

NanoSpeed™ Switch Driver (Premium Series)

(Protected by U.S. patent 7,403,677B1 and pending patents)



DATASHEET

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Features

- High speed
- High repetition
- High output voltage
- Wide input voltage range
- TTL/CMOS control
- Push-Pull output design
- Low power consumption
- Compact and low cost

Applications

- Optical Switch
- EO device driver

The NSDR series of drivers provide high voltage signals to drive the NS and NP as well as the NF series of solid state switches. The push-pull output design ensures a fast transition for both rising and falling edges with a high repeat rate, and it is especially suitable for driving capacitive switch loads.

The dual-stage configuration increases the extinction ratio or cross-talk value.

The standard driver controls one individual switch. Drivers that control multiple switches are also available; please call Sales at (781) 935-1200.

Specifications

Parameter	Min	Typical	Max	Unit
Rising/Falling Time (Tr & Tf) ^[1]	NS type	85	100	ns
	NP type	50		ns
	NF type	10		ns
Switch Time (Rise, Sr) ^[2]		310	350	ns
Switch Time (Fall, Sf) ^[2]		310	350	ns
Durability	10 ¹⁴			cycles
Control Input (TTL pulse)	0		5	V
Power Consumption ^[3]	1	5	15	W
Power Supply		12		V
Operating Temperature	-5		70	°C
Storage Temperature	-40		80	°C
Electrical Connector	SMA			

Note:

[1] Transition time between 10% and 90% chance of optical intensity.

[2] Duration from beginning of the electronic signal to the end of optical intensity change when driving the switch.

[3] The power consumption highly depends on the repeat rate. The maximum power consumption is defined for 1MHz operation.

Warning: Control Signal >5.5V Will Damage the Board

Warning: This is an OEM module designed for system integration. Do not touch the PCB by hand. The electrical static can kill the chips even without a power plug-in. Unpleasant electrical shock may also be felt. For laboratory use, please buy a Turnkey system.

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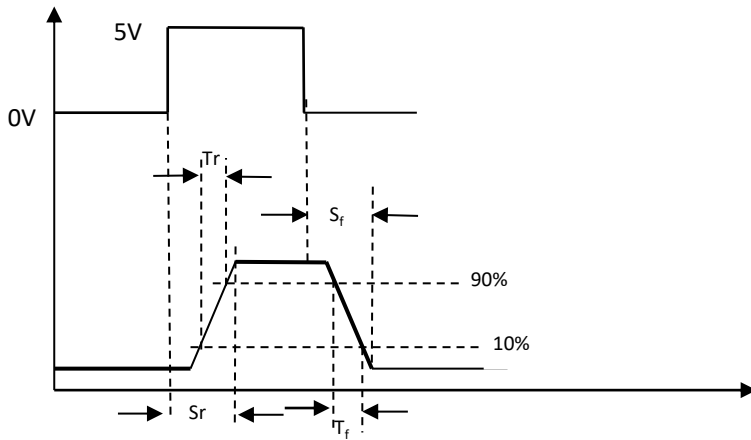
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Response Time Definition



