



Electronic Design & Research
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Technology for people's ideas

100VDC, 5Amp Relay/Switch

Powerful Fast Solid State Relay

Designed to deliver 4KW of power in microsecond

Features: Utilizes only 1.4 sq. in. of PCB area and only 1.15" tall
 5A continuously or up to a 40A-pulse in a miniature package
 High sensitivity, even at high switching frequencies
 120A surge current and only 0.05 Ohms on-state resistance

Input Specifications:

Input Control (pin 3) Current 5mA, voltage any fixed or 3-32 VDC
 Nominal Current 50mA/5VDC
 Power Supply Vcc at pin 4 5, or 12, or 15, or 24, or 48VDC

Output Specifications:

Operating DC voltage range 0 – 100VDC
 Maximum continuous current 5A rms
 Maximum surge current (IDM) - .1mS 120A
 Continuous current (ID) 40A
 Maximum on-state resistance 0.05 Ohm
 Rising time 0.035 μ S
 Delay-on time 0.250 μ S
 Falling time 0.075 μ S
 Delay-off time 0.350 μ S

Maximum switching frequency 25.00 KHz

* Test performed with a D3F75D15/5

General Specifications:

Ambient operating temperature range -45^o C to 85^o C
 Ambient storage temperature range -55^o C to 125^o C
 Dielectric Strength input-to-output 2,500 V

Mechanical Specifications:

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

Please specify input control voltage and load current

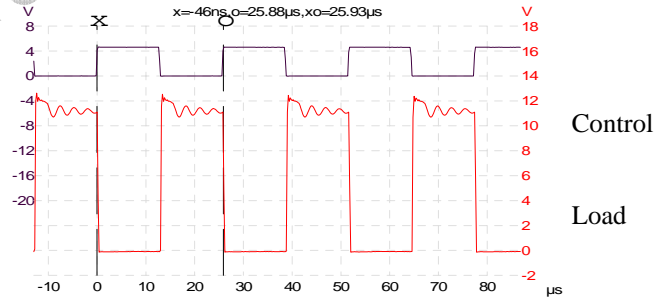
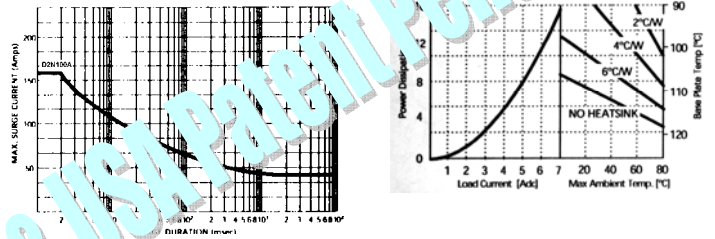
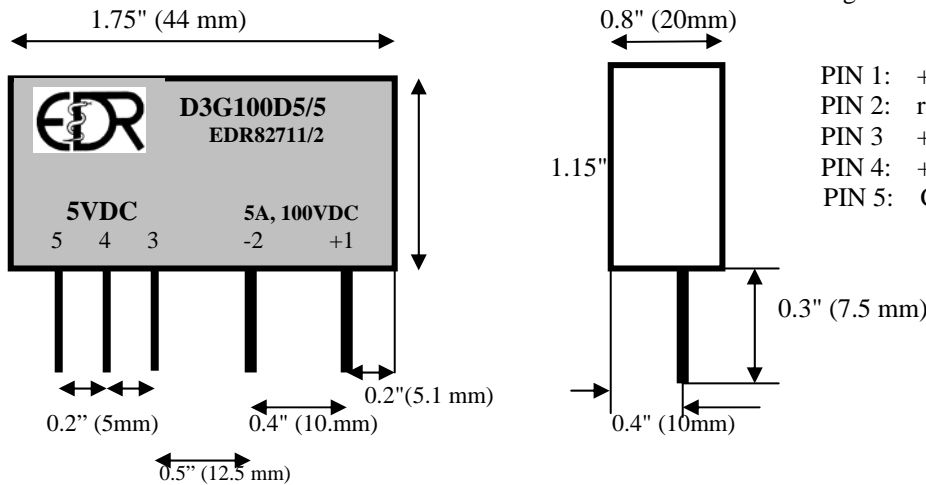


Figure 1. Pulse train 25 KHz



- PIN 1: + LOAD
- PIN 2: return LOAD
- PIN 3: + Control Signal
- PIN 4: + Vcc
- PIN 5: Common/GND

All Dimensions are in inches (millimeters).

