

# SKYPER 42 R/02 (coated)



**SKYPER®**

## IGBT Driver Core

Order Nr.: L5054305

### SKYPER 42 R/02 (coated)

#### Features\*

- Two output channels
- Integrated potential free power supply
- Under voltage protection
- Driver interlock top / bottom
- Dynamic short circuit protection
- Shut down input
- Failure management
- UL recognized, ROHS
- 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 industrial application
- DC bus voltage up to 1200V

#### Footnotes

Insulation test voltage with external high voltage diode

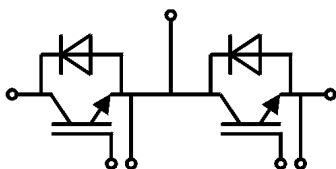
The insulation test is not performed as a series test at SEMIKRON

The driver power can be expanded to 50µC with external boost capacitors

Isolation coordination in compliance with EN50178 PD2

Operating temperature is real ambient temperature around the driver core

Degree of protection: IP00

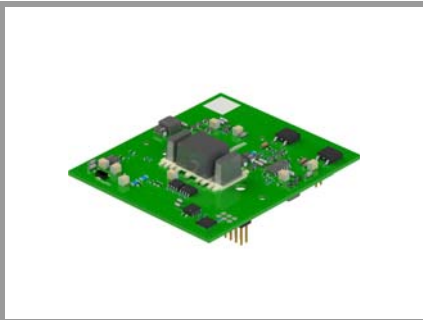


Driver Core

Absolute Maximum Ratings			
Symbol	Conditions	Values	Unit
$V_s$	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	30	A
$I_{outAVmax}$	Output average current	150	mA
$f_{max}$	Max. switching frequency	100	kHz
$V_{CE}$	Collector emitter voltage sense across the IGBT	1700	V
dv/dt	Rate of rise and fall of voltage secondary to primary side	100	kV/µs
$V_{isolIO}$	Insulation test voltage input - output (AC, rms, 2s)	4000	V
$V_{isolPD}$	Partial discharge extinction voltage, rms, $Q_{PD} \leq 10pC$	1500	V
$V_{isol12}$	Insulation test voltage output 1 - output 2 (AC, rms, 2s)	1500	V
$R_{Gon\ min}$	Minimum rating for external $R_{Gon}$	0.8	Ω
$R_{Goff\ min}$	Minimum rating for external $R_{Goff}$	0.8	Ω
$Q_{out/pulse}$	Max. rating for output charge per pulse	50	µC
$T_{op}$	Operating temperature	-40 ... 85	°C
$T_{stg}$	Storage temperature	-40 ... 85	°C

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
$V_s$	Supply voltage primary side	14.4	15	15.6	V
$I_{s0}$	Supply current primary (no load)		125		mA
	Supply current primary side (max.)			800	mA
$V_i$	Input signal voltage on/off		15 / 0		V
$V_{IT-}$	Input threshold voltage (LOW)	4.6			V
$R_{iN}$	Input resistance (switching/HALT signal)		10		kΩ
$V_{G(on)}$	Turn-on output voltage		15		V
$V_{G(off)}$	Turn-off output voltage		-8		V
$f_{ASIC}$	Asic system switching frequency		8		MHz
$t_{d(on)O}$	Input-output turn-on propagation time		1.1		µs
$t_{d(off)O}$	Input-output turn-off propagation time		1.1		µs
$t_{d(terr)}$	Error input-output propagation time		2.3		µs
$t_{pRESET}$	Error reset time		0.009		ms
$t_{TD}$	Top-Bot interlock dead time		2		µs
$C_{ps}$	Coupling capacitance prim sec		3		pF
$l_{clear(PS)}$	Shortest distance in air, primary side to secondary side	12.2			mm
$l_{clear(SS)}$	Shortest distance in air, secondary sides	6.1			mm
$l_{creep(PS)}$	Shortest distance along the surface, primary side to secondary side (CTI ≥ 175)	12.2			mm
$l_{creep(SS)}$	Shortest distance along the surface, secondary sides (CTI ≥ 175)	6.1			mm
w	weight		40		g
MTBF	Mean Time Between Failure $T_a = 40^\circ C$		2.1		10 <sup>6</sup> h

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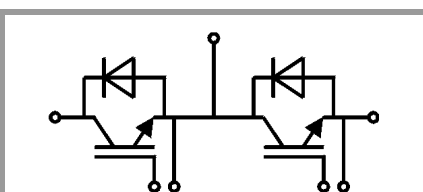
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Degree of protection: IP00

This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

#### \*IMPORTANT INFORMATION AND WARNINGS

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Driver Core