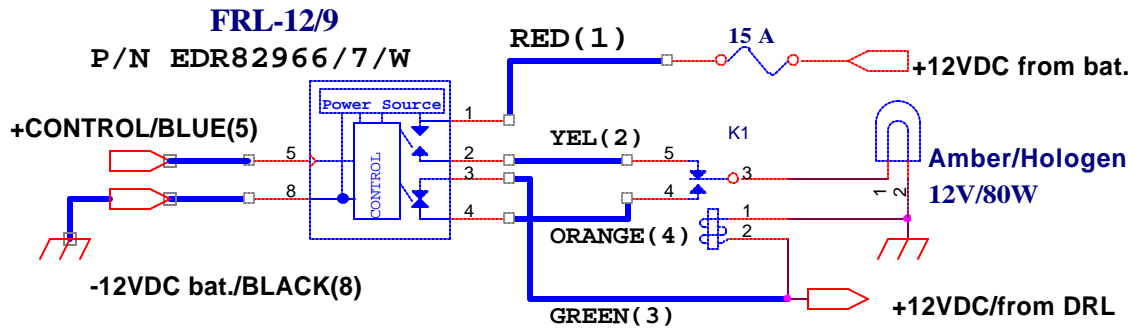


110W Fog Light Relay



EDR's Fog Light Relay installed in Trans Am Deport made cars



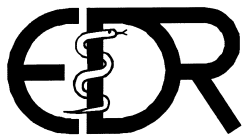
Electronic Design & Research Inc

Under management



VS Holding LLC

www.vsholding.com



Electronic Design & Research
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Technology for people's ideas

EDR82966 - 12VDC, 9A Relay

The device is a modified 30VDC/9A relay and belongs to the family of DPST/SPDT miniature Solid-State Relays

Features: Utilizes only 0.75 sq. in. of PCB area and only 1.25" tall
 9A continuously current and no heat sink is required
 40 A pulse in a miniature package
 Low power control input, and EMI free operation
 18A is a maximum continues current, 1% duty cycle
 0.007 Ohms on-state resistance at 25°C
 Leakage typ. 1.0 mA at 25°C and 100 mA at 100°C at 16V

Input Specifications:

| | |
|--------------------------------|------------------------|
| Input Control Voltage (pin 4) | 12VDC (5V to 24V) |
| Nominal Control Signal Current | .4 mA |
| Power Supply +Vdc (pin 5) | 6V to 16 VDC/ 20mA max |
| ESD input rating | 2500V |

Output Specifications:

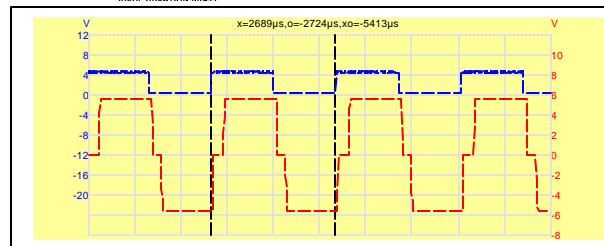
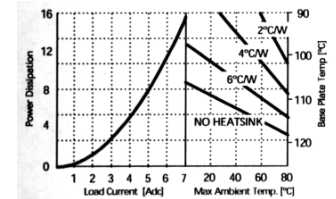
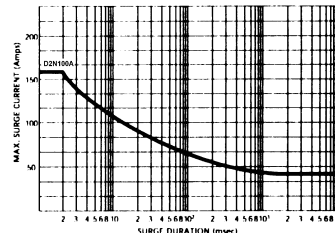
| | |
|-------------------------------|---------------|
| Operating voltage range | 6 VDC to 16DC |
| Continuous current | 9 A rms |
| Maximum surge current (IDM) - | 40 A / 3ms |
| Maximum current (ID), 25 °C | 18 A |
| Maximum on-state resistance | 0.007 Ohm |
| Rising time | 74 μS |
| Delay-on time | 115 μS |
| Falling time | 35 μS |
| Delay-off time | 115 μS |
| Maximum switching frequency | 200 Hz |
| "Dead Time" | 30 mS |

