiCoreDrive67FO - Optical interface

200224 Rev.:0

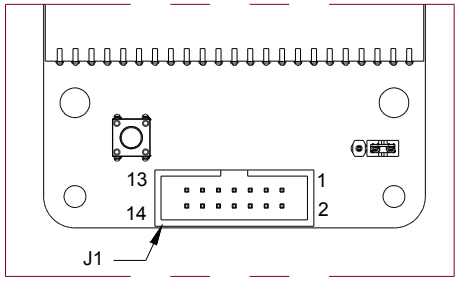
Reserves the right to change limits, test conditions and dimensions given in this data sheet at any time without previous notice.

PINOUT – ELECTRICAL INTERFACE

J1 – MAIN CONNECTOR (ELECTRICAL INTERFACE)

#	Designation	Description
1	NC	*Leave this pin unconnected*
2	INB	*PWM signal channel B*
3	/FAULT	*Fault output*
4	INA	*PWM signal channel A*
5	RESET	*Reset signal for channels A & B*
6	NC	*Leave this pin unconnected*
7	NC	*Leave this pin unconnected*
8	VDD	*Power supply (15 V_{DC})*
9	VDD	*Power supply (15 V_{DC})*
10	GND	*Ground for supply and control signal*
11	GND	*Ground for supply and control signal*
12	MODE (1)	*Half-bridge or direct mode selection*
13	VDDS	*Do not use this pin*
14	NC	*Leave this pin unconnected*

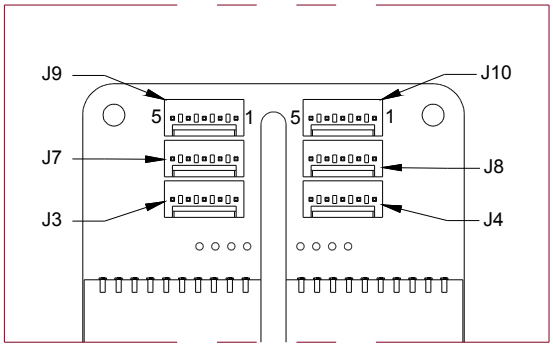
J1 connector type MOLEX 70246-1401, 70246 Series.



J3, J7, J9 – CH A OUTPUT (2)

#	Designation	Description
1	VA+	*Channel A positive supply*
2	COM A	*Ground/emitter signal*
3	VA-	*Channel A negative supply*
4	GATE A	*Channel A gate signal*
5	VCESAT A	*Channel A collector desaturation sense*

J3, J7, J6 connectors type MOLEX 22-27-2051, KK 254 Series.



J4, J8, J10 – CH B OUTPUT (2)

#	Designation	Description
1	VB+	*Channel B positive supply*
2	COM B	*Ground/emitter signal*
3	VB-	*Channel B negative supply*
4	GATE B	*Channel B gate signal*
5	VCESAT B	*Channel B collector desaturation sense*

J4, J8, J10 connectors type MOLEX 22-27-2051, KK 254 Series.

(1) If MODE pin is used externally by means of J1 please leave JP2 jumper disconnected. When MODE pin is connected to GND: Direct mode, when connected to VDSS or VDD: Half bridge mode. Never operate the driver with both JP2 and MODE pin left unconnected.

(2) Connectors J3, J7, J9 and J4, J8, J10 are in parallel.

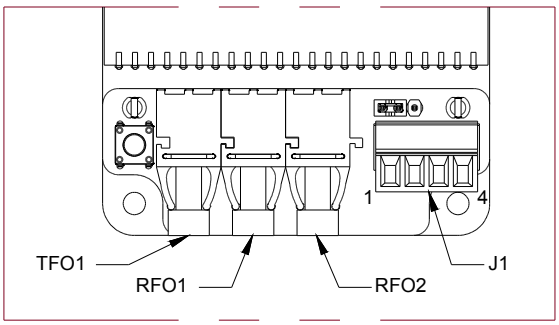
Reserves the right to change limits, test conditions and dimensions given in this data sheet at any time without previous notice.

