SKYPER™

IGBT Driver Core

SKYPER 32 R

Preliminary Data

Features

- Two output channels
- Integrated potential free power supply
- Under voltage protection
- Drive interlock top / bottom
- Dynamic short cirucit protection
- Shut down input
- Failure management
- IEC 60068-1 (climate) 40/085/56, no condensation and no dripping water permitted, non-corrosive, climate class 3K3 acc. EN60721

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) Please Note: the isolation test is not performed as a series test at SEMIKRON and must be performed by the user
3) according to VDE 0110-20
4) can be expanded to 6,3µQ with boost capacitors

Isolation coordination in compliance with EN50178 PD2

Operating temperature is real ambient temperature around the driver core

Degree of protection: IP00

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
$Iout_{PEAK}$	Output peak current	15	A
$Iout_{AVmax}$	Output average current	50	mA
f_{max}	Max. switching frequency	50	kHz
V_{CE}	Collector emitter voltage sense across the IGBT 1)	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) 2)	4000	V
V_{isolPD}	Partial discharge extinction voltage, rms, $Q_{PD} \leq 10pC$ 3)	1500	V
V_{isol12}	Isolation test voltage output 1 - output 2 (AC, rms, 2s) 2)	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 4)	µC
T_{op}	Operating temperature	- 40 ... + 85	°C
T_{stg}	Storage temperature	- 40 ... + 85	°C

Characteristics T_a = 25 °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
C_{ps}	Coupling capacitance primary secondary		12		pF
w	weight		28		g
MTBF	Mean Time Between Failure @ T_a=40°C, max. load		2,5		10^6 h

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