

# SKYPER PRIME 1000A / 1700V ST10



## IGBT Driver for SEMITRANS 10

Order Nr. L5066807

## SKYPER PRIME 1000A / 1700V 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 1200V

### Typical Applications\*

- Regenerative inverters
- Traction
- Large drives

### 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
$V_s$	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	100	mA
$f_{max}$	Max. switching frequency 85°C	10	kHz
			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	50	kV/ $\mu$ s
$V_{isolIO}$	Insulation test voltage input - output (AC, rms, 2s)	5000	V
$Q_{out/pulse}$	Max. rating for output charge per pulse	7	$\mu$ C
$T_{op}$	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
$I_{SO}$	Supply current primary (no load)		85		mA
	Supply current primary side (max.)			1000	mA
$V_i$	Input signal voltage on / off		$V_s/0$		V
$V_{IT+}$	Input threshold voltage (HIGH)	8.6		10	V
$V_{IT-}$	Input threshold voltage (LOW)	5		6.7	V
$R_{IN}$	Input resistance (switching signal)		30		k $\Omega$
$C_{IN}$	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		$\mu$ s
$t_{d(off)IO}$	Input-output turn-off propagation time		1		$\mu$ s
$t_{d(err)SCP}$	Error sec - prim propagation time		0.6		$\mu$ s
$t_{d(err)HALT}$	Error primary - secondary side propagation time		0.6		$\mu$ s
$t_{TD}$	Top-Bot interlock dead time		4		$\mu$ s
$t_{jitter}$	Signal transfer prim - sec (total jitter)		25		ns
$t_{SIS}$	Short pulse suppression		0.4		$\mu$ s
$t_{POR}$	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		$\mu$ s
$V_{DCtrip}$	Over voltage trip level		1250		V
$R_{Gon}$	Driver gate resistor at switch-on		3		$\Omega$
$R_{Goff}$	Driver gate resistor at switch-off		0		$\Omega$
MTBF	Mean Time Between Failure $T_a = 40^\circ\text{C}$		3		$10^6\text{h}$

## 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.

### \*IMPORTANT INFORMATION AND WARNINGS

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