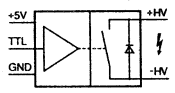
FAST HIGH VOLTAGE TRANSISTOR SWITCHES

HTS 20-08 2000 VOLTS / 80 AMPS
HTS 30-06 3000 VOLTS / 60 AMPS
HTS 50-06 5000 VOLTS / 60 AMPS

HIGH VOLTAGE / HIGH CURRENT
WITH FIXED ON-TIME

- Patented -



Features

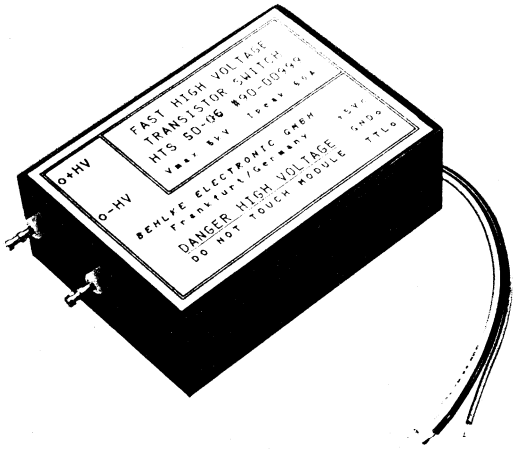
- Nanoseconds Rise Time
- Very Large di/dt
- Low Turn-On Jitter
- Short Delay Time
- High Frequencies
- Low Trigger Voltage
- Galvanic Isolation
- Reliable Switching

Applications

- HV Pulse Generators
- Pockels Cell Drivers
- Power Tube Drivers
- Deflection Grid Drivers
- Crowbar Switches
- EMC Test Equipment
- Radar Modulators
- Laser Electronics

DESCRIPTION

These switches are designed for high voltage, high current switching applications in which loads of very low impedances (e.g. large capacitances) must be driven with very short transition times. Compared to conventional high voltage switches using cold cathode tubes, thyratrons or spark gaps, the solid state switches of model series HTS have a very short recovery time, a high repetition rate, low jitter and a lifetime typical for semiconductor devices. Because of the TTL-compatible trigger input, HTS-switches require no complex drive circuitry and no high auxiliary voltages. The switches described in this data sheet have a fixed on-duration of 150 nanoseconds which can be extented optionally up to 100 microseconds. Due to the galvanic isolation of more than 10 KVDC, positive as well as negative voltages can be switched on or off, the switches can also be floated at a high potential.



SPECIFICATION	SYMBOL	CONDITION / COMMENT	20-08	30-06	50-06	UNIT
Max. Operating Voltage	V_O	$I_{off} \leq 100$ µA	2000	3000	5000	VDC
Isolation Strength	V_I	Continuously	⟩10000	⟩10000	⟩10000	VDC
Max. Peak Current	$I_{P(max)}$	$t_P \leq 50$ ns	80	60	60	ADC
Static On-Resistance	R_{stat}	$I_L = 0.1 \times I_{P(max)}$	1	3	5	Ohm
Max. Off-State Current	I_{off}	$0.8 \times V_O$	10	10	10	µADC
Turn-On Delay Time	$t_{d(on)}$	At $I_{P(max)}$	50	50	50	ns
Turn-On Rise Time	$t_{r(on)}$	$I_L = 0.1 \times I_{P(max)}$, V_O=2kVDC	5	4.5	4.0	ns
		$I_L = I_{P(max)}$, V_O=2kVDC	15	14	15	ns
On-Time	t_{on}	-20...+10%		150		ns
Recovery Time	t_{rc}	(Min. Pulse Spacing)		300		ns
Typical Turn-On Jitter	$t_{j(on)}$	V_{aux} = 5,0 VDC, f = 10 kHz		100		ps
Max. Switching Frequency	$f_{(max)}$	Continuously	25	40	25	kHz
Cont. Power Dissipation	$P_{d(max)}$	$T_{case} \leq 25$ °C	15	10	15	Watts
Derating		Above 25 °C		0.3		W/°C
Temperature Range	T_O			-10...60		°C
Auxiliary Supply Voltage	V_{aux}	± 5%		5.0		VDC
Auxiliary Supply Current	I_{aux}	f = $f_{(max)}$		300		mADC
Trigger Signal Voltage	V_{tr}	⟩ 3 VDC recommended		2...10		VDC
Dimensions				70x50x27		mm^3
Weight				160		g

All data and specifications subject to change without notice. Custom designed devices on request.