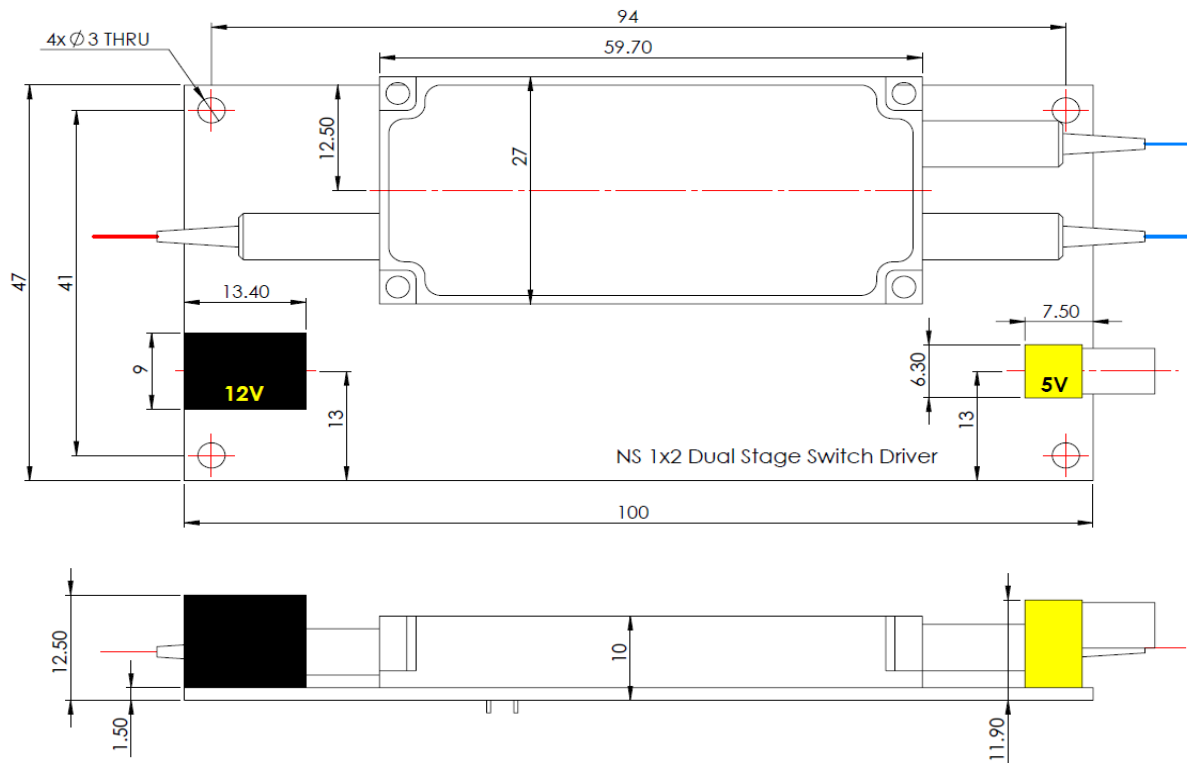
Response Time (Measured @ 500kHz)

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Mechanical Drawings for Dual Stage Premium NS 1x2



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

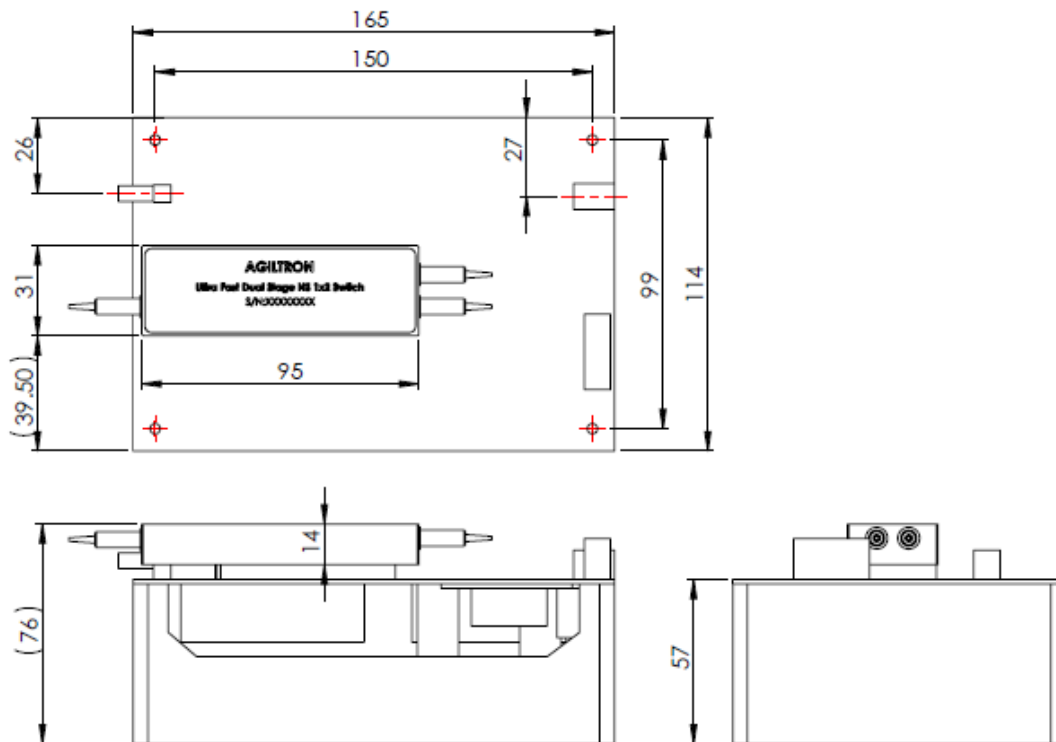
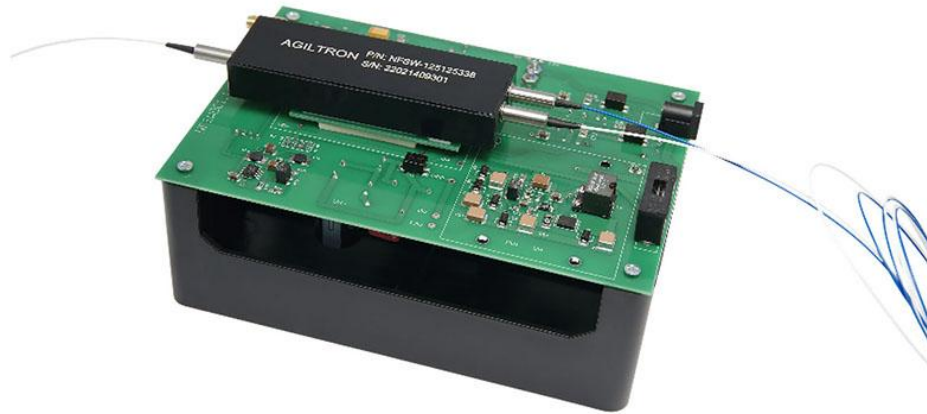
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1x1/1x2,2x2 NP Type Switch Mounted on 1MHz Driver