Dimensions for SIP4 package 1.15"H x 1.75"L x 0.8"W
 Terminals/solder for SIP4 package control -0.40", power -0.6"

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. A SSR 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 bi-directional for AC applied voltage and unidirectional for DC applied voltage, should be used to clamp excessive spikes.

Electronic Design & Research Inc. ** 7331 Intermodal Dr. ** Louisville ** KY 40258

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Input Electrical Characteristics (Ta = 25⁰C) for D3G100D5/5, p/n EDR82711

Characteristic	Test Condition	Min	Typ.	Max.	Unit
Control voltage range		3	5	7	V
Maximum Turn-On Voltage			2		V
Maximum Turn-Off Voltage			0.8		V
Maximum power supply current at 25 KHz,				70	mA

I. Switching time test – Load – 2 Ohm & 5 A, Control Signal – 5VDC

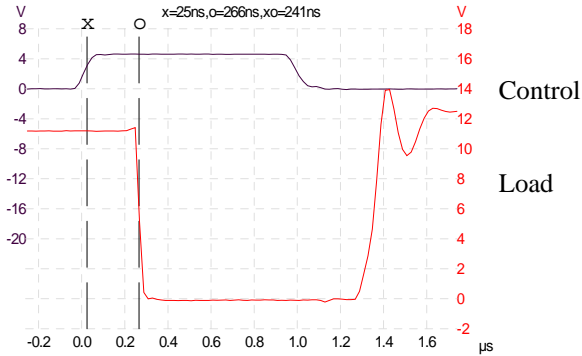


Figure 2 Turn-on delay is 0.240µs

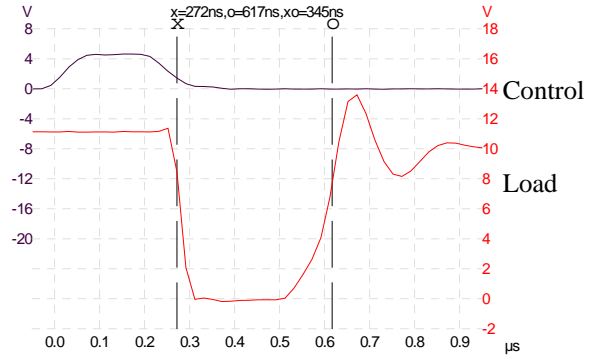


Figure 3 Short-pulse test, 0.345µs

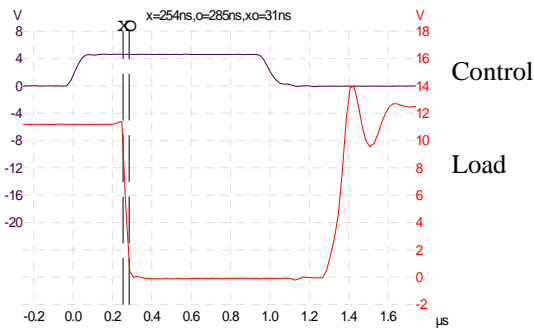


Figure 4 Rising Time is 0.031µs

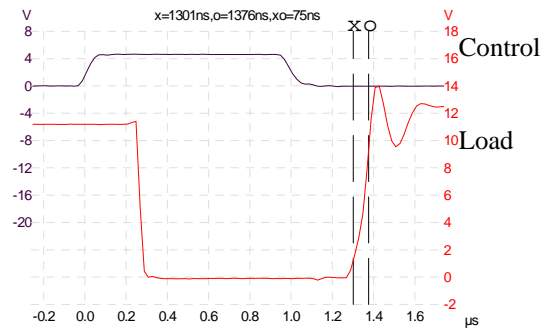


Figure 5 Fall Time is 0.075µs

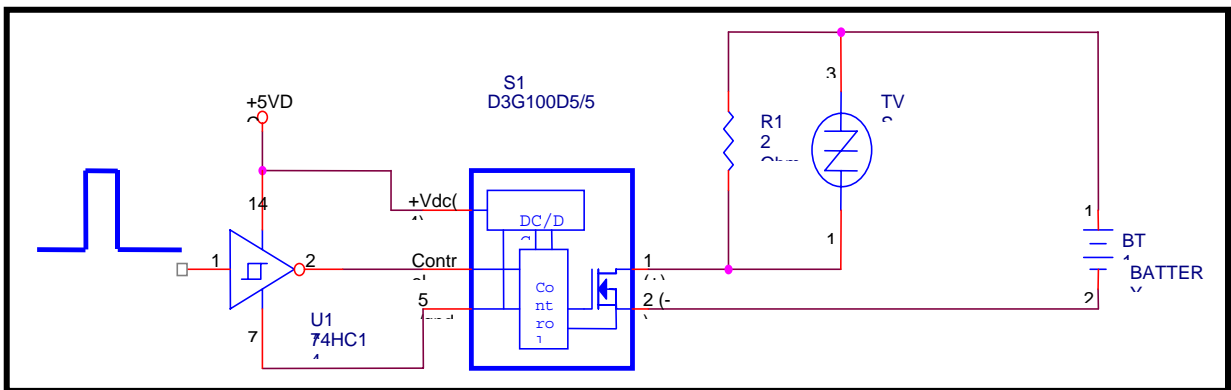


Figure 6 Switching Time Test Circuit

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Ordering Instruction

A part description will be marked according to the description below but p/n EDRxxxxx will stay the same for already items in circulation (already sold).

D a b c e f /h /i /k /z /0 /v

“D” is for our standard packages.

(a) Package dimensions

1	0.615”H x 1.48”L x 0.290”W
2	1.15”H x 1.75”L x 0.4”W
3	1.15”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, 0.82”H x 2.7”L x 2.0”W

(b) Speed - A device’s ability to turn ON/OFF output terminal(s) per second

L	a low speed relay/switch, rated DC - 800 Hz, direct driving control
A	a low speed relay/switch, rated DC – 400 Hz, direct driving for AVC applications