PINOUT – OPTICAL INTERFACE

J1 – MAIN CONNECTOR (OPTICAL INTERFACE)

#	Designation	Description
1	VDD	*Power supply (15 V_{DC})*
2	MODE (1)	*Half-bridge or direct mode selection*
3	RESET (2)	*Reset signal for channels A & B*
4	GND	*Ground for supply and control signal*

J1 connector type Phoenix Contact 1803442, MCV Series.
Mate pluggable screw connector (also provided) MC 1,5/4-ST-3,81.



TFO1 - FAULT. Fault output signal, active high.
TFO1 connector type HFBR-1522 Avago (grey)

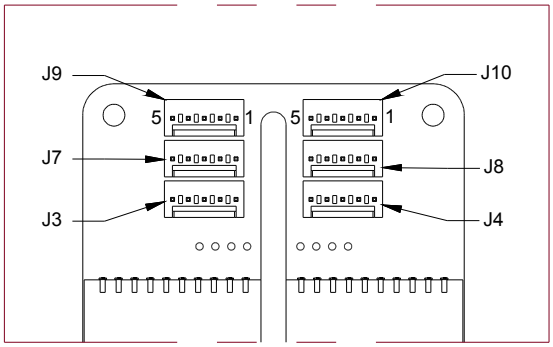
RFO1 - IN A. PWM input signal channel A
RFO1 connector type HFBR-2522 Avago (blue)

RFO2 - IN B. PWM input signal channel B
RFO2 connector type HFBR-2522 Avago (blue)

J3, J7, J9 – CH A OUTPUT (3)

#	Designation	Description
1	VA+	*Channel A positive supply*
2	COM A	*Ground/emitter signal*
3	VA-	*Channel A negative supply*
4	GATE A	*Channel A gate signal*
5	VCESAT A	*Channel A collector desaturation sense*

J3, J7, J6 connectors type MOLEX 22-27-2051, KK 254 Series.



J4, J8, J10 – CH B OUTPUT (3)

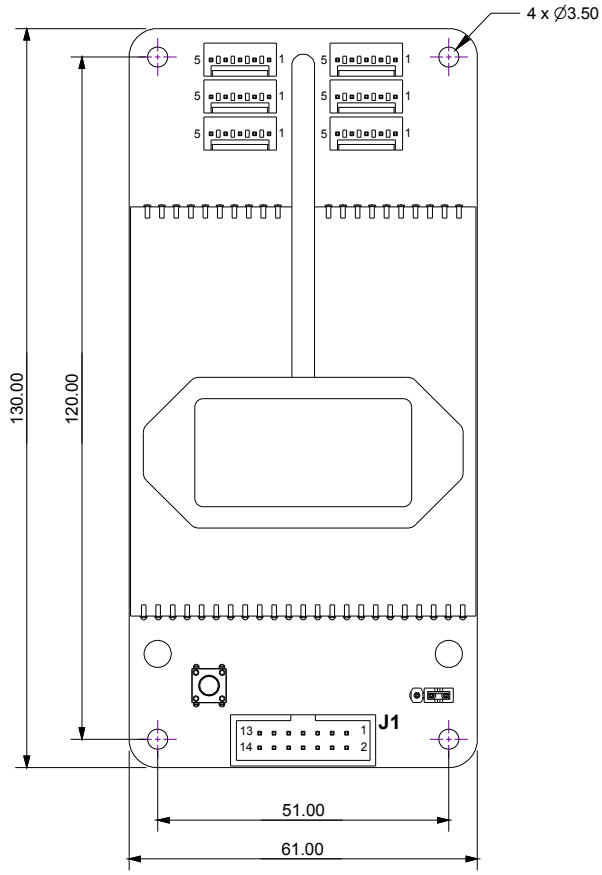
#	Designation	Description
1	VB+	*Channel B positive supply*
2	COM B	*Ground/emitter signal*
3	VB-	*Channel B negative supply*
4	GATE B	*Channel B gate signal*
5	VCESAT B	*Channel B collector desaturation sense*

