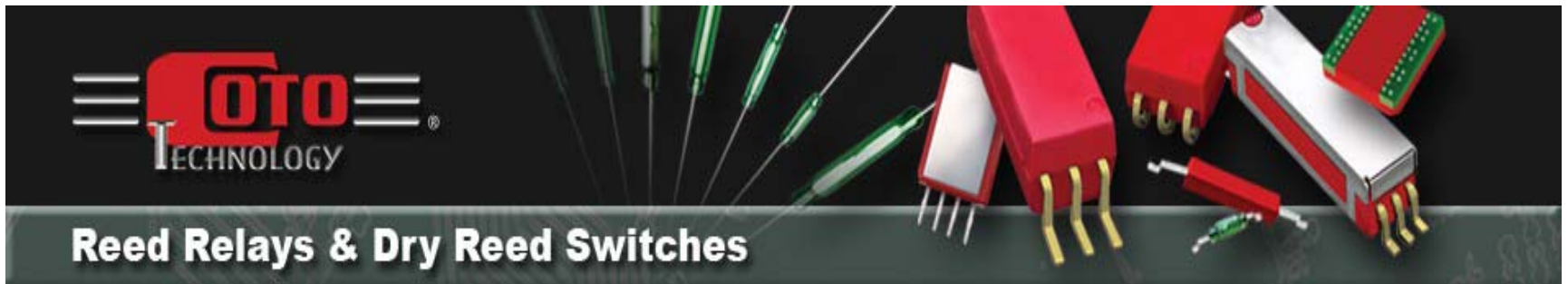


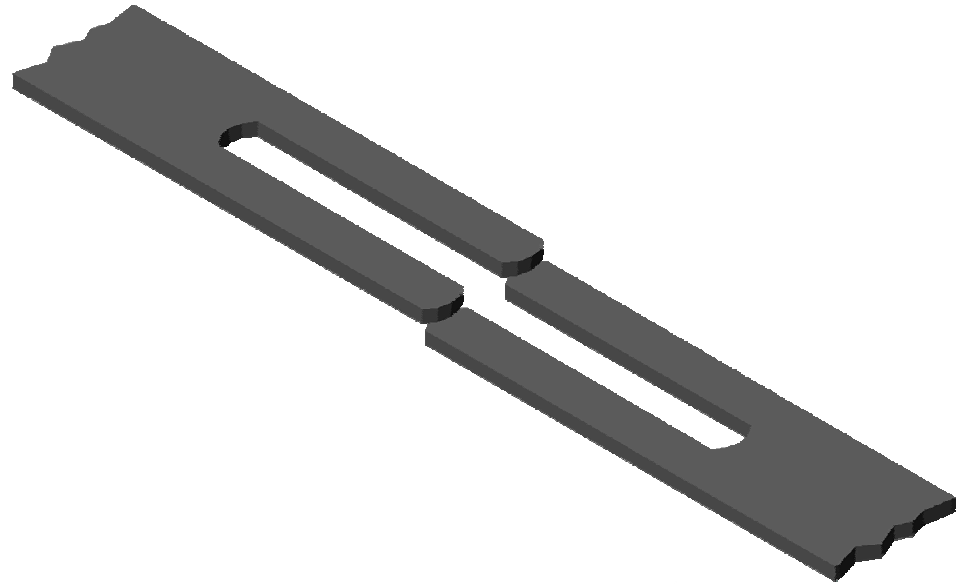


# Coto Dyad Switch Contact Style



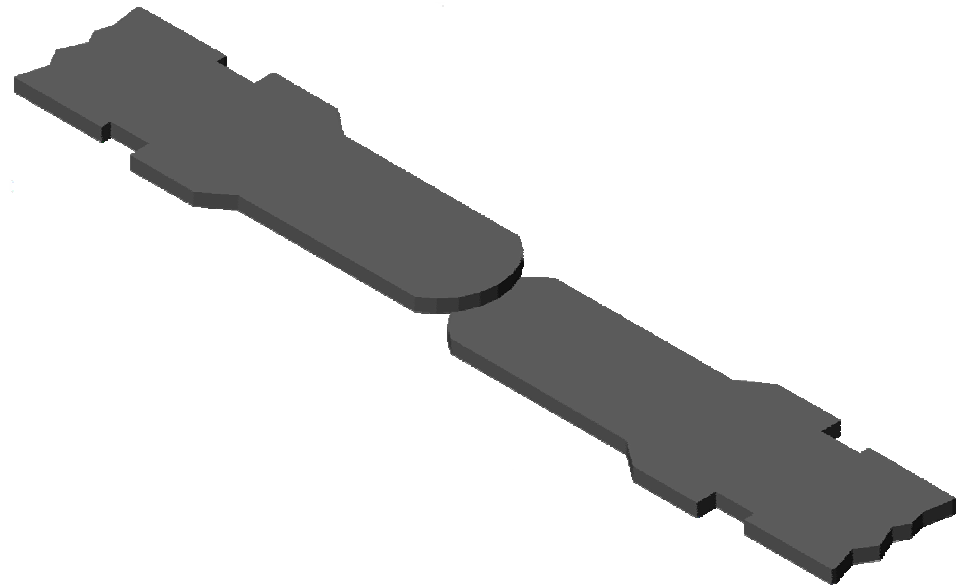
# Introduction

- ▶ The DYAD reed switch was originally designed with 'bifurcated' contact tip material for use in reed relay applications. The theory was the 'bifurcation' reduced contact bounce to some degree. Coto Technology is the only reed switch manufacturer historically to use a 'bifurcated' contact.
- ▶ Currently 80% of all reed switch applications are operated by permanent magnet.



# Change

- ▶ When the MINI-DYAD reed switch was introduced the blade was simplified to reduce cost and improve manufacturing.
- ▶ The 'solid' contact tip has been used in the manufacture of the MINI-DYAD for over fifteen years.
- ▶ In February of 2004 the 'Solid' tip DYAD product was introduced using the same blade design as that used in the MINI-DYAD, while still offering the bifurcated design.



# Evaluation

- ▶ DYAD reed switches manufactured from the 'solid' contact tip blades were tested for parameters relating to contact switching;
  - Operate speed.
  - Release speed.
  - Contact bounce.
  - Contact resistance.
  - Contact force.
  
- ▶ Other standard operating parameters were also tested;
  - Magnetic operate and release sensitivity.
  - Insulation resistance.
  - Dielectric breakdown voltage.
  - Contact rating.
  - Electrical load life testing.

# Evaluation

- ▶ All of these parameters were found to be at least as good as reed switches manufactured from 'bifurcated' contact tip material.
- ▶ In many cases the performance was found to be better than that of the 'bifurcated' contact tip reed switch.
- ▶ The most significant parameter that benefited from the change was contact resistance. This was found to be due to two factors;
  - The increase in ferrous metal area at the contact overlap allows for an increase in the magnetic field present during the closure of the reed blades. This increase causes a higher closure force (contact force) and therefore a lower and more stable contact resistance.
  - The increase in metallic surface area (and therefore sputtered contact material) at the contact tips also increase the surface area available for transfer of electrons thereby reducing the contact resistance of the junction.