General Specifications:

| | |
|-------------------------------------|--|
| Ambient operating temperature range | -25 ⁰ C to 85 ⁰ C |
| Ambient storage temperature range | -55 ⁰ C to 125 ⁰ C |
| Dielectric Strength input-to-output | 2,500 Vrms min |

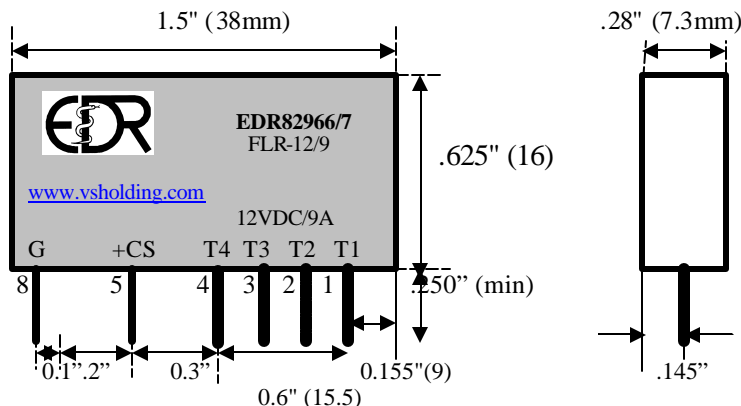
Mechanical Specifications:

| | |
|---------------|--------------------------------------|
| Weight (oz) | .2 |
| Encapsulation | Epoxies Etc. 50-2366RFR / 50-2366CFR |



A sample of chopping of a bi-polar power
 Terminals #2 and #3 connected together

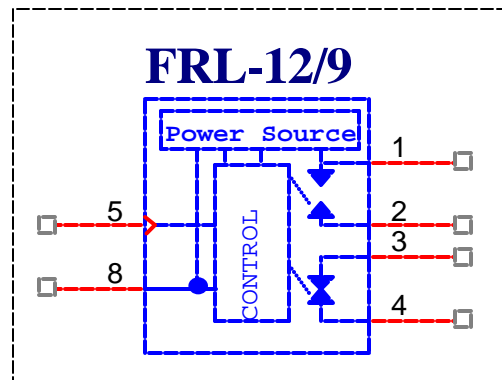
Control
 Load



p/n EDR82966 is a modified p/n EDR82959 rated at 30VDC/9A (SIP8)

All Dimensions are in inches (millimeters).
 Dimensions for SIP6 package 0.625"H x 1.5"L x 0.28"W
 Terminals/solder control/output(power) 0.025" square / .052"
 Terminals T3/T4 rated at 30VDC/9A
 /W must be added for terminals replaced with 12": P/N EDR82966/7/W

- PIN 1: +T1 / N.O./Vcc
- PIN 2: -T2 / N.O.
- PIN 3: +T3 / N.C.
- PIN 4: -T4 / N.C.
- PIN 5: +Vcs (control)
- PIN 8: GND



Transient Protection: All loads are inductive, even ones that are not so obvious or labeled. An inductive load produces a harmful transient voltage, which is much higher than the applied voltage, when it is turned on and off. ASSR built with a MOSFET output acts as an ideal switch and can produce a seemingly "non-inductive" load, which can cause damage if not suppressed. A transient voltage suppressor, which is bidirectional for AC applied voltage and unidirectional for DC applied voltage, should be used to damp excessive spikes.

