	Specification	Symbol	Condition / Comment			HTS 161-03 LC	Unit
ABSOLUTE MAXIMUM RATINGS	Maximum Operating Voltage	$V_{O(max)}$	I_{off} < 10 µADC, T_{case} = 70°C			16	kVDC
	Maximum Isolation Voltage	V_I	Between HV switch and control / GND, continuously			± 40	kVDC
	Max. Housing Insulation Voltage	V_{INS}	Between switch and housing surface, 3 minutes			± 40	kVDC
	Maximum Turn-On Peak Current	$I_{P(max)}$	T_{case} = 25°C	t_p< 10 µs, duty cycle <1%		30	
				t_p< 100 µs , duty cycle <1%		24	ADC
				t_p< 1 ms, duty cycle <1%		17	
	Maximum Continuous Load Current	$I_{L(max)}$	T_{case} = 25°C	Standard devices		0.33	ADC
				Devices with option CF		0.94	
				Devices with option DLC		3.22	
	Max. Continuous Power Dissipation	$P_{d(max)}$	T_{case} = 25°C	Standard devices & FC, forced air 4 m/s		10	
				Devices with option CF		80	Watt
				Devices with option DLC		1000	
	Linear Derating		Above 25°C	Standard devices & FC, forced air 4 m/s		0.22	
				Devices with option CF		1.72	W/K
				Devices with option DLC		20	
	Operating Temperature Range	T_O	Standard devices & options CF, GCF, ILC. (Option DLC)			-40...70	C°
	Storage Temperature Range	T_S	Switches with option ILC may require frost protection!			-40...90	C°
	Max. Permissible Magnetic Field	B	Homogeneous steady-field, surrounding the whole switch			25	mT
	Max. Auxilliary Voltage	V_{aux}	Built-in overvoltage limiter (replaceable)			5	VDC
ELECTRICAL CHARACTERISTICS	Permissible Operating Voltage Range	V_O				0... ± 16	kVDC
	Typical Breakdown Voltage	V_{br}	**NOTE:** V_{br} is a test parameter for quality control purposes only. Not applicable in	I_{off} > 0.5 mA		18	kVDC
	Typical Off-State Current	I_{off}	$0.8 x V_O$, T_{case} =25...70°C, reduced I_{off} on request			5	µADC
	Typical Turn-On Resistance	R_{stat}	Each switching path t_p < 1µs, duty cycle < 1%	0.1 x $I_{P(max)}$, T_{case} =25°C		36	
				1.0 x $I_{P(max)}$, T_{case} =25°C		45	
				1.0 x $I_{P(max)}$, T_{case} =70°C		90	Ohm
	Typical Propagation Delay Time	$t_{d(on)}$	Resistive load, 0.1 x $I_{P(max)}$, 0.8 x $V_{O(max)}$, 50-50%			150	ns
	Typical Output Pulse Jitter	t_j	Impedance matched input, V_{aux} / V_{ctrl} = 5.00 VDC			1	ns
	Switch Recovery Time	t_{rc}	t_{rc} = minimum pulse spacing			500	ns
	Typical Turn-On Rise Time	$t_{r(on)}$	Resistive load, 10-90%	0.1 x $V_{O(max)}$, I_L = 0.1 x $I_{p(max)}$		29	
				0.8 x $V_{O(max)}$, I_L = 0.1 x $I_{p(max)}$		50	
				0.8 x $V_{O(max)}$, I_L = 1.0 x $I_{p(max)}$		57	ns
	Typical Turn-Off Rise Time	t_{off}, t_q	Resistive load, 10-90%	0.1 x $V_{O(max)}$, I_L = 0.1 x $I_{p(max)}$		15	ns
				0.8 x $V_{O(max)}$, I_L = 1.0 x $I_{p(max)}$		50	
	Maximum Turn-On Time	$t_{on(max)}$	No limitation			∞	
	Minimum Turn-On Time	$t_{on(min)}$	$t_{on(min)}$ can be customized. Please consult factory			60	ns
	Max. Continuous Switching Frequency	$f_{(max)}$	@ V_{aux}= 5.00 V Sw. shutdown if $f_{(max)}$ is exceeded	Standard devices without HFS option		~2.5	
				Standard devices with HFS supply		100	
				Opt. HFS + sufficient cooling option		200	kHz