HVP
High Voltage Products. High Voltage Experts.

BEHLKE

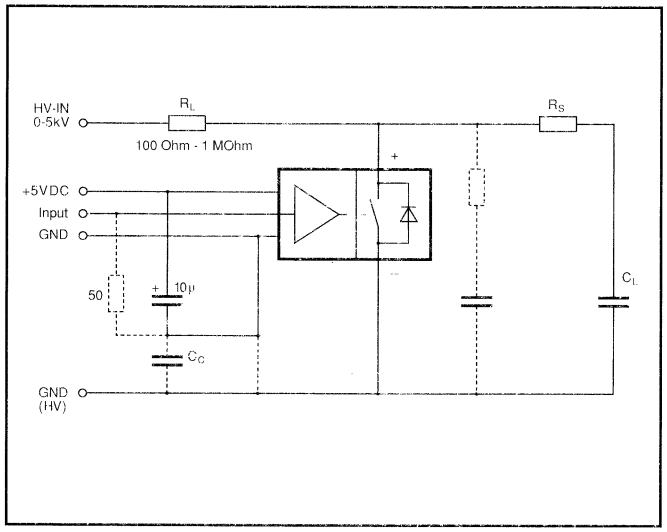


Fig. 2a: Example of Connection

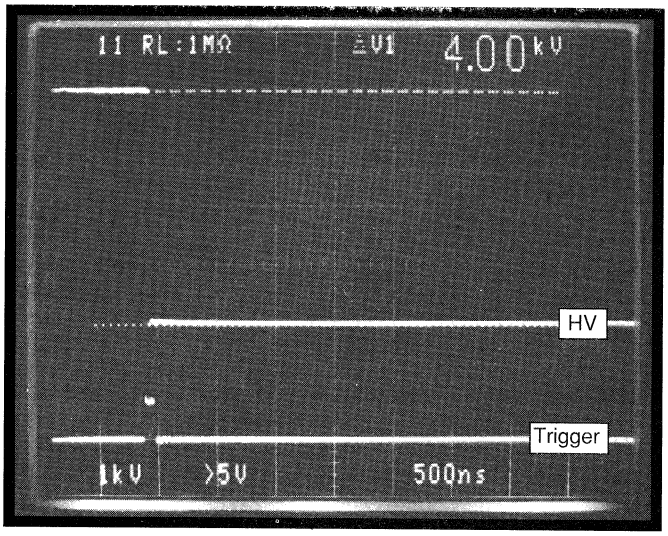


Fig. 2c: Pulse Shape, R_L = 1MOhm; C_L = 30pF; 1kV/div.

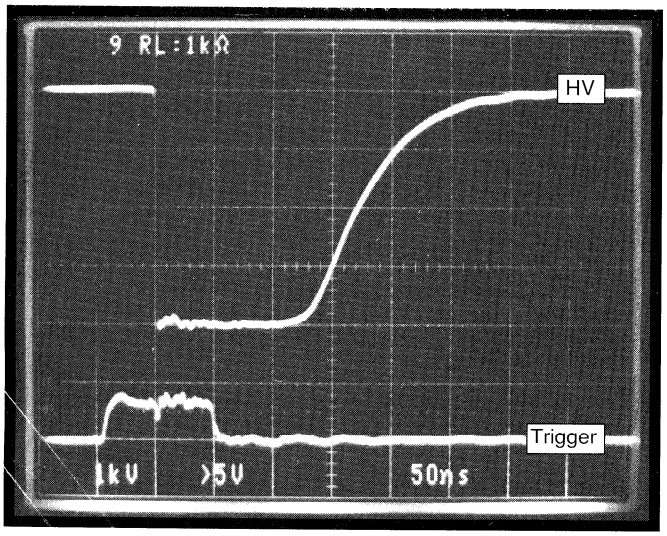


Fig. 2b: Pulse Shape, R_L = 1kOhm; C_L = 30pF; 1kV/div.

