



SEMIDRIVER™

Brake Chopper Driver

SKAI 100 E / U

Preliminary Data

Features

- Driver for dc link chopper circuits
- US Version (SKAI 100 U) and European Version (SKAI 100 E)
- Standard logic compatible input buffers
- Short circuit protection by V_{CE}
- Chopper frequency up to 5kHz
- Adjustable values for hysteresis and max. dc link voltage
- Isolation by transformers
- Supply undervoltage protection (13 V)
- Available in standard SKiPs and optional in standard modules
- External Reset possible

Typical Applications

- DC link voltage controller

Absolute Maximum Ratings

Symbol	Conditions	Values	Units
V_S	Supply voltage primary	18	V
V_{iH}	Input signal voltage (HIGH)	5 + 0,3	V
$I_{outPEAK}$	Output peak current @ 10 μ s	1,5	A
$I_{outAVmax}$	Output average current ($f_{sw} = 5$ kHz)	90	mA
f_{max}	switching frequency (max.)	5	kHz
V_{CE}	Collector-Emitter voltage	1700	V
dv/dt	Rate of rise and fall of voltage secondary to primary side	50	kV/ μ s
V_{isolIO}	Isol. test voltage input-output (2 sec. AC)	3500	V
R_{Gonmin}	Minimum rating for R_{Gon}	1,5	Ω
$R_{Goffmin}$	Minimum rating for R_{Goff}	1,5	Ω
T_{op}	Operating temperature	- 25 ... + 85	$^{\circ}$ C
T_{stq}	Storage temperature	- 40 ... + 85	$^{\circ}$ C

Characteristics

$T_a = 25^{\circ}$ C, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
V_S	Supply voltage primary side (regulated)	14,4	15	15,6	V
	Supply voltage primary side (unregulated)	20	24	30	V
I_{SO}	Supply current primary side (no load)		67		mA
	Supply current primary side (operation, $f_{swmax} = 5$ kHz)		77		mA
R_{GE}	Internal gate-emitter resistance		22		k Ω
$t_{d(on)IO}$	Input-output turn-on propagation time			20	μ s
$t_{d(off)IO}$	Input-output turn-off propagation time			25	μ s
$t_{d(err)}$	Error input-output propagation time		10		μ s
$t_{pERRRESET}$	Error reset time		300		ms
	Input IGBT extern On (Open Collector)				
V_{iOn}	Chopper On @ $I_{iOn} > 5$ mA			5	V
V_{iOff}	Chopper Off @ $I_{iOff} < 1$ mA	11,5			V
	Input Error Reset (Open Collector)				
$V_{iResetActive}$	RESET active			2	V
$V_{iResetNoAct}$	RESET inactive	12			V
	Output IGBT				
$V_{G(on)}$	Turn-On Gate Voltage	13,8	14,5	15,2	V
$V_{G(off)}$	Turn-Off Gate Voltage			0,6	V
R_{Gon}	Gate On Resistance		15		Ω
R_{Goff}	Gate Off Resistance		15		Ω
$Q_{out/pulse}$	max. rating for output charge per pulse			5	μ C
	DC-Link voltage threshold (SKAI 100 E)				
$V_{ChopperOn}$	Chopper On	661	681	701	V
$V_{ChopperOff}$	Chopper Off	647	667	687	V
$V_{ChopperError}$	Chopper Error	725	730	735	V
	DC-Link voltage threshold (SKAI 100 U)				
$V_{ChopperOn}$	Chopper On	779	802	826	V
$V_{ChopperOff}$	Chopper Off	762	786	809	V
$V_{ChopperError}$	Chopper Error	854	860	866	V
ϑ_{Fault}	over temperature	110	115	120	$^{\circ}$ C
C_{ps}	Coupling capacity primary-secondary		12		pF
w	weight		44		g
T x B x H	Dimensions		125x62x27		mm

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