



SEMIDRIVER™

Hybrid Dual MOSFET Driver

SKHI 21A

Preliminary Data

Features

- drives MOSFETs with $V_{DS(on)} < 10\text{ V}$
- is compatible to old SKHI 21
- 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 MOSFET 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)	$V_S + 0,3$	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 on/off		15 / 0		V
V_{iT+}	Input threshold voltage (High)	10,9	11,7	12,5	V
V_{iT-}	Input threshold voltage (Low)	4,7	5,5	6,5	V
R_{in}	Input resistance		10		k Ω
$V_{G(on)}$	Turn on gate voltage output		+ 15		V
$V_{G(off)}$	Turn off gate voltage output		0		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	3,3		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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