SKYPER PRIME 1200V 1400A ST10



IGBT Driver for SKM1400GB12P4

Order Number L5066805 – Driver 22290312 - Module

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Features*

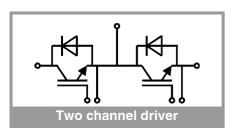
- Dynamic short circuit detection with SoftOff
- Galvanic isolated DC link measurement
- · Galvanic isolated temp measurement
- PWM output for sensor signals
- Over voltage trip
- ROHS, UL recognized
- DC Bus up to 800V, 1,5 I_{nom} , L=30nH

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



Absolute Maximum Ratings							
Symbol	Conditions		Values	Unit			
V_s	Supply voltage primary		16	V			
V_{iH}	Input signal voltage (HIGH)		Vs + 0.3	V			
V_{iL}	Input signal voltage (LOW)		GND - 0.3	V			
Iout _{PEAK}	Output peak current		15	Α			
Iout _{AVmax}	Output average current		100	mA			
f _{max}	Max. switching		10	kHz			
	frequency 85°C			kHz			
V _{CE}	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 _{isol IO}	Insulation test voltage input - output (AC, rms, 2s)		5000	V			
Q _{out/pulse}	Max. rating for output charge per pulse		7.5	μC			
T _{op}	Operating temperature		-40 85	°C			
T _{stg}	Storage temperature		-40 85	°C			

Characteristics							
Symbol	Conditions	min.	typ.	max.	Unit		
					•		
Vs	Supply voltage primary side	14.4	15	15.6	V		
I _{S0}	Supply current primary (no load)	85			mA		
	Supply current primary side (max.)			1000	mA		
Vi	Input signal voltage on / off	Vs/0			V		
V_{IT+}	Input threshold voltage (HIGH)	8.6 10		10	V		
V _{IT-}	Input threshold voltage (LOW)	5		6.7	V		
R _{IN}	Input resistance (switching signal)	30			kΩ		
C _{IN}	Input capacitance (switching signals)	1		nF			
$V_{G(on)}$	Turn on output voltage	15		V			
$V_{G(off)}$	Turn off output voltage	-8		V			
t _{d(on)IO}	Input-output turn-on propagation time	1		μs			
t _{d(off)IO}	Input-output turn-off propagation time	1		μs			
t _{d(err)SCP}	Error sec - prim propagation time	0.6		μs			
t _{d(err)HALT}	Error primary - secondary side propagation time	0.6		μs			
t _{TD}	Top-Bot interlock dead time	4		μs			
t _{jitter}	Signal transfer prim - sec (total jitter)	25		ns			
t _{SIS}	Short pulse suppression	0.4		μs			
t _{POR}	Power-On-Reset completed	0.1		s			
t _{pRESET}	Error reset time	0.03		ms			
V _{CEstat}	Reference voltage for V _{CE} -monitoring		8.5		V		
t _{bl}	VCE monitoring blanking time (dynamic)	4		μs			
V_{DCtrip}	Over voltage trip level	950			V		
R _{Gon}	Driver gate resistor at switch-on	0.4		Ω			
R _{Goff}	Driver gate resistor at switch-off	0		Ω			
MTBF	Mean Time Between Failure Ta = 40°C	3		10 ⁶ h			

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Signal Connector

PIN	Signal	Function	Specifications	
X1:01	IF_PWR_15P	Drive power supply	Stabilised +15V ±4%	
X1:02	IF_DC_LINK	Digitised DC Link signal	PWM output, 15V	
X1:03	IF_PWR_15P	Drive power supply	Stabilised +15V ±4%	
X1:04	IF_GND	GND	To be connected to ground	
X1:05	IF_PWR_15P	Drive power supply	Stabilised +15V ±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 4µs	
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.

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