Electronic Design & Research Inc. ** 7331 Intermodal Dr. ** Louisville ** KY 40258
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Input Electrical Characteristics (Ta = 25⁰C) for W2L30D9/8-18, p/n EDR82959/7

| | Minimum | Nominal | Maximum | Unit |
|------------------------------------|---------|---------|---------|------|
| Control Voltage, pins 5 (>1mA) | 6 | 12 | 16 | V |
| Power Supply (I cc) Current, Pin#7 | 12 | 20 | 22 | mA |
| Power Supply (Vcc), Voltage, Pin#7 | 6 | 12 | 16 | VDC |

Switching frequency 140 Hz, load voltage +26VDC, load is 3.0 Ohm/8.5A

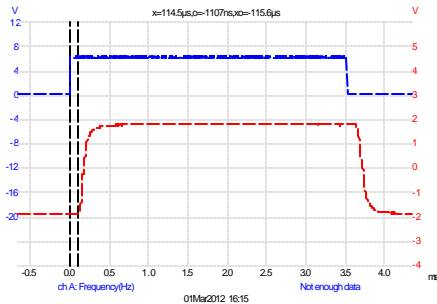


FIG 1 Turn-on delay is 115.6 μs

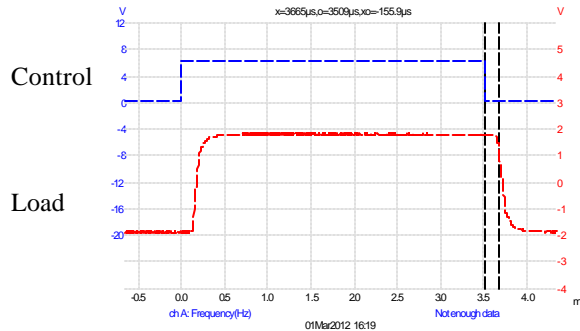


FIG 2 Turn-off delay is 119.9μs

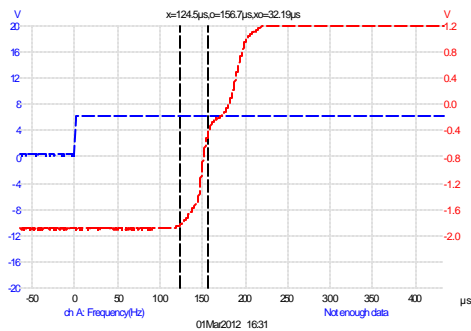


