

DIGITAL, PROGRAMMABLE, PLUG & PLAY,

IGBT DRIVER

**1IPSE1A45-105**

FOR MEDIUM AND HIGH POWER IGBTs

# D A T A S H E E T

InPower Systems GmbH

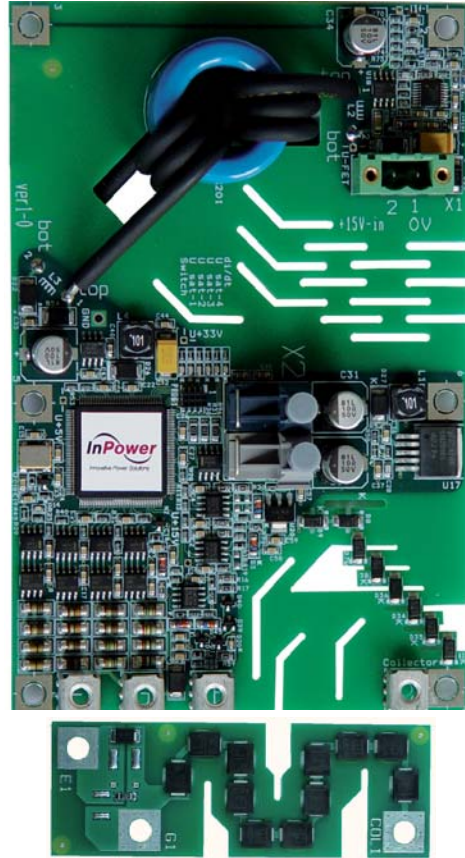
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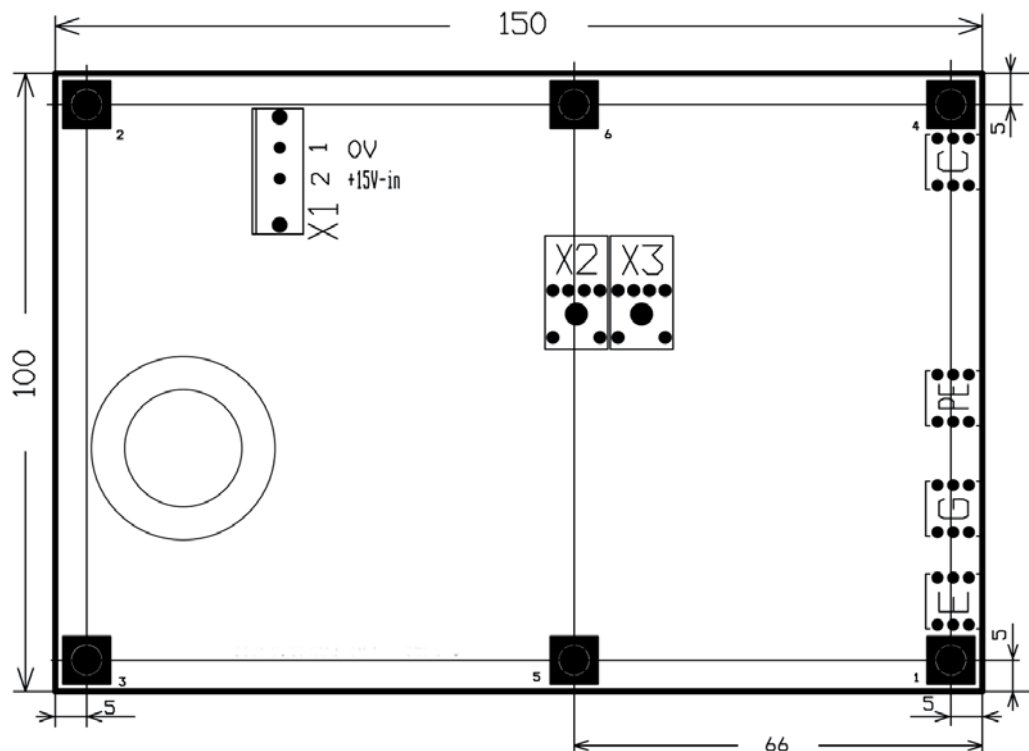
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## 1. MAIN FEATURES

- Single channel for dual- and multilevel topology
- Smart switching with variable gate resistors
- Tuned according to the application
- Reliable protection against
  - over-current in all short circuit conditions
  - over-voltage during turn-off
- Advanced control and protection functions
  - four level desaturation monitoring
  - two level di/dt monitoring
  - feedback clamping with active function
  - multiple soft shut down
  - supply voltage monitoring
  - digital input filter for switching signals
- DC/DC converter included
- Cable connection with adaptation board matched for every type of IGBT module



## 2. MECHANICAL DIMENSIONS



## 3. KEY DATA

Parameter	Symbol	Value (at +25°C)
Max. collector-emitter voltage	$V_{CE}$	4500V
Input supply voltage range	$V_{DC}$	+14 to +30V
Output voltage: ON/OFF voltage	$V_{ON}/V_{OFF}$	$\pm 15V$
Isolation testing voltage ( $V_{AC}$ RMS 50Hz / 1 min)	$V_{ISOL}$	10500V
Switching frequency (max.)	$f_{S\ max}$	120kHz
Peak output current	$I_G$	$\pm 70A$
Peak output power	$P_{DC/DC}$	3W
Quiescent current typically	$I_{DC}$	0.25A (at 15V)
Max. input current at max. load	$I_{DC\ max}$	0.50A (at 15V)
Coupling capacitance primary/secondary side (max.)	$C_{io}$	2pF
Switching frequency of isolated converter	$f_{SMPC\ max}$	0.5MHz
Creepage distance		>65mm
Frequency of logic controller	$f$	20MHz
Operating temperature (measured on driver surface)	$T_{OP}$	-40 to +85°C
Storage temperature	$T_{ST}$	-40 to +85°C
Input driving and output error signal	optical	660nm
Turn-on delay time	$t_{pdON}$	400nsec
Turn-off delay time	$t_{pdOFF}$	400nsec
Typical time of soft shut down	$t_{SSD}$	1-2 $\mu$ sec
Max. system time between fault detection and error notification	$t_{SYS}$	100nsec
Time between detection of desaturation and gate voltage falling edge	$t_{pDES}$	300nsec

## 4. INTERFACES

Interface	Part Type	Remarks
Optical Receiver	HFBR-2531Z (Avago)	For suitable connectors see <a href="http://www.avagotech.com">www.avagotech.com</a>
Optical Transmitter	HFBR-1531Z (Avago)	
DC supply on PCB	FKC 2,5/2-STF-5,08 (Phoenix )	Connector: MSTBV 2,5/2-GF-5,08 (Phoenix)

## 5. CABLE LENGTH

Max. length of coaxial cable: 30cm. Max. length of simple cable: 7cm.

For gate and auxiliary emitter connections use coaxial cable RG58 C/U with auxiliary emitter connected to the shielding. For power emitter and auxiliary collector it is recommended to use HV insulation cable, for instance Radox 9 GKW-AX, 1.5mm<sup>2</sup>.