

# SKYPER PRIME 1200V 1400A ST10



## IGBT Driver for SKM1400GB12P4

Order Number  
L5066805 – Driver  
22290312 - Module

### SKYPER PRIME 1200V 1400A ST10

#### Features\*

- Dynamic short circuit detection with SoftOff
- Galvanic isolated DC link measurement
- Galvanic isolated temp measurement
- PWM output for sensor signals
- Over voltage trip
- ROHS, UL recognized
- DC Bus up to 800V, 1,5 I<sub>nom</sub>, L=30nH

#### Typical Applications

- Dynamic short circuit detection with SoftOff
- Undervoltage protection prim/sec
- Internal power supply
- ROHS, UL recognized
- 14P – Semikron Interface
- DC BUS up to 1200V

#### Remarks

- For environmental conditions please check technical explanation
- The driver has to be 100% tested for high voltage before use



Two channel driver

Absolute Maximum Ratings			
Symbol	Conditions	Values	Unit
V <sub>s</sub>	Supply voltage primary	16	V
V <sub>iH</sub>	Input signal voltage (HIGH)	V <sub>s</sub> + 0.3	V
V <sub>iL</sub>	Input signal voltage (LOW)	GND - 0.3	V
I <sub>outPEAK</sub>	Output peak current	15	A
I <sub>outAVmax</sub>	Output average current	100	mA
f <sub>max</sub>	Max. switching frequency 85°C	10	kHz
			kHz
V <sub>CE</sub>	Collector emitter voltage sense across the IGBT	1200	V
dv/dt	Rate of rise and fall of voltage secondary to primary side	50	kV/μs
V <sub>isol IO</sub>	Insulation test voltage input - output (AC, rms, 2s)	5000	V
Q <sub>out/pulse</sub>	Max. rating for output charge per pulse	7.5	μC
T <sub>op</sub>	Operating temperature	-40 ... 85	°C
T <sub>stg</sub>	Storage temperature	-40 ... 85	°C

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
V <sub>s</sub>	Supply voltage primary side	14.4	15	15.6	V
I <sub>SO</sub>	Supply current primary (no load)		85		mA
	Supply current primary side (max.)			1000	mA
V <sub>i</sub>	Input signal voltage on / off		V <sub>s</sub> /0		V
V <sub>IT+</sub>	Input threshold voltage (HIGH)	8.6		10	V
V <sub>IT-</sub>	Input threshold voltage (LOW)	5		6.7	V
R <sub>IN</sub>	Input resistance (switching signal)		30		kΩ
C <sub>IN</sub>	Input capacitance (switching signals)		1		nF
V <sub>G(on)</sub>	Turn on output voltage		15		V
V <sub>G(off)</sub>	Turn off output voltage		-8		V
t <sub>d(on)IO</sub>	Input-output turn-on propagation time		1		μs
t <sub>d(off)IO</sub>	Input-output turn-off propagation time		1		μs
t <sub>d(err)SCP</sub>	Error sec - prim propagation time		0.6		μs
t <sub>d(err)HALT</sub>	Error primary - secondary side propagation time		0.6		μs
t <sub>TD</sub>	Top-Bot interlock dead time		4		μs
t <sub>jitter</sub>	Signal transfer prim - sec (total jitter)		25		ns
t <sub>SIS</sub>	Short pulse suppression		0.4		μs
t <sub>POR</sub>	Power-On-Reset completed		0.1		s
t <sub>pRESET</sub>	Error reset time	0.03			ms
V <sub>CEstat</sub>	Reference voltage for V <sub>CE</sub> -monitoring		8.5		V
t <sub>bl</sub>	V <sub>CE</sub> monitoring blanking time (dynamic)		4		μs
V <sub>DCtrip</sub>	Over voltage trip level		950		V
R <sub>Gon</sub>	Driver gate resistor at switch-on		0.4		Ω
R <sub>Goff</sub>	Driver gate resistor at switch-off		0		Ω
MTBF	Mean Time Between Failure Ta = 40°C		3		10 <sup>6</sup> h

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## Signal Connector

PIN	Signal	Function	Specifications
X1:01	IF_PWR_15P	Drive power supply	Stabilised +15V $\pm$ 4%
X1:02	IF_DC_LINK	Digitised DC Link signal	PWM output, 15V
X1:03	IF_PWR_15P	Drive power supply	Stabilised +15V $\pm$ 4%
X1:04	IF_GND	GND	To be connected to ground
X1:05	IF_PWR_15P	Drive power supply	Stabilised +15V $\pm$ 4%
X1:06	IF_GND	GND	To be connected to ground
X1:07	IF_nERROR_IN	ERROR input	LOW ( GND, $U_{TH}$ 1V ) = External error HIGH ( VP, $U_{TH}$ 14V ) = No error Max input current 1,8mA, can be connected with IF_nERROR_OUT
X1:08	IF_GND	GND	To be connected to ground
X1:09	IF_nERROR_OUT	ERROR output	HIGH = NO ERROR ;open collector output 15V / 10mA (external pull up Resistor necessary )
X1:10	IF_GND	GND	To be connected to ground
X1:11	IF_HB_TOP	Switching signal input ( TOP switch )	Positive 15V CMOS logic, LOW = TOP switch off ; HIGH = TOP switch on
X1:12	IF_GND	GND	To be connected to ground
X1:13	IF_nERROR_OUT	ERROR output	HIGH = NO ERROR; open collector output; max. 15V / 10 mA (external pull up resistor necessary )
X1:14	IF_GND	GND	To be connected to ground
X1:15	IF_HB_BOT	Switching signal input ( BOTTOM switch )	Positive 15V CMOS logic, LOW = BOT switch off; HIGH = BOT switch on
X1:16	IF_GND	GND	To be connected to ground
X1:17	IF_CFG_SELECT	Interlock set up	HIGH (VP) = No interlock LOW (GND) = Interlock 4 $\mu$ s
X1:18	IF_GND	GND	To be connected to ground
X1:19	IF_TEMP	Digitised NTC signal	PWM output, 15V
X1:20	IF_GND	GND	To be connected to ground

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

### \*IMPORTANT INFORMATION AND WARNINGS

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