



SKYPER™

## IGBT Driver Core

### SKYPER 32

#### Preliminary Data

#### Features

- Two output channels
- Integrated potential free power supply
- Under voltage protection
- Drive interlock top / bottom
- Dynamic short circuit protection DSCP
- Shut down input
- Failure management
- IEC 60068-1 (climate) 40/085/56

#### Typical Applications

- Driver for IGBT modules in bridge circuits in choppers, inverter drives, UPS and welding inverters
- DC bus voltage up to 1200 V

1) with external high voltage diode

2) according to EN50178

3) according to VDE 0110-20

4) can be expanded to 6,3μQ with boost capacitors

Isolation coordination in compliance with EN50178 PD2

Degree of protection: IP00

Technical Explanations to the driver core are available at [www.semikron.com](http://www.semikron.com)

#### Absolute Maximum Ratings

Symbol	Conditions	Values	Units
$V_S$	Supply voltage primary	16	V
$V_{iH}$	Input signal voltage (High)	$V_S + 0,3$	V
$V_{iL}$	Input signal voltage (Low)	GND - 0,3	V
$I_{outPEAK}$	Output peak current	15	A
$I_{outAVmax}$	Output average current	50	mA
$f_{max}$	Max. switching frequency	50	kHz
$V_{CE}$	Collector emitter voltage sense across the IGBT <sup>1)</sup>	1700	V
dv/dt	Rate of rise and fall of voltage secondary to primary side	50	kV/μs
$V_{isolIO}$	Isolation test voltage input - output (AC, rms, 2s) <sup>2)</sup>	4000	V
$V_{isolPD}$	Partial discharge extinction voltage, rms, $Q_{PD} \leq 10pC$ <sup>3)</sup>	1500	V
$V_{isol12}$	Isolation test voltage output 1 - output 2 (AC, rms, 2s) <sup>2)</sup>	1500	V
$R_{Gonmin}$	Minimum rating for $R_{Gon}$	1,5	Ω
$R_{Goffmin}$	Minimum rating for $R_{Goff}$	1,5	Ω
$Q_{out/pulse}$	Max. rating for output charge per pulse	2,5 <sup>4)</sup>	μC
$T_{op}$	Operating temperature	- 40 ... + 85	°C
$T_{stg}$	Storage temperature	- 40 ... + 85	°C

#### Characteristics

$T_a = 25\text{ °C}$ , unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
$V_S$	Supply voltage primary side	14,4	15	15,6	V
$I_{SO}$	Supply current primary side (no load)	80			mA
	Supply current primary side (max.)			450	mA
$V_i$	Input signal voltage on/off		15 / 0		V
$V_{iT+}$	Input threshold voltage (High)			12,3	V
$V_{iT-}$	Input threshold voltage (Low)	4,6			V
$R_{in}$	Input resistance (switching signals)		10		kΩ
	Internal pull-up resistance shut down input (5V logic)		3,3		kΩ
$V_{G(on)}$	Turn on gate voltage output		+ 15		V
$V_{G(off)}$	Turn off gate voltage output		- 7		V
$f_{ASIC}$	Asic system switching frequency		8		MHz
$t_{d(on)IO}$	Input-output turn-on propagation time		1,1		μs
$t_{d(off)IO}$	Input-output turn-off propagation time		1,1		μs
$t_{d(Err)}$	Error input-output propagation time	5,4		7,9	μs
$t_{pERRRESET}$	Error reset time		9		μs
$t_{TD}$	Top-Bot Interlock Dead Time		3		μs
$V_{CEsat}$	Reference voltage for $V_{CE}$ -monitoring		10		V
$C_{ps}$	Coupling capacitance primary secondary		12		pF
w	weight		28		g
MTBF	Mean Time Between Failure @ $T_a=40\text{ °C}$ , max. load		2,5		$10^6$ h

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