# Evaluation

- ▶ No parameters were found to be inferior to those of reed switches manufactured from ‘bifurcated’ contact tip reed blades.
- ▶ Less tangible improvements have also been found by the use of ‘solid’ tip contact blades. These include;
  - Tighter magnetic operate sensitivity bands are achievable during the manufacturing process.
  - The production of both the ‘solid’ tip and ‘bifurcated’ tip reed blade is from the stamping of solid sheet metal. Due to the lower complexity of the ‘solid’ tip blade design it is much more likely that the stamping process can produce a high quality and consistent part.
  - The single tip of the ‘solid’ tip reed blade is much more robust and therefore less prone to damage during handling and production processes.

# FAQ

## **Why have you changed from bifurcated contacts to solid contacts?**

Solid tip contacts increase the general performance of the reed switch with increased manufacturing yields.

## **I want bifurcated contacts, are they still available?**

Bifurcated contacts are currently only available on higher ampere turn reed switches for a limited period of time.

## **Have the electrical specifications changed?**

No, the electrical specifications (contact rating, contact resistance, switching voltage etc.) all remain identical to the original DYAD electrical specifications.

## **Have the mechanical dimensions changed?**

No, the mechanical specifications (glass length, lead length, SMT bend and pad dimensions etc.) all remain identical to the original DYAD mechanical specifications.

# FAQ

## **Have the magnetic parameters changed?**

No. A '10 to 15 NI' reed switch for example, is the same whether it is produced from 'bifurcated' or 'solid' tip reed blades.

## **Will either switch work in my application?**

Yes, the electrical, mechanical and magnetic parameters remain fundamentally identical.

## **I am finding mixed product on one reel, some are bifurcated and some are not.**

The reason for mixed product is existing 'work in progress' at the time of transition. Since either process produces identical switches, this will not affect switch usability.