



Figure 4 : Recommended Mounting for "S" and "D" Series High Voltage Reed Relays

CONTACT

Contact Arrangements

SPNO (FORM A): Normally open - energise to close contacts

SPNC (FORM B): Normally closed – energise to open contacts

Latching: Contact is bistable – energise "SET" coil to close contacts; energise "RESET" coil to open contacts.

Contact Isolation Voltage

The isolation voltages quoted in the data are for DC or AC peak. The two may be considered directly equivalent, at mains frequency (i.e. 50 or 60Hz).

High voltage breakdown mechanisms at RF differ from those at DC. In general breakdown across the contacts occurs at a higher RF peak voltage than DC. Conversely, breakdown outside the switch (i.e. switch to coil or screen), caused by surface tracking, can occur more readily at high frequency than at DC. Verification of any particular voltage or frequency combination, within the HF band (1–30MHz), can be undertaken upon request.

Contact Switching Power

The switching power, when quoted, will be for a resistive load. It should be noted that any combination of voltage and current can be switched, provided they do not exceed the stated switching maximums, for either parameter or the power rating of the contact. It should be noted that relays, used in a power switching application, will experience reduced operating life; it is recommended that sales be contacted for advice on specific applications.

Contact Material – Rhodium vs Tungsten

Rhodium offers superior low contact resistance, which, coupled with Cynergy3's copper plated reed switch technology, enables Cynergy3 to produce very low loss RF reed relays, with exceptional current carry performance. Rhodium contacts are offered, in our 'D' series range, for high voltage applications, where low contact resistance and good current carry performance are required, provided the switching voltage is below 1000 volts DC or AC peak.

Tungsten contacts are used exclusively for our high voltage 'D' series range, where they are offered as high voltage switching contact able to switch voltages up to 10kV DC or AC peak at very low current. Tungsten is a good general purpose switching contact material but the higher contact resistance means it is not well suited for RF applications.

PROCESSING & HANDLING

Cynergy3's reed relays are high performance products and the materials and methods of construction are significant factors

in achieving performance specifications. The following guidelines should therefore be followed when adopting assembly, soldering and cleaning processes.

Handling:

Many of the RF reed relay designs are of open frame construction to achieve optimum RF performance, these designs need to be handled with due care to avoid damaging the exposed coil, contact and screen connections.

Soldering:

Cynergy3 propose that either low residue fluxes are used in the soldering process (to eliminate the need for cleaning), or that the reed relays are fitted onto the PCB after the cleaning process has taken place. If a solder bath is employed the maximum immersion time recommended is 10 seconds at 250°C or 3 seconds at 350°C.

FRD12000/13000 Series: Electrical connections to the relay contacts on the FRD12000/13000 Series relays are made directly onto the reed switch leadout. Care must be taken when hand soldering to the contact terminals, as physical and thermal shocks can damage the glass to metal seals. It is recommended that a thermal shunt (Aluminium Clamp) be clamped to the reed switch lead out adjacent to the glass seal; this will reduce the chance of breakages due to thermal shocks. Alternatively relays may be warmed prior to soldering.

Cleaning:

Cynergy3 relays are not hermetically sealed (unless stated otherwise) and as such are not suitable to aqueous cleaning solutions or processes. If after the soldering process the customer wishes to clean the PCB's containing Cynergy3 relays then the use of post operative cleaners such as IPA or HCFC based solvents with low pressure brush applicators is recommended. Please contact sales for further information on the suitability of various cleaning solutions.

ENVIRONMENTAL ENDURANCE

Many of the designs manufactured by Cynergy3 Components Ltd are used in Military and Defence systems therefore many of the relay designs have been tested for Bump, Shock and Vibration endurance to the following standards:-

Bump Test: EN60068-2-29:1993 (Or Equivalent), 40g 6ms Pulse Duration

Shock Test: MIL-STD-202G (Or Equivalent), 100g 6ms Pulse Duration

Vibration Test: MIL-STD-202G (Or Equivalent), 20g 5-500-5Hz

Please contact sales for any particular requirements. Alternatively Cynergy3 can arrange product testing to other MIL, DEFSTAN or IEC standards with various third party test houses for specific applications.