It consumes about 10W at the fastest repetition operation



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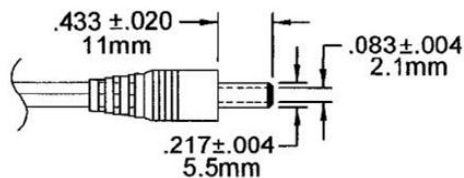
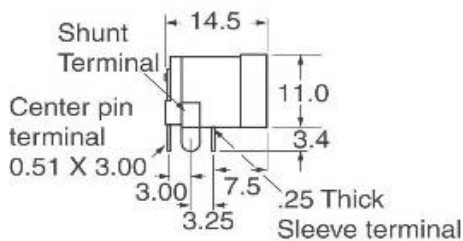
DC Power Connection

Variation 1

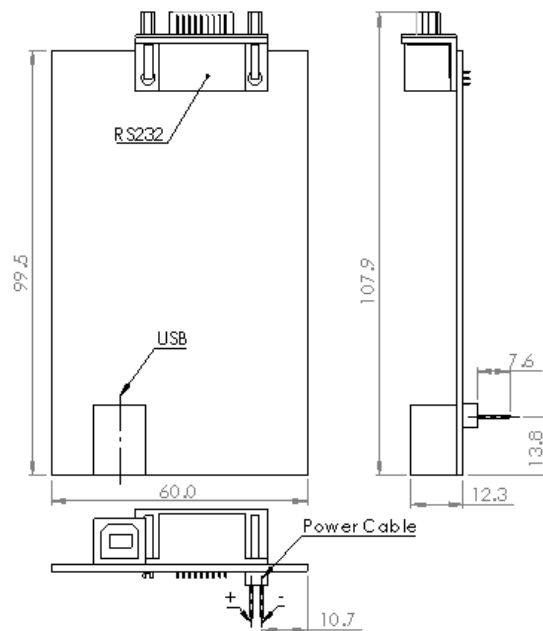
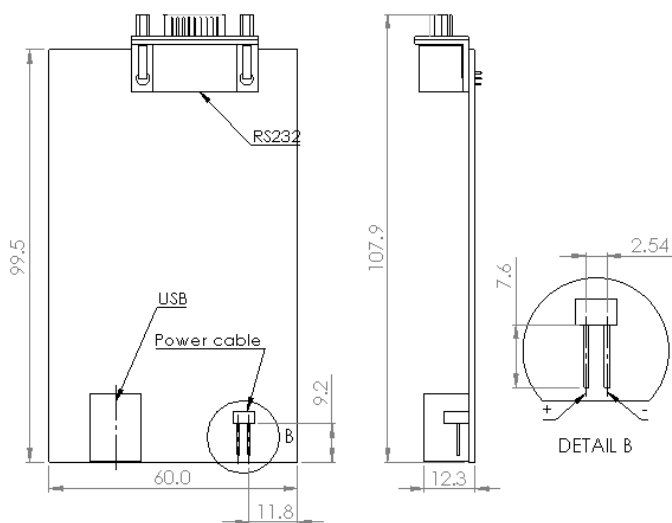
P/N: SC1313-ND

