



**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 fsw = 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  $R_{CE} = 18 \text{ k}\Omega$ ,  $C_{CE} = 330 \text{ pF}$ ; see fig. 6
- 6) Factory adjusted; other values see table 3

Absolute Maximum Ratings		$T_a = 25 \text{ }^\circ\text{C}$ , 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
$I_{out\_PEAK}$	Output peak current	$\pm 8$	A
$I_{out\_AV}$	Output average current	$\pm 50$	mA
$V_{CE}$	Collector emitter voltage sense	1200	V
$dv/dt$	Rate of rise and fall of voltage (secondary to primary side)	75	kV/ $\mu$ s
$V_{isol\ IO}$	Isolation test volt. IN-OUT (2 sec. AC)	2500	V
$R_{Gon\ min}$	minimal $R_{Gon}$	2,7	$\Omega$
$R_{Goff\ min}$	minimal $R_{Goff}$	2,7	$\Omega$
$Q_{out/pulse}$	charge per pulse	4,8	$\mu$ C
$T_{op}$	Operating temperature	- 25 ... + 85	$^\circ\text{C}$
$T_{stg}$	Storage temperature	- 25 ... + 85	$^\circ\text{C}$

Characteristics		$T_a = 25 \text{ }^\circ\text{C}$ , unless otherwise specified			Units
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 <sup>1)</sup>		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		$\mu$ s
$td(off)_{IO}$	Input-output turn-off propagation time		1,4		$\mu$ s
$t_{d(Err)}$	Error input-output propagation time		1,0 <sup>3)</sup>		$\mu$ s
$t_{TD}$	Dead time		10 <sup>6)</sup>		$\mu$ s
$V_{CEstat}$	Reference voltage for $V_{CE}$ monitoring		5,2 <sup>5)</sup>		V
$R_{Gon}$	Internal gate resistor for ON signal		22 <sup>4)</sup>		$\Omega$
$R_{Goff}$	Internal gate resistor for OFF signal		22 <sup>4)</sup>		$\Omega$
$C_{ps}$	Primary to secondary capacitance		12		pF

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