	Specification	Symbol	Condition / Comment			240-100-SCR	300-100-SCR	400-100-SCR	Unit
MAXIMUM RATINGS	Maximum Operating Voltage	$V_{O(max)}$	l <sub>off</sub> < 250 μADC, T <sub>case</sub> = 70°C			24000	30000	40000	VDC
	Minimum Operating Voltage	$V_{O(min)}$	$t_{\text{r(on)}}$ and $t_{\text{r(off)}}$ may increase sligthly if operated below 5% of $V_{\text{O(max)}}$		perated below 5% of V <sub>O(max)</sub>		2000		VDC
	Typical Breakdown Voltage	$V_{br}$		TE: V <sub>br</sub> is a test parameter for quality control		27000	33000	44000	VDC
			purposes only. Not applicable in normal operation! $I_{\rm off}$ > 0.5 mA		27000	33000	44000	VDC	
	Maximum Isolation Voltage	$V_{I}$	Between HV switch and control / GND, continuously		40000	40000	50000	VDC	
	Max. Housing Insulation Voltage	V <sub>INS</sub>	Between switch and housing surface, 3 minutes			50000	50000	60000	VDC
	Maximum Turn-On Peak Current	V 1 /		t <sub>p</sub> < 100 µs, duty cycle <1%			1000		
					duty cycle <1%		800		
					uty cycle <1% duty cycle <1%		650 240		
A A					, duty cycle <1%		115		ADC
	Max. Non-repetitive Peak Current	I <sub>P(nr)</sub>	T <sub>case</sub> = 25°C			Please consult factor	v	ADC	
ABSOLUTE	Maximum Continuous Load Current	I <sub>L(max)</sub>	T <sub>case</sub> = 25°C Increased I <sub>L(max)</sub> on request			0.7	•	ADC	
	Max. Continuous Power Dissipation	$P_{d(max)}$	T <sub>case</sub> = 25°C Standard d		evices & FH, forced air 4 m/s	7.2	9	12	Watt
	Linear Derating		I I		evices & FH, forced air 4 m/s	0.166	0.2	0.266	W/K
	Operating Temperature Range	To	Standard devices & options CF, GCF, ILC. (Option DLC)			-4070 (60)		°C	
	Storage Temperature Range	Ts	Switches with option ILC may require frost protection!  Homogeneous steady-field, surrounding the whole switch			-4090		°C	
	Max. Permissible Magnetic Field  Max. Auxilliary Voltage	B V <sub>aux</sub>	Built-in overvoltage limiter (replaceable)		,		25 5.25		mT VDC
CHARACTERISTICS	Critical Rate-of-Rise to Off-State	dv/dt @ V <sub>O(max)</sub> , exponential waveform			1	36	45	60	kV/µs
	Voltage		Volinex), SAPOTIONIAN WAVOIONIII		30	40	00	κν/μο	
	9		0.8xV <sub>0</sub> , T <sub>case</sub> =2570°C, re	570°C, reduced loff on request			< 150		μADC
	Typical Holding Current	l <sub>H</sub>	T <sub>case</sub> = 25°C		'		100		İ .
		T <sub>case</sub> = 70°C					70		mADC
	Typical On-State Voltage	$V_{sat}$	T <sub>case</sub> = 25°C	0.001 x l		11	14	18	
			$t_p$ < 10 $\mu$ s, duty cycle < 1%	0.01 x		13	16	21	
				0.1 x		33	41	54 200	VDC
	Typical Propagation Delay Time	<b>+</b>	Resistive load, 0.1 x I <sub>P(max)</sub> ,	1.0 x		180	225 200	300	VDC ns
	Typical Turn-On Rise Time	t <sub>d(on)</sub>	Resistive load, 0.1 x IP <sub>(max)</sub> ,		$_{\text{max}}$ , $I_{\text{L}} = 0.1 \text{ x } I_{\text{p(max)}}$	810	830	850	113
	Typical rain on raise rine	CI(OII)	11000011000, 10 00 /0		$_{\text{max}}$ ), $I_{\text{L}} = 0.1 \text{ x } I_{\text{p(max)}}$	60	80	100	
					$_{\text{max}}$ ), $I_{\text{L}} = 0.5 \text{ x } I_{\text{p(max)}}$	150	170	190	
				$0.8 \times V_{O(max)}$ , $I_L = 1.0 \times I_{p(max)}$		200	220	240	ns
	Typical Turn-Off Fall Time	$t_{q},t_{off}$	inductive load with free-	I <sub>L</sub> = 0.1 >			40		
	Mariana On Time		wheeling diode $I_L = 1.0 \text{ x } I_{p(max)}$		100			μs	
	Maximum On-Time	t <sub>on(max)</sub>		Please note P <sub>d(max)</sub> limitations!			Infinitely if I <sub>L</sub> > I <sub>H</sub>		
3	Typical Output Pulse Jitter  Max. Switching Frequency	f <sub>(max)</sub>	Impedance matched input, V <sub>aux</sub> / V <sub>ctrl</sub> = 5.00 VDC Please note P <sub>d(max)</sub> limitations!				1 5		ns kHz
ELECTRICAL	Maximum Burst Frequency	f <sub>b(max)</sub>	HFB option required, @ 0.1 x I <sub>p(max)</sub>						kHz
	Coupling Capacitance	Cc	Switch against   Standard devices & options CF, DLC			<30			IXI IZ
			control side Devices with options GCF, ILC			70 200			pF
	Minimum Trigger Pulse Width		Trigger pulse has no influence on switching behaviour			> 50			ns
	Control Voltage Range	V <sub>ctrl</sub>		The V <sub>ctrl</sub> has no impact on the output pulse shape.			3 10		
	Auxiliary Supply Voltage Range	$V_{aux}$		The +5 V supply is not required in the HFS mode.			4.75 5.25 V		
	Typical Auxiliary Supply Current	l <sub>aux</sub>	,	$V_{aux} = 5.00 \text{ VDC}, T_{case} = 25^{\circ}\text{C}.$ 0.01 x f <sub>(max)</sub>		200			