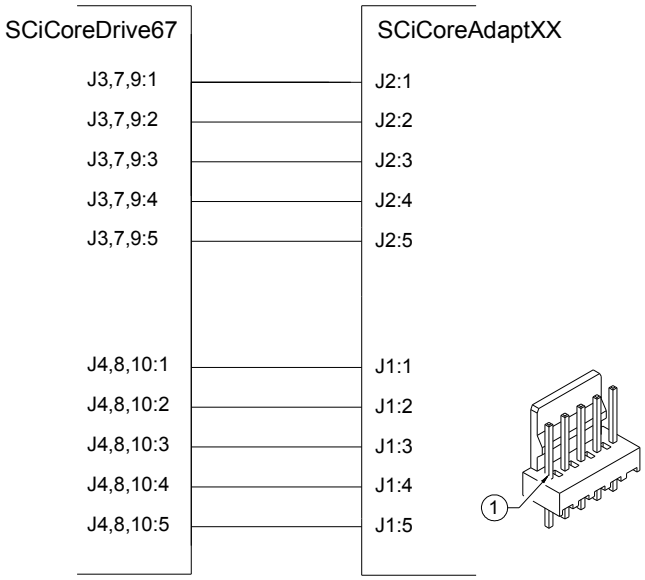
J4, J8, J10 connectors type MOLEX 22-27-2051, KK 254 Series.

(1) If MODE pin is used externally by means of J1 please leave JP2 jumper disconnected. When MODE pin is connected to GND: Direct mode, when connected to VDSS or VDD: Half bridge mode. Never operate the driver with both JP2 and MODE pin left unconnected.
(2) RESET signal can be generated without the electricl interface by means INA and INB, please refer to "Fault output and Reset" section of this datasheet for further information
(3) Connectors J3, J7, J9 and J4, J8, J10 are in parallel.

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MECHANICAL DIMENSIONS AND EXAMPLE OF CONNECTION





- Mounting considerations:
cables between SCiCoreDrive67 and SCicoreAdaptXX must be as short as possible. Gate and emitter conections should be twisted pair or use a shielded cable when possible.

All dimensions in mm

Please download SCiCoreAdaptPP datasheet for further information

Input logic – PWM signals

Electrical interface is simply activated by applying suitable signals to the corresponding pins in connector J1 for more detailed requirements and electrical input interface please refer to 2ED300C17-S/-ST datasheet.
When IGBT is driven using optical interface version (SCiCoreDrive67FO) the fiber optic cables should be connected to receiver RFO1 in order to drive channel A and respectively RFO2 to drive channel B. Besides optical connectors power supply must be provided to J1, see "*PINOUT – OPTICAL VERSION*" section.

Fault output and Reset

When the driver detects IGBT short circuit or V_{GE} drops bellow acceptable value the controlled IGBT will be safely switched off and fault signal will be triggered. The fault event is additionally indicated by lighting the red diode D1, labeled on board as "FAULT".

On fault event voltage on J1:3 (electrical interface) changes from V_{DC} level to around 1 V. If fiber optic interface option is used diode in transmitter TFO1 is switched on.

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Regardless PWM signals the IGBT stays off and fault is indicated. In order to get driver operating again the driver must be reseted in one of three possible ways:

- Pressing switch S1
- Apply voltage with a positive edge greater than 10V (max. V_{DC}) to J1:5
- Keeping PWM signals on “low” level for more than 60 ms

Keeping the switch S1 pressed long time may lead to permanent IGBT destruction when the reason for short circuit or low V_{GE} remains. Reseting procedure is needed always after fault indication.

Direct or Half-bridge mode selection

Two operation modes for the SCiCoreDrive67/FO are possible:

• **Direct mode** – Both channels A and B are working accordingly to PWM signals. It is possible to switch on both channels A and B at the same time. This operation mode can be activated by setting the JP2 jumper on position marked as “DM”. When jumper JP2 is used there is no need to short J1:12 to GND (electrical version) or J1:2 to GND (optical version).

• **Half-bridge mode** – Configured by default. Used where IGBTs are driven in half bridge configuration. By proper selection of capacitor values C4 and C5 the required dead time between channels A and B can be configureded. This operation mode can be activated by setting the JP2 jumper on position marked as “HM”. When jumper JP2 is used there is no need to short J1:12 to V_{DC}. By default 5,4 µs of dead time is set, other values under demand or settable with C4 and C5.

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