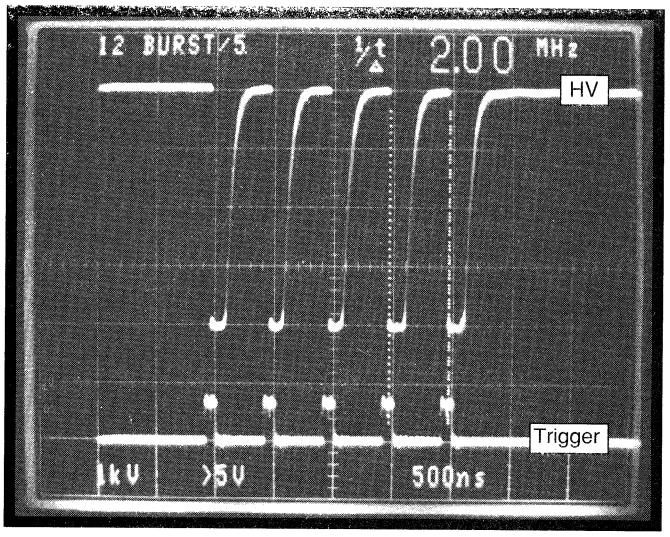


Fig. 2e: 2 MHz-Burst, R_L = 1kOhm; 1kV/div.

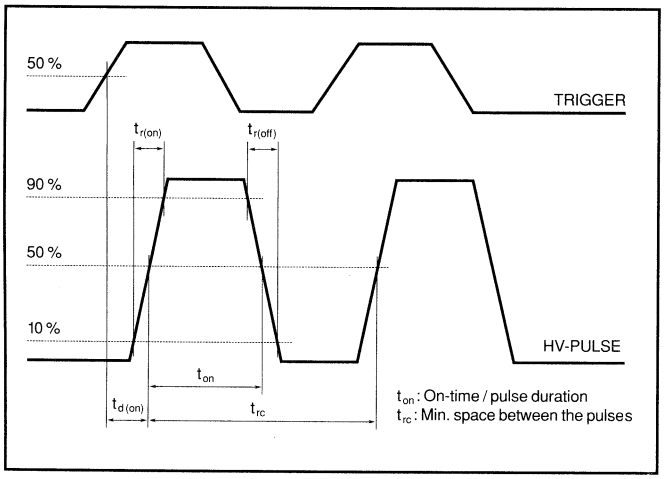


Fig. 5: Definition of pulse parameters

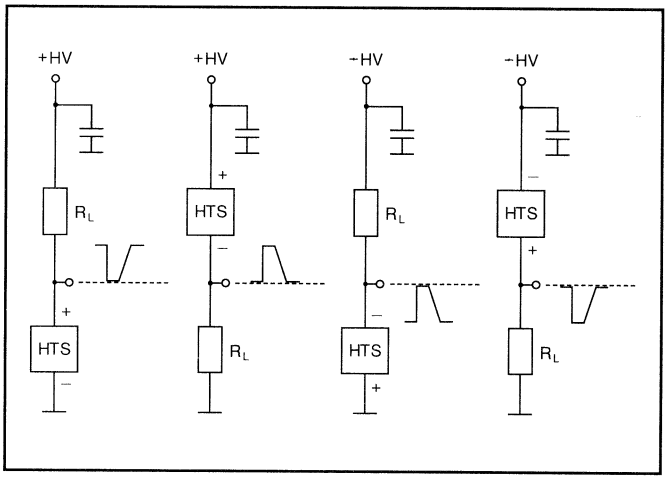


Fig. 4: Basic Circuit Configurations

Ordering Information:

HTS 20-08	Transistor Switch, 2kV/80A/150ns
HTS 30-06	Transistor Switch, 3kV/60A/150ns
HTS 50-06	Transistor Switch, 5kV/60A/150ns
Option 01	On-Time Extension, 1 µs, ± 30%
Option 02	On-Time Extension, 10 µs, ± 30%
Option 03	On-Time Extension, 100 µs, ± 30%
Option 04	Custom designed On-Time
Option 05	High Frequency Burst
Option 06	UL-94-VO Casting Resin

Local Sales Representative