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 DC - 800 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

(c) Voltage - A maximum allowed voltage between output terminals

It must be replace with any of offered voltage, 30VDC, 45VDC, 75VDC, 100VDC, 200VDC, 500VDC, 650VDC, 800VDC, 900VDC, 1000VDC and 1100VDC, 1400VDC and 1700VDC.

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.

(e) A relay can be use to control DC or AC/DC power

A	- a relay/switch designed to switch/chop an AC power
C	- a relay/switch with a normal close contacts
D	- a relay/switch designed to switch/chop a DC power

(f) A maximum allowed RMS CURRENT (Ampere) without a heat sink.

(h) 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;

<u>Control Voltage</u>	<u>Representation</u>	<u>Control Voltage</u>	<u>Representation</u>	<u>Control Voltage</u>	<u>Representation</u>
3VDC	1	5VDC	2	12VDC	3
24VDC	4	48VDC	5	26VDC	6
3-20VDC	7	18-38VDC	8	90-120AVC	9

(i) A power supply required for a relay with an internal DC/DC converter. We offer several standard voltages 5VDC, 12VDC, 24VDC and 48VDC.

(k) Output terminals configurations

“N” or nothing	SPST or 1 Form A output terminals
“NN”	2SPST or 2 Form A output terminals
“NNN”	3SPST or 3 Form A output terminals
“T”	TOTEM output, break-before-make termination or NO-NO
“CN”	SPDT
“V”	VIDEO switch

(z) A relay/switch built with following standard isolations

“L” type relay is 2500 V
“N” type relay is 3000V, 4000VDC (“H4”) and 5200 (“H5”) VDC.

(0) Screening option, (NONE) for industrial, B for Class B, and S for Class S

(v) a Veri-Slope option.

Examples:

- D3F1000D3/4-32/5 - a fast relay/switch designed to work with up to 1000 VDC and capable of 3 Ampere of rms. A control voltage can be any from 4VDC until 32VDC and required 5VDC to operate properly, SIP5 package.
- D3N500A10/12/12 - a medium speed relay/switch designed to withstand 500VDC peak-to-peak or 350VAC and 10 Ampere of rms. A control voltage is 12VDC and the power supply is 12VDC, SIP4 package.