

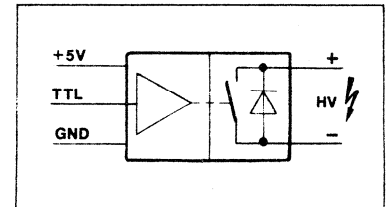
SERIES HTS

FAST HIGH VOLTAGE TRANSISTOR SWITCHES

These switches are designed for high voltage, high speed switching applications such as acceleration- and deflection grid drivers, pockels cell drivers and nano-second pulse generators.

In contrast to conventional high voltage switches with cold cathode tubes, the transistor switches of model series HTS have a very short recovery time, so that multiple pulses of microseconds time separation or repetition rates up to 50.000 pulses per second are achievable. HTS transistor switches are practically jitter-free, highly reliable and have the live times typical for semiconductor devices. Neither trigger transformer nor high auxiliary voltages are required for operation. The switches are triggered by a positive going TTL pulse. In the standard version, the on-time after being triggered is typically 120 nanoseconds. Devices with on-times of up to 100 microseconds are optionally available (see below). The turn-on rise time depends essentially on the operating voltage and the parasitic circuit capacitance, respectively load capacitance. Rise times of less than 5 nanoseconds are attainable with optimized circuit designs. Because of the galvanic isolation (more than 10.000 VDC), positive as well as negative voltages can be switched on or off, the switches can be floated also at a high potential.

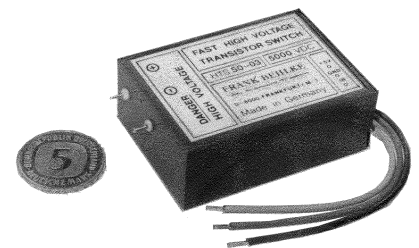
HTS 30 – 3000 Volts
HTS 50 – 5000 Volts
HTS 80 – 8000 Volts



Features

- High voltage hold-off
- Fast switching
- Jitter-free
- High repetition rates
- Short delay time
- High reliable
- TTL-compatible
- Galvanic isolation
- Acceleration Grid Drivers
- Deflection Grid Drivers
- Pockels Cell Drivers
- HV-Pulse Generators

Applications



Parameter	Symbol	Test Condition	HTS 30	HTS 50	HTS 80	Unit
Operating Voltage Range	V_O	$I_{off} < 100 \mu A$	0-3000	0-5000	0-8000	Vdc
Peak Current	I_p	$t_p = 50 \text{ ns}$		30		Adc
Off-State Current	I_{off}	$T_{case} = 70^\circ C$		<20		μA_{dc}
Turn-On Delay Time	$t_{d(on)}$	Resistive Switching		50		ns
Turn-On Rise Time	t_r	Resistive S., $V_O = 2000V$		<5		ns
Turn-On Time	t_{on}	Standard version, $R=1k$		120		ns
Recovery Time	t_{rc}	Resistive Switching		300		ns
Repetition Rate (max.)				50.000		pps
Max. Continuous Power Dissipation	P_{dmax}	$T_{case} = 25^\circ C$ or below		15		Watts
Power Dissipation Derating Factor		above $25^\circ C$		0,3		W/ $^\circ C$
Operating Temperature Range	T_O			-10 to 70		$^\circ C$
Auxiliary Supply Voltage	V_{aux}			4,75 to 5,25		Vdc
Auxiliary Supply Current	I_{aux}	At max. Rep. Rate		300		mAdc
Input Trigger Level (typ.)	V_{tr}	$V_{aux} = 5 \text{ Vdc}$		2		Vdc
Min. Trigger Pulse Width	t_{pw}			50		ns
Min. Trigger Pulse Rise Time	t_{tr}			20		ns
Dimensions				70 x 50 x 26		mm ³
Weight				160		g

Ordering Information

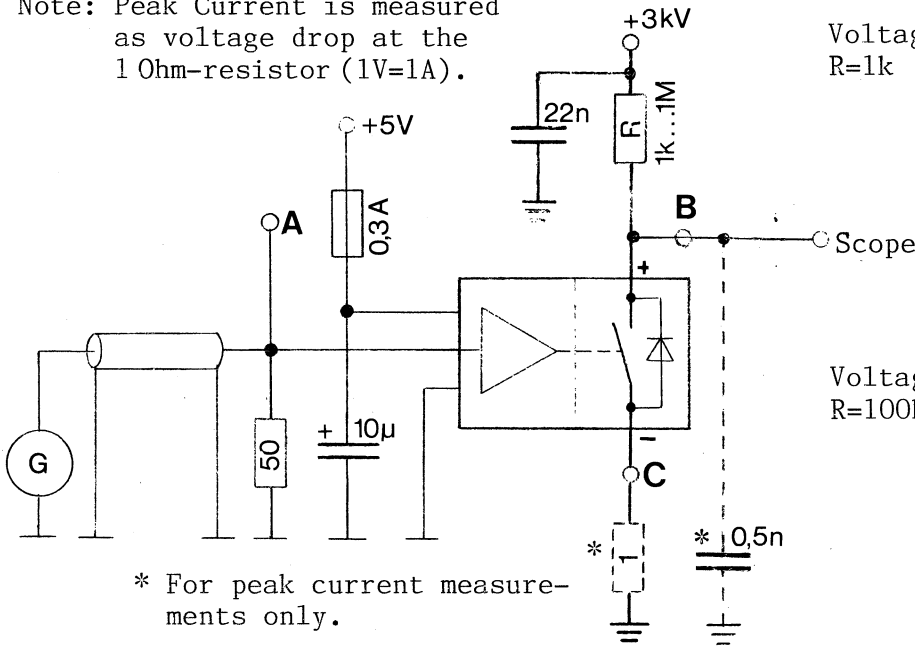
HTS 30 - 3000 Volt Switch Option 01 - Turn-On Time: 1 μ s
 HTS 50 - 5000 Volt Switch Option 02 - Turn-On Time: 10 μ s
 HTS 80 - 8000 Volt Switch Option 03 - Turn-On Time: 100 μ s

Devices with other specifications than above (e.g. with higher peak currents) are available on request.