FIG 3 Rising/Falling slopes are 74.4μs /32.3μs

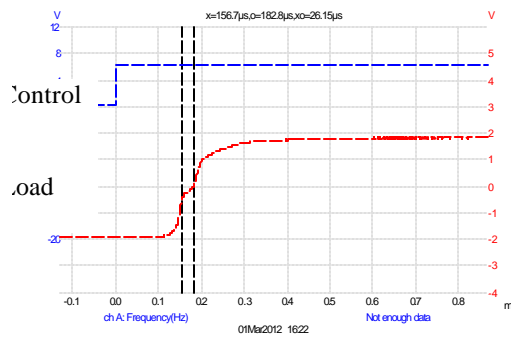


FIG 4 The "dead" time is 26.2μs

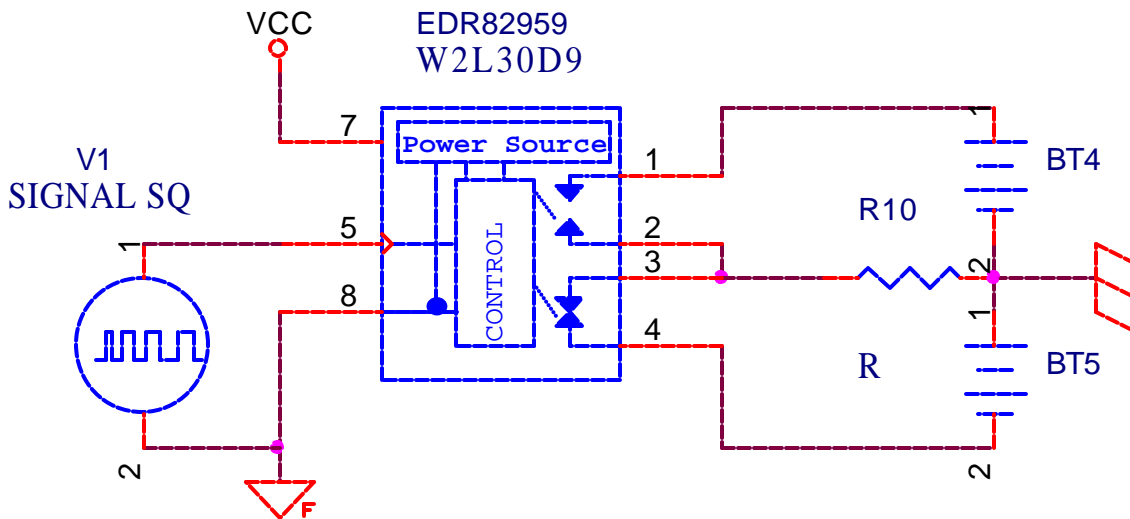


FIG 5

Test Circuit for a SPDT configuration, terminals the T2 and T3 were connected together

Typical applications for SPDT/DPST and FLR-12/9 relays

Versatility of the W2L-family of SPDT/DPST relays can be appreciated viewing presented below applications

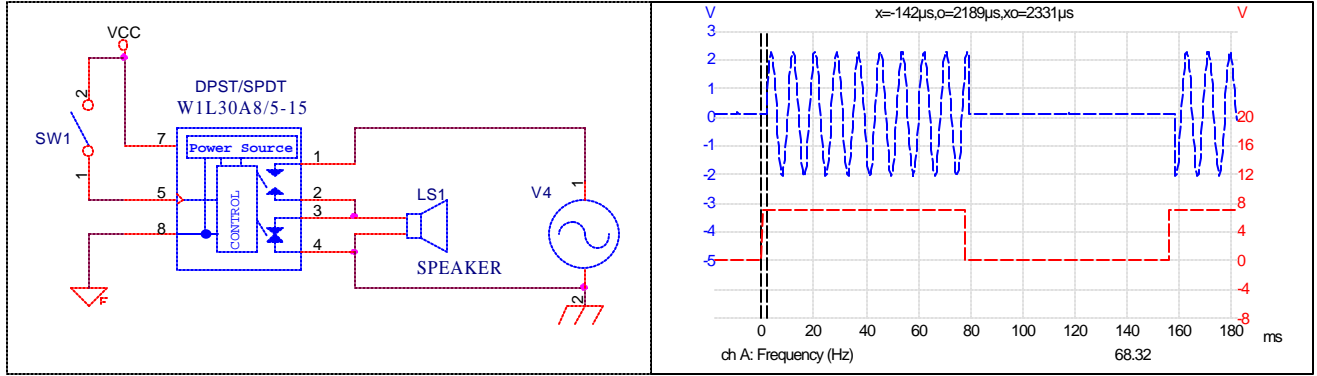


FIG 6

A low $R_{ds(on)}$ resistance insures the best possible audio power delivery to a selected speaker.

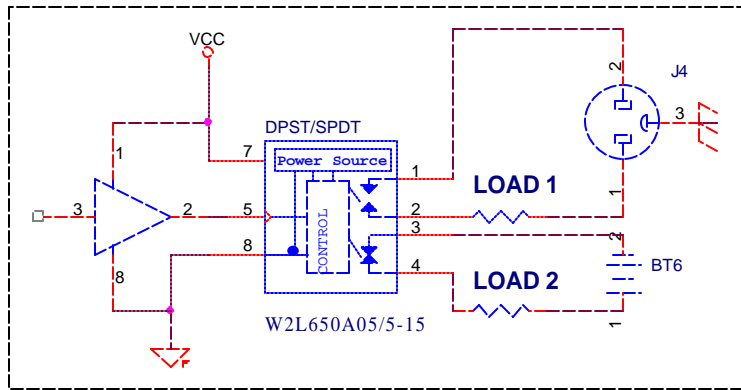


FIG 7

A high isolation between both pair of terminals makes easy commutating DC and AC voltages interference free. The EDR83492 configured as a 1 Form A + 1 Form B (DPST) relay.