	Maximum Burst Frequency	$f_{b(max)}$	Use option HFB for >10 pulses within 20µs or less			2	MHz
	Maximum Number of Pulses / Burst	$N_{(max)}$	@ $f_{b(max)}$		Standard	10	Pulses
			Note: Option HFB requires external buffer capacitors with a voltage rating of > 630VDC and a cpacitance of 100nF per additional pulse		Option I-HFB	>100	
					Option HFB	>10000	
	Coupling Capacitance	C_C	HV side against control side			20	pF
	Natural Capacitance	C_N	Between switch poles, @ 0.5 x $V_{O(max)}$			15	pF
	Control Voltage Range	V_{ctrl}	The V_{ctrl} has no impact on the output pulse shape.			3... 10	VDC
	Auxiliary Supply Voltage Range	V_{aux}	The +5 V supply is not required in the HFS mode.			5	VDC
	Typical Auxiliary Supply Current	I_{aux}	V_{aux} = 5.00 VDC, T_{case} = 25°C. Active current limitation above 1A.	0.01 x $f_{(max)}$		260	mADC
				@ $f_{(max)}$		800	
	Fault Signal Output		Switch will be turn off, if f>$f_{(max)}$, V_{aux}<4.75V or T_{case}>75°C Fault condition is indicated by a logical "L"			H=4V, L=0.5V	VDC
	Opt. HFS, Ext. Supply Voltage V1	$V_{HFS(V1)}$	Stability ±3%, current consumption <0.4 mA/kHz @ 25°C			15	VDC
	Opt. HFS, Ext. Supply Voltage V2	$V_{HFS(V2)}$	Stability ±3%, current consumption <0.9 mA/kHz @ 25°C			TBD.	VDC
	Intrinsic Diode Forward Voltage	V_F	T_{case} = 25°C, I_F = 0.3 x $I_{P(max)}$			<26	VDC
	Diode Reverse Recovery Time	t_{rrc}	T_{case} = 25°C, I_F = 0.3 x $I_{P(max)}$, di/dt = 100 A/µs			500	ns
HOUSING	Dimensions	LxWxH	Standard housing			Please contact the manufactured!	mm³
			Devices with option CF, non-isolated cooling fins				
			Devices with option DLC				
	Weight		Standard housing			Please contact the manufactured!	g
			Devices with option CF, non-isolated cooling fins				
			Devices with option DLC				

<table>

FUNCTIONS	Control Signal Input	**Pin 1** / Yellow. TTL compatible with Schmitt-Trigger characteristics. Control voltage 2-10 V (3-5 V recommended for low jitter).
	Logic GND / 5V Return	**Pin 2** / Black. The ground pin is internally connected with the safety earthing terminal (threaded insert) on bottom side.
	5V Auxiliary Supply	**Pin 3** / Red. The 5 V input is used for rep rates up to the specified max. frequency $f_{(max)}$. Higher rep rates require option HFS.
	Fault Signal Output	**Pin 4** / Orange. TTL output, short circuit proof. Indicating switch & driver over-heat, over-frequency, low auxiliary voltage. L = Fault.
	Inhibit Signal Input	**Pin 5** / Green. TTL compatible, Schmitt-Trigger characteristics for the connection of external safety circuits. L = Switch Inhibited.
	LED Indicators	**GREEN**: "Auxiliary power good, switch OFF". **YELLOW**: "Control signal received, switch ON". **RED**: "Fault condition, switch OFF"
	Temperature Protection	**A)** Standard switches and switches with option CF, GCF: Thermo trigger 75°C, response time < 60 s @ 3xPd(max), ΔT=25K (50 to 75°C). Separate driver protection. **B)** Switches with option DLC: 65°C, response time < 3 s @ 3xPd(max), ΔT=25K (40 to 65°C), coolant flow > 3l / min. Separate driver protection.