



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

¹⁾ see fig. 6

²⁾ 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/ μ 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 | Ω |
| $R_{Goffmin}$ | Minimum rating for R_{Goff} | 3 | Ω |
| $Q_{out/pulse}$ | Max. rating for output charge per pulse | 4 ¹⁾ | μ 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 Ω |
| | SKHI 22B | | 3,3 | | k Ω |
| $V_{G(on)}$ | 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 Ω |
| f_{ASIC} | Asic system switching frequency | | 8 | | MHz |
| $t_{d(on)IO}$ | Input-output turn-on propagation time | 0,85 | 1 | 1,15 | μ s |
| $t_{d(off)IO}$ | Input-output turn-off propagation time | 0,85 | 1 | 1,15 | μ s |
| $t_{d(err)}$ | Error input-output propagation time | | 0,6 | | μ s |
| $t_{pERRRESET}$ | Error reset time | | 9 | | μ s |
| t_{TD} | Top-Bot Interlock Dead Time SKHI 22A | 3,3 | | 4,3 | μ s |
| | SKHI 22B | | no interlock | 4,3 | μ s |
| V_{CEsat} | Reference voltage for V_{CE} -monitoring | | 5 ²⁾ | 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 h |
| w | weight | | 45 | | g |

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