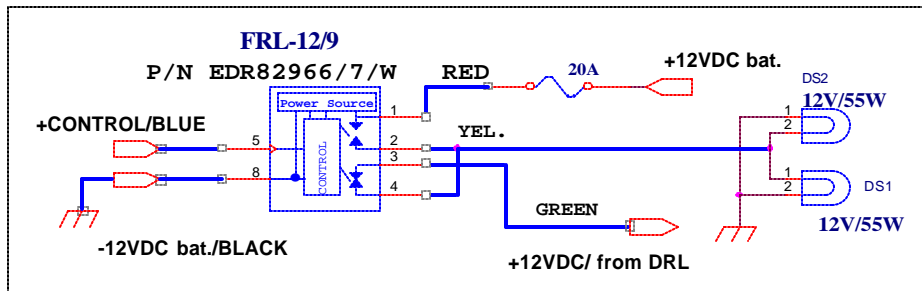


FIG 8

The EDR82966 provides a power to two Fog Bulbs.

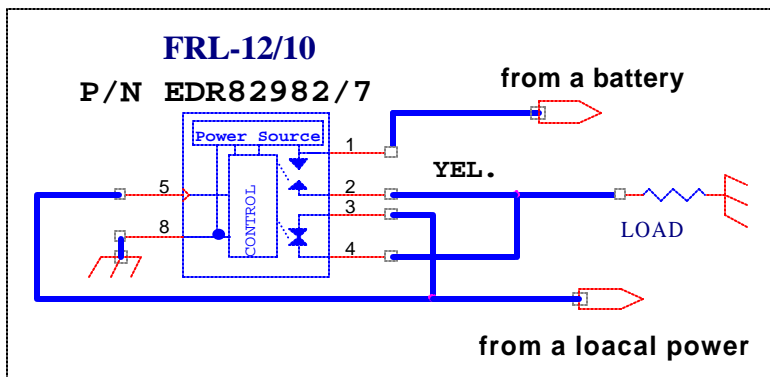
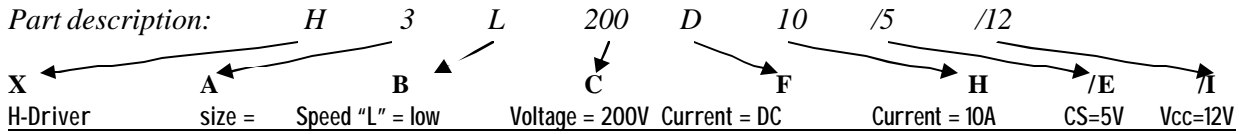


FIG 9

The EDR82966 is a watchdog. It monitors a voltage provided by a local power source and switches to a back up battery if it fallen below requirements.

Selection and Ordering Instruction for EDR's made Solid State Modules such as Relays, Switches, Breakers, 1/2 and Full-bridge Drivers, etc.
 Notes: During past ten years rapid development of new and additional [products gave us no choice but to expend, modify and un ify part descriptions.
 Below represent the third modification. Our modules description will be marked according to the specifications below but p/n EDRxxxxx will stay the same for already items in circulation (already sold).



“X” module type

- D Solid-State Relay or Switch with SPST -NO (normally open) output terminals
- R Solid-State Relay or Switch with SPST -NC (normally closed) output terminals
- W Solid-State Relay DPST/SPDT output terminals
- T Driver, such as 1/2-bridge or a SPDT relay which can work as a 1/2 driver
- M Driver, such as a switch with built-in PWM controller
- H Full-bridge (H-bridge) Driver
- C Relay with built-in de-bouncing or a turn-on/off delay
- B Solid State Breaker and brakes control modules
- S Solid-State Relay with sensing a load current