All data and specifications subject to change without notice.

Test Circuit

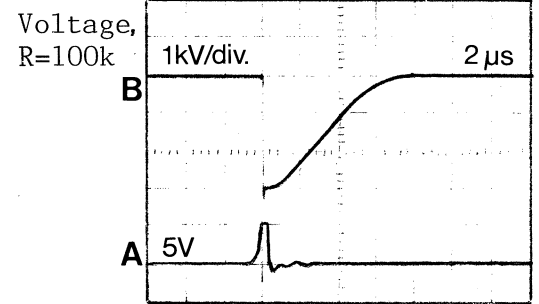
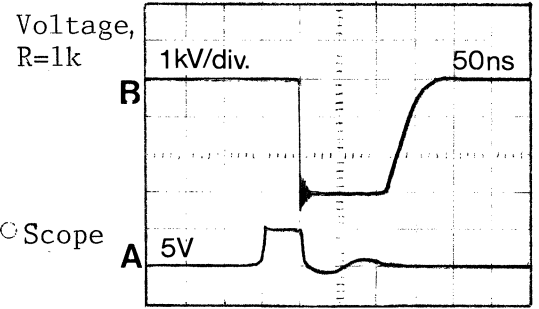
Note: Peak Current is measured as voltage drop at the 1 Ohm-resistor (1V=1A).



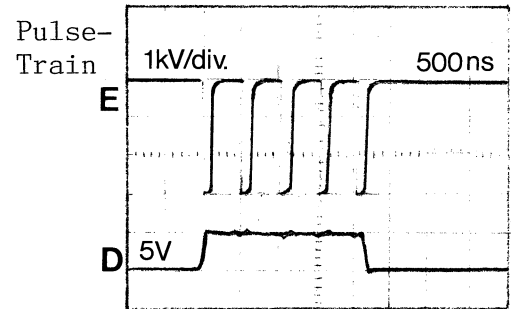
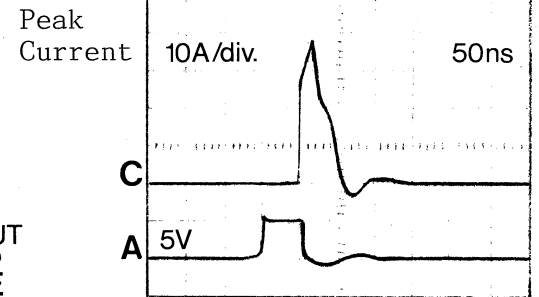
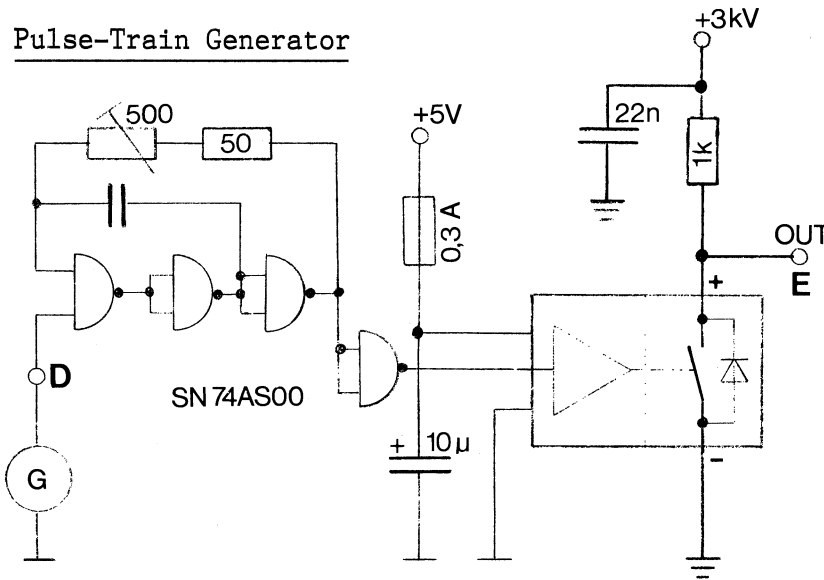
* For peak current measurements only.

Typical Waveforms

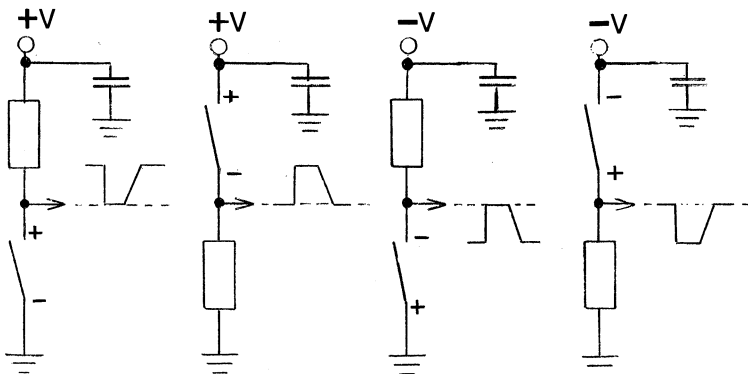
Oscilloscope: TEK 7633



Pulse-Train Generator



Basic Circuit Configurations



Floating Switch

Note: The sum of V1 and V2 must not exceed 10,000 Volts.

