



**SEMIDRIVER™**

## Hybrid Dual IGBT Driver

### SKHI 22 A / B (R)

Preliminary Data

### Features

- Double driver for halfbridge IGBT modules
- SKHI 22A is compatible to old SKHI 22
- SKHI 22B has additional functionality
- CMOS compatible inputs
- Short circuit protection by  $V_{CE}$  monitoring and switch off
- Drive interlock top / bottom
- Isolation by transformers
- Supply undervoltage protection (13 V)
- Error latch / output

### Typical Applications

- Driver for IGBT modules in bridge circuits in choppers, inverter drives, UPS and welding inverters

<sup>1)</sup> see fig. 6

<sup>2)</sup> At  $R_{CE} = 18 \text{ k}\Omega$ ,  $C_{CE} = 330 \text{ pF}$

### Absolute Maximum Ratings

Symbol	Conditions	Values	Units
$V_S$	Supply voltage prim.	18	V
$V_{iH}$	Input signal volt. (High) SKHI 22A	$V_S + 0,3$	V
	SKHI 22B	$5 + 0,3$	V
$I_{outPEAK}$	Output peak current	8	A
$I_{outAVmax}$	Output average current	40	mA
$f_{max}$	max. switching frequency	50	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/ $\mu$ s
$V_{isolIO}$	Isolation test voltage input - output (2 sec. AC)	2500	Vac
$V_{isol12}$	Isolation test voltage output 1 - output 2 (2 sec. AC)	1500	V
$R_{Gonmin}$	Minimum rating for $R_{Gon}$	3	$\Omega$
$R_{Goffmin}$	Minimum rating for $R_{Goff}$	3	$\Omega$
$Q_{out/pulse}$	Max. rating for output charge per pulse	4 <sup>1)</sup>	$\mu$ C
$T_{op}$	Operating temperature	- 40 ... + 85	$^{\circ}$ C
$T_{stg}$	Storage temperature	- 40 ... + 85	$^{\circ}$ C

### Characteristics

$T_a = 25 \text{ }^{\circ}\text{C}$ , 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.)			290	mA
$V_i$	Input signal voltage SKHI 22A on/off		15 / 0		V
	SKHI 22B on/off		5 / 0		V
$V_{iT+}$	Input threshold voltage (High) SKHI 22A	10,9	11,7	12,5	V
	SKHI 22B	3,5	3,7	3,9	V
$V_{iT-}$	Input threshold voltage (Low) SKHI 22A	4,7	5,5	6,5	V
	SKHI 22B	1,5	1,75	2,0	V
$R_{in}$	Input resistance SKHI 22A		10		k $\Omega$
	SKHI 22B		3,3		k $\Omega$
$V_{G(on)}$	Turn on gate voltage output		+ 15		V
$V_{G(off)}$	Turn off gate voltage output		- 7		V
$R_{GE}$	Internal gate-emitter resistance		22		k $\Omega$
$f_{ASIC}$	Asic system switching frequency		8		MHz
$t_{d(on)IO}$	Input-output turn-on propagation time	0,85	1	1,15	$\mu$ s
$t_{d(off)IO}$	Input-output turn-off propagation time	0,85	1	1,15	$\mu$ s
$t_{d(err)}$	Error input-output propagation time		0,6		$\mu$ s
$t_{pERRRESET}$	Error reset time		9		$\mu$ s
$t_{TD}$	Top-Bot Interlock Dead Time SKHI 22A	3,3		4,3	$\mu$ s
	SKHI 22B		no interlock	4,3	$\mu$ s
$V_{CEsat}$	Reference voltage for $V_{CE}$ -monitoring		5 <sup>2)</sup>	10	V
$C_{ps}$	Coupling capacitance primary secondary		12		pF
MTBF	Mean Time Between Failure $T_a = 40^{\circ}\text{C}$		2,0		$10^6 \text{ h}$
w	weight		45		g

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