



SEMIDRIVER™

Medium Power Double IGBT Driver

SKHI 23/12 (R)

Features

- SKHI 23/12 drives all SEMIKRON IGBTs with V_{CES} up to 1200 V (VCE-monitoring adjusted from factory for 1200 V-IGBT)
- Double driver circuit for medium power IGBTs, also as two independent single drivers
- CMOS / TTL (HCMOS) compatible input buffers
- Short circuit protection by V_{CE} monitoring
- Soft short circuit turn-off
- Isolation due to transformers (no opto couplers)
- Supply undervoltage monitoring (< 13 V)
- Error memory / output signal (LOW or HIGH logic)
- Driver interlock top / bottom
- Internal isolated power supply

Typical Applications

- High frequency SMPS
 - Half and Full bridges
 - Three phase motor inverters
 - High power UPS
- 1) This current value is a function of the output load condition
 - 2) Operating $f_{sw} = 0$ Hz
 - 3) This value does not consider t_{on} of IGBT and t_{MIN} adjusted by R_{CE} and C_{CE} ; see also fig. 14
 - 4) Matched to be used with IGBTs < 100 A; for higher currents, see table 4
 - 5) With $R_{CE} = 18$ k Ω , $C_{CE} = 330$ pF; see fig. 6
 - 6) Factory adjusted; other values see table 3

Absolute Maximum Ratings		$T_a = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
V_S	Supply voltage primary	18	V
V_{IH}	Input signal voltage (HIGH) (for 15 V and 5 V input level)	$V_S + 0,3$	V
$I_{outPEAK}$	Output peak current	± 8	A
I_{outAV}	Output average current	± 50	mA
V_{CE}	Collector emitter voltage sense	1200	V
dv/dt	Rate of rise and fall of voltage (secondary to primary side)	75	kV/ μs
$V_{isol IO}$	Isolation test volt. IN-OUT (2 sec. AC)	2500	V
$R_{Gon min}$	minimal R_{Gon}	2,7	Ω
$R_{Goff min}$	minimal R_{Goff}	2,7	Ω
$Q_{out/pulse}$	charge per pulse	4,8	μC
T_{op}	Operating temperature	- 25 ... + 85	$^\circ\text{C}$
T_{stg}	Storage temperature	- 25 ... + 85	$^\circ\text{C}$

Characteristics		$T_a = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
V_S	Supply voltage primary	14,4	15,0	15,6	V
I_S	Supply current (max.)		0,32 ¹⁾		A
$I_{SO}^{2)}$	Supply current primary side (standby)		0,12		A
V_{IT+}	Input threshold voltage (HIGH) min.				
	15 V input level	12,5			V
	for 5 V input level	2,4			V
V_{IT-}	Input threshold voltage (LOW) max.				
	for 15 V input level			3,6	V
	for 5 V input level			0,50	V
$V_{G(on)}$	Turn-on output gate voltage		+ 15		V
$V_{G(off)}$	Turn-off output gate voltage		- 8		V
f	Maximum operating frequency		see fig. 15		
$td(on)_{IO}$	Input-output turn-on propagation time		1,4		μs
$td(off)_{IO}$	Input-output turn-off propagation time		1,4		μs
$t_{d(terr)}$	Error input-output propagation time		1,0 ³⁾		μs
t_{TD}	Dead time		10 ⁶⁾		μs
V_{CEstat}	Reference voltage for V_{CE} monitoring		5,2 ⁵⁾		V
R_{Gon}	Internal gate resistor for ON signal		22 ⁴⁾		Ω
R_{Goff}	Internal gate resistor for OFF signal		22 ⁴⁾		Ω
C_{ps}	Primary to secondary capacitance		12		pF

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