	Specification	Symbol	Condition / Comment			FQD 30-06 UF	FQD 30-08 UF	Unit
ABSOLUTE MAXIMUM RATINGS	Maximum Operating Voltage	$V_{O\,(max)}$	I_{off} < 100 µADC, T_{case} = 25°C			3600	3000	VDC
	Maximum Isolation Voltage	V_I	Between HV switch and control / GND, continuously			>10000		VDC
	Typical Breakdown Voltage	V_{Br}	I_{off} > 1 mADC, T_{case} = 70°C			3960	3250	VDC
	Maximum Turn-On Peak Current	$I_{P\,(max)}$	T_{case} = 25°C	Peak current is internally limited		60	80	ADC
	Maximum Off-State Current	I_{off}	T_{case} = 25°C, 0.8 x $V_{O(max)}$, Lower I_{off} on request			10		µADC
	Output Impedance	Z_{out}	Standard devices see option M-RS			75		Ohm
	Maximum Continuous Power Dissipation	$P_{d(max)}$	Standard devices & FC, T=25°C Devices with option DLC/ILC, T liquid=25°C, 1liter/min With Option GCF, T flange=25°C			5 60-200 (consult Behlke) 200		Watt
	Max. Continuous Switching Frequency	$f_{(max)}$	Cooling may be required at higher operating frequency	Standard devices with Option HFS supply Customized units		100 150 up to 500		kHz
	Maximum Burst Frequency	$f_{b(max)}$	Use option HFB for >10 pulses within 20µs or less			2		MHz
	Operating Temperature Range	T_O	Extended range on request			-40...75		C°
	Storage Temperature Range	T_{ST}				-50...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
	Typical Power Dissipation	P_d	@0.8xV_O C_L Pockels cell capacitance Data valid for cooling option GCF. Standard device without cooling option have 10% less losses.	f=2kHz	$C_{L=10\ pF}$	1.98	3.6	Watt
				f=20kHz	$C_{L=5\ pF}$	16.02	30	
					$C_{L=10\ pF}$	19.44	36.96	
					$C_{L=20\ pF}$	23.04	39.12	
				f=100kHz	$C_{L=10\ pF}$	97.2	184.8	
	Typical Turn-On Jutter	$t_{j(on)}$	V_{aux}/ V_{tr} =5 DC			100		ps
	Typical Propagation Delay Time	$t_{d(on)}$	Resistive load, 0.1 x $I_{P(max)}$, 0.8 x $V_{O(max)}$, 50-50%			50		ns
	Typical Output Pulse Jitter	t_j	Impedance matched input, V_{aux} / V_{ctrl} = 5.00 VDC			1		ns
	Typical Turn-On Rise Time	$t_{r(on)}$	- @ 0.8xV_O Standard - Standard Output impedance 75 Ohm - Pockels cell connecting leads <100mm (4")	$C_{L=5\ pF}$ $C_{L=10\ pF}$ $C_{L=20\ pF}$		1.2 1.4 1.8	1.5 1.8 2.3	ns
	Typical Turn-On Time	t_{on}	Switch on-time only. See also option OT-xxxx			100		ns
	Effective HV Pulse Width	$t_{p(HV)}$	$C_{L=10pF}$, top flatness<3%. See also option M-RL			200		ns
	Typical HV Pulse Fall Time	t_f	10-90%, $C_{L=10pF}$. See also Option M-RL.			1.2		µs
	Switch recovery time	t_{rc}	Driver recovery only. Trigger pulse tp=100ns			500		ns
	Maximum Number of Pulses / Burst	$N_{(max)}$	@ $f_{b(max)}$	Standard Option I-HFB Option HFB		150 Use option HFB for >150 >1000 >10000		Pulses
	Coupling Capacitance	C_C	HV side against control side			10		pF
	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.	0.01 x $f_{(max)}$ @ $f_{(max)}$		70 400	80 400	mADC
	Fault Signal Output		Indicates over temperature, over frequency (>100kHz) and low aux. voltage (>4.75 V)	"Ready" = H "Fault" =L		4.5 0.8		VDC
	Trigger Signal Voltage Range	V_{TR}	3-6 VDC recommended for low jitter			2-10		VDC
	Minimum trigger pulse width	$t_{ptr(min)}$	Switching behaviour cannot be influenced by trigger pulse			50		ns
	Fault Signal Output Current		Source/sink current, short circuit proof			10		mADC
HOUSING	Dimensions	LxWxH	Standard housing Devices with option GCF, non-isolated cooling fins Devices with option DLC			79x38x18 Please contact the manufactured!		mm^3
	Weight		Standard housing Devices with option CCF, non-isolated cooling fins Devices with option DLC			Please contact the manufactured!		g

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.
LED Indicators	**Pin 5** / Black. The ground pin is internally connected with the safety earthing terminal (threaded insert) on bottom side.
Temperature Protection	**GREEN**: "Ready, auxiliary power good". **YELLOW**: "Switch triggered". **RED**: "Fault condition, switch OFF"
	A) Standard switches and switches with option 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.

ORDERING

FQD 30-06 UF	Q-Switch driver, on mode, 3.0 kVDC, 60 A	**Option OFF**	OFF mode configuration.	**Option OT-10µ**	Switch on-time **10µs**
FQD 30-08 UF	Q-Switch driver, on mode, 3.0 kVDC, 80 A	**Option NEG**	Negative high voltage supply/negative output pulse polarity.	**Option OT-100µ**	Switch on-time **100µs**
		Option HFB	High Frequency Burst, Improved burst capability by driver.	**Option PL-HV**	Plug connector for high voltage connection
		Option HFS	High Frequency Switching (two auxiliary supply inputs V1 & V2)	**Option SPT-C**	Shielded pigtail for control connection, incl. LEMO plug
		Option UL94	Flame retardent casting resin according to UL94-VO	**Option GCF**	Grounded cooling flange (attachment on heatsinks)
		Option M-RL	Modified working resistor (customized HV-pulse, tp(HV)&tf)	**Option ILC**	Indirect Liquid Cooling (for water). $P_{d(max)}$ can be increased by the factor 3 to 15.
		Option M-RS	Modified damping resistor (customized HV-pulse, tr	**Option DLC**	Direct Liquid Cooling (for FPE/PFC). $P_{d(max)}$ can be increased by the factor 10
		Option OT-1µ	Switch on-time **1µs**		

FOR FURTHER PRODUCT OPTIONS PLEASE REFER TO THE OPTIONS PAGE.