

HTS50-12**Fast High-Voltage Semiconductor Switch**

The HTS50-12 switch is designed for high-voltage, high-speed switching applications, such as Pockels cell drivers, deflection grid drivers, and nanosecond pulse generators. It is intended for short-pulse applications requiring very fast rise times and high peak currents. Compared to traditional high-voltage switches like cold cathode tubes, triggered spark gaps, or thyratrons, the HTS50-12 is a semiconductor device featuring very short recovery times, high repetition rates, very low jitter, and a long service life. Its semiconductor design allows for stable operation across the entire rated voltage range. Operation requires neither a trigger transformer nor high auxiliary voltages.

The switch is triggered by a positive pulse with an amplitude of 3 to 20 volts. The typical on-time after triggering is 150 nanoseconds. The turn-on rise time depends primarily on the operating voltage, load capacitance, stray capacitance, and stray inductance. Through optimized circuit design, rise times can reach within 3 nanoseconds. Due to voltage isolation exceeding 10KV DC, it can switch positive or negative voltages. The switch can also operate floating at high potentials.

- ◆ 1. Product Features:
- ◆ Nanosecond-level rise time; very fast di/dt
- ◆ Low turn-on jitter characteristics
- ◆ Short delay time
- ◆ Excellent high-frequency characteristics
- ◆ Low trigger voltage
- ◆ Achieves galvanic isolation
- ◆ Achieves reliable switch control

2. Application Fields:

- ◆ High-voltage pulse generators
- ◆ Pockels cell drivers
- ◆ Power tube drivers
- ◆ Deflection grid drivers
- ◆ Crowbar switch circuits
- ◆ EMC test equipment
- ◆ Radar modulators
- ◆ Laser electronics



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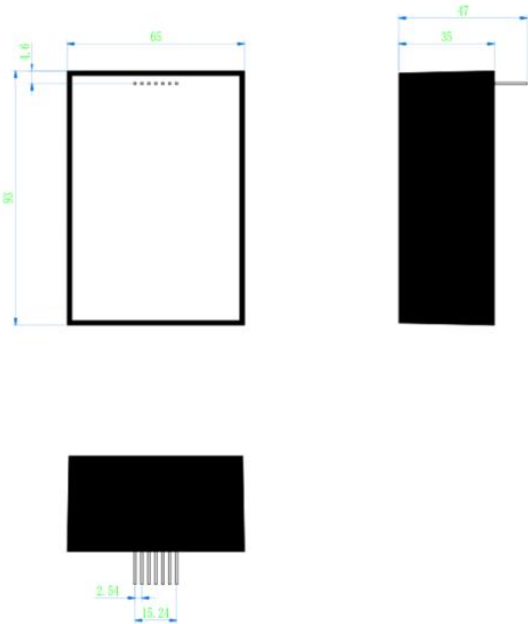
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3 性能参数

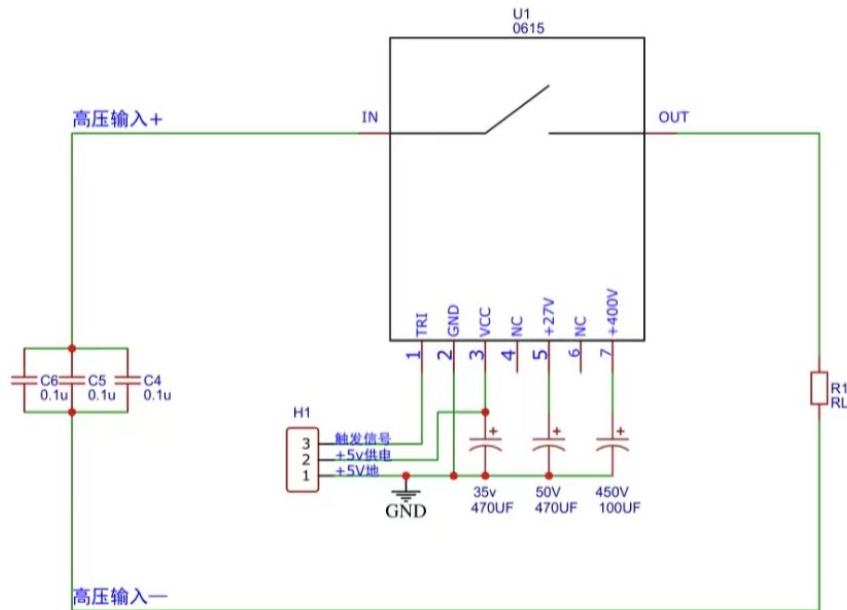
项目	符号	试验条件	数值	单位
Working Voltage Range	V_O	$I(off) \leq 100 \mu A$	0-5000	VDC
Isolation Strength	V_I	对控制产生负作用	10000	VDC
Max Peak Current	I_P	TP=50 ns	120	ADC
		Non-repetitive	200	
Static Input Resistance	R_{state}	$I_L \leq 20A$ DC, $T_{case}=25^{\circ}C$	2.1	Ohm
		$I_L = 120A$ DC, $T_{case}=25^{\circ}C$	4.1	
Turn-on Delay Time	$t_{d(on)}$	$R_L=100 \Omega$, $C_L=30 pF$, $V_o=4 kV$	60	ns
Rise Time	$t_{r(on)}$	$R_L=100 \Omega$, $C_L=30 pF$, $V_o=4 kV$	4	ns
		$R_L=2 \Omega$, $C_L=30 pF$, $V_o=4 kV$	2.5	
		$R_L=2 \Omega$, $C_L=60 pF$, $V_o=4 kV$	5.5	
		$R_L=2 \Omega$, $C_L=1 nF$, $V_o=4 kV$	30	
Turn-off Rise Time	$t_{r(off)}$	$R_L=100 \Omega$, $C_L=10 pF$, $V_o=4 kV$	15	ns
		$R_L=1M \Omega$, $C_L=10 pF$, $V_o=4 kV$	100	
Temperature Range	T_O	/	-10~60	$^{\circ}C$
Supply Voltage	V_{aux}	/	4.75~5.25	VDC
Trigger Level	/	/	3.3~5.5	VDC
Trigger Pulse Width	/	/	0.2~20	μs
Dimensions	/	/	91×64×35	mm
Weight	/	/	375	g

4 Outline Dimensions



5 接典型电路应用示例(含开关外围电路参数)

Typical Circuit Application Example (Including Switch Peripheral Circuit Parameters)



6 使用注意事项 Usage Precautions:

Since the HTS switch can generate extremely fast rates of change in voltage and current, the circuit design should comply with typical RF circuit requirements. This means all leads should be as short as possible, components must be of low inductance types (no wire-wound resistors!), and the power supply should be decoupled. The ground wire must be connected to a common ground point. If the PCB layout is not performed according to the aforementioned RF circuit principles, severe oscillations may occur, leading to switch overload, especially in the case of low-impedance loads. To minimize the risk of oscillation, it is recommended to make a connection between the logic ground and the high-voltage ground. The ground connection should be kept very short. In floating setups, the ground point can be coupled via a capacitor (C_c).

⚠️声明:

本资料仅供客户参考，规格参数可能因产品改良等发生变更，具体涉及的每个产品以《产品承诺书》和样品为准，恕不另行通知。

继电器在不同应用领域的性能参数要求均有所不同，因而客户应根据具体的使用条件选择合适的产品，如有疑问，请联系以便获得更多的技术支持。

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