	Fault Signal Output Voltage	1	ŭ		@ specified f <sub>(max)</sub> Ready = High	600 > 4.0			mADC
	Fault Signal Output Voltage		Short circuit proof, source/ sink   Ready = High   current max. 10mA   Fault = Low		, ,	< 0.5			VDC
	Fault Signal Output Load		Sink/ source current. Output is short circuit proof.					mADC	
	Typical Insulation Strength of Housing	V <sub>Ins</sub>	Caution: Keep appropriate distance between module housing and all conductive elements of the setup!				20		kVDC
	Dimensions	LxWxH	Standard housing with option PT-HV			103x70x35	103x70x35	-	
S S			Devices with option FH			150x100x38	150x100x38	200x100x38	
ISI	W-2-Fr		Devices with option FH & CF			150x100x83	150x100x83	200x100x83	mm <sup>3</sup>
HOUSING	Weight		Standard housing, with option PT-HV Devices with option FH			480 1200	480 1200	1500	
			Devices with option FH & CF			1400	1400	1800	g
	Control Signal Input Pin 1 / Yellow (LS-C: Pin 1). TTL compatible (LS-C: With 100Ω termination). Schmitt-Trigger characteristics. Control voltage 2-10 V (3-5 V for low jitter).								
	Logic GND / 5V Return  Pin 2 / Black (LS-C: Pin 2). The ground pin is internally connected with the safety earthings terminals (threaded inserts) on bottom side.								
FUNCTIONS	5V Auxiliary Supply  Pin 3 / Red (LS-C: Pin 3). The 5 V input is used for rep rates up to the specified max. frequency f <sub>(max)</sub> . Higher rep rates require option HFS.								
	Fault Signal Output Pin 4 / C	range (LS-C	: Pin 4). TTL output, short circuit	ting switch & driver over-heat, over	er-frequency, low aux	tiliary voltage. L = Fault.			
	Logic GND / 5V Return Pin 5 / E	lack (LS-C:	Shielding). The ground pin is inte	cted with the safety earthings term	inals (threaded inser	ts) on bottom side.			
Į.	LED Indicators GREEN:	ndicators GREEN: "Auxiliary power good, switch OFF". YELLOW: "Control signal received, switch ON". RE					witch OFF"		
	Temperature Protection A) Standard switches and switches with opt. FC, CF, GCF: Thermo trigger 75°C, response time < 60 s					② 3xPd(max), ∆T=25	K (50 to 75°C). Separate	e driver protection. B) Sv	witches
	with option DLC: 65°C, response time < 3 s @ 3xPd(max), ΔT=25K (40 to 65°C), coolant flow > 3l / min. Se  HTS 240-100-SCR Thyristor Switch, 24kV, 1000 A Option LP Low Pass. Input filter for increased noise immunity.								
ORDERING	HTS 240-100-SCR Thyristor Switch, 24kV, HTS 300-100-SCR Thyristor Switch, 30kV,					Option I-PC Option UL-94	Integrated part components Flame retardant casting res		pecification.
	HTS 400-100-SCR Thyristor Switch, 40kV,	Option HFS High Frequency Switching (two auxiliary supply inputs V1 & V2)			Option I-FWD	Integrated Free-Wheeling Dioc	•	tive load only.	
			Option I-HFS Integrated High Frequency Burst			Option I-FWDN	Integrated Freewheeling Diode	e Network. In connection wit	th inductive
			Option S-TT Soft Transition Time decrease the rise and fall time by 20%  Option Min-On Individually increased "Min. On-Time" to avoid unwanted triggering			Option PT-C Option SEP-C	Pigtail for control connection: F Separated control unit. Control	. ,	
			Option Min-On Individually increased "Min. On-Time" to avoid unwanted triggering  Option Min-Off Individually increased "Min. Off-Time" to avoid unwanted triggering			Option TH	Tubular Housing	. G. at white LLD intolloators III (	и обранаю
			Option PCC Pulser Configuration. Switch combined with custom specific parts.		Option CF	Copper Cooling Fins. P <sub>d(max)</sub> can be increased by the factor 3 t Grounded Cooling Flange. P <sub>d(max)</sub> can be increased by the factor 3 tr			
			Option ISO-40 40kV Isolation. Isolation Voltage increased to 40kV.  Option ISO-80 80kV Isolation. Isolation Voltage increased to 80kV.		Option GCF Option ILC	Grounded Cooling Flange. Pd( Indirect Liquid Cooling (for wat	•		
		Option ISO-80 80kV Isolation. Isolation Voltage increased to 80kV.  Option ISO-120 120kV Isolation. Isolation Voltage increased to 120kV.			Option DLC Direct Liquid Cooling. Pd(max) can be increased by the factor 10 to 100			or 10 to 100.	
				ge increased to 200kV.		RODUCT OPTIONS PLEAS			
Cust	omized switching units are available on requ	iest. All data	and specifications subject to chang	ge without no	ice. Please visit www.behlke.com fo	r up-dates. 300	-100-SCR / Revision 10-03	-2017 ©2012 All rights	reserved