“A” package dimensions

- 1 0.615”H x 1.48”L x 0.290”W
- 2 1.75”H x 1.80”L x 0.595”W
- 3 1.125”H x 1.75”L x 0.8”W
- 4 1.15”H x 2.0”L x 0.92”W
- 5 1.15”H x 2.8”L x 1.15”W
- 6 DIP24, 0.375”H x 0.925”L x 0.53”W
- 7 panel mount, .82”H x 3.95”L x 1.96”W
- 8 .575”H x 1.1”L x .2”W
- 9 panel mount 3”H x 10”L x 8”W
- M .625”H x .750”L x .375”
- 0 DIN type enclosure, 2.36”H x 2.36”L x 1.5”W, for 35mm DIN Rail
- P panel mount, .8”H x 2.275” L x 1.75”W
- R panel mount, 1.82”H x 6.0”L x 3.3”W

“B” Speed - A device’s ability to turn ON/OFF output terminal(s) times per second

- L a low speed relay/switch, rated DC - 200 Hz, direct driving control
- A a low speed relay/switch, AC input relays
- M a moderate speed relay, rated DC-2.5 KHz
- N a medium speed relay/switch, rated DC - 25 KHz, direct driving control
- G a medium speed relay/switch, rated DC - 25 KHz, low current control and power
- F a fast relay/switch, rated up to DC - 350 KHz, low current control and power
- S a super-fast relay/switch, rated DC - 1.4 MHz, low current control and power
- U a super-fast relay/switch, rated DC – 1.2 MHz, direct driving control
- V Fast, High Voltage Solid-State Switches with Nanoseconds rise time

“C” Output Voltage - A maximum allowed voltage between output terminals, up to 100kV

It must be replaced with required voltage and we offer the closest and highest value available.
Note: In an “AC”-relay a voltage specified a peak-to-peak maximum voltage and the maximum VAC can be calculated by multiplying a maximum allowed voltage by factor of 0.7

“F” A relay can be use to control either AC, DC or AC/DC power

- A - a relay/switch designed to switch/chop an AC/DC power
- D - a relay/switch designed to switch/chop a DC power
- “none” - relay with a SCR or TRIAC on the output to control only AC power

“H” A maximum allowed RMS CURRENT (Ampere) without a heat sink

We can manufacture a device for any required current.

“P” Some of our products use an internal DC/DC converter no provide a power to the internal electronics.

Varieties voltages are available: 5VDC+/-5%, 12VDC+/-5%, 24VDC+/-5% and 48VDC+/-5%. For a wider input power voltage swing, please add “W” after the voltage. For an example, 24W is for 24V +/-12V.

“E” We offer several standard control voltages 5VDC, 12VDC, 24VDC, 48VDC, 3-20VDC and 18-38VDC. Please specify the input control voltage, as for example D1L30D12/xx. Replace xx with a 3, 5, 12, 24, 48, 3-20 and 18-38 that is for 3VDC, 5VDC, 12VDC, 24VDC, 48VDC, 3-20VDC and 18-38VDC. Respectful control voltage represented at the end of part number in the following way, for an example EDR82653/1 and EDR82653/8. Both relays are almost the same and difference is only an applied control voltage, “1” if for 3VDC and “8” is for 18-38VDC;

| Control Voltage | Representation | Control Voltage | Representation | Control Voltage | Representation |
|-----------------|----------------|-----------------|----------------|-----------------|----------------|
| 3VDC | 1 | 5VDC | 2 | 12VDC | 3 |
| 24VDC | 4 | 48VDC | 5 | 26VDC | 6 |
| 3-20VDC | 7 | 18-38VDC | 8 | 90-120VAC | 9 |
| 74VDC | 10 | | | | |

“Z” A relay/switch built with following standard isolations

- “L” or “none” type relay is 2500 V
- “N” type relay is 3000V, 4000VDC (“H4”) and 5200 (“H5”) VDC.

“T” Turn-on delays; “S” for seconds, “M” for milliseconds, “U” for microseconds, M102 – 100 mS turn-off delay, 102M mS – turn-on delay