Power Barrel Connector Jack 2.00mm ID (0.079"),
5.50mm OD (0.217") Through Hole, Right Angle

12V Wall Plug DC Power Supply Interface



Variation 2



Note: The DC Power Barrel Jack Connector can be replaced with a two-pin connector, available in two configurations: one with pins facing downward for direct PCB mounting and another for connection with a standard cable connector. This flexibility allows for integration into various system designs.

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Typical Speed and Repetition Measurement



Note: Top Traces are electrical; Bottom traces are optical

Ordering Information (Part Number)

Prefix	Switch Type	Configuration ^[1]	Repeat Rate	Switch QTY	Channel # ^[3]	Control Mode	Power Supply
NSDR-	single stage = 1P dual stage ^[2] = 2P	1x1 = 1a 1x2, 2x1 = 2a 1x4, 4x1 = 4a ... 1xN, Nx1 = Na Special=00	200kHz = M 500kHz/50ns = P ^[3] 1MHz/50ns = H ^[3] 1MHz/10ns = F ^[3] Special = 0	Single = 1 Multiple = G	Single Channel = 1 N parallel channel = N Special = 0	TTL=1	12VDC=1 Special =0

[1]. Configuration Rule

1xN, Nx1 = Na

MxN = MN

[2]. Available for 1x1 only

[3]. Multiple-channel version is designed for the module with multiple switches of the individual channel on driving PCB

NOTE:

- This driver is intended mounted with specific switches, tuned, and tested prior to shipping. It is not designed to be sold separately.

Operation Manual

1. Connect a control signal to the SMA connector on the PCB.
2. Attach the accompanied power supply (typically a wall-pluggable unit).
3. The device should then function properly.

Note: Do not alter device factory settings.

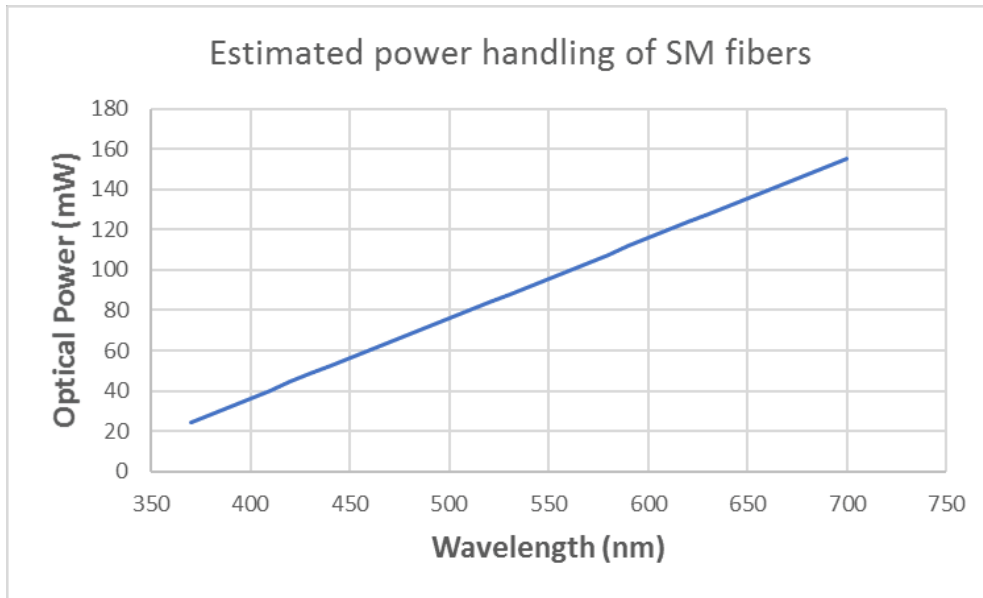
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Optical Power Handling vs Wavelength For Single-Mode Fibers



TTL Driver Interface (Our Circuit Diagram)

