

Series 280 Potentiometer for Appliances

Introduction

Washer and dryer manufacturers have traditionally used membrane switches or rotary switches for the function selector on the control panel. Manufacturers are now applying variable resistor (potentiometer) technology in place of the switches. CTS offers a very competitive and high-quality solution with the series 280 potentiometer.

Advantages of Potentiometers over Rotary Switches

There are many established switch solutions in use as function selectors for appliances. What influences the transition from a switch to a potentiometer?

1. Lower Cost
 - Potentiometers have lower prices than rotary switches due to construction advantages (up to 50% savings).
2. Fewer Terminals
 - Rotary switches need the same number of terminals and circuits on the PCB as there are function selections. Potentiometers need only 3 terminals and circuit connections on the PCB regardless of how many function selections are required. Figure 1 shows a panel with the multiple selections typical of these applications.
3. Improvement of IC technology
 - Most ICs can easily process analog-to-digital conversions allowing the potentiometer to replace a digital rotary switch.



Figure 1. 8-position selector at left, 16-position selector at right

Why Choose Series 280 Potentiometers?

The CTS Series 280 potentiometer is a good match for the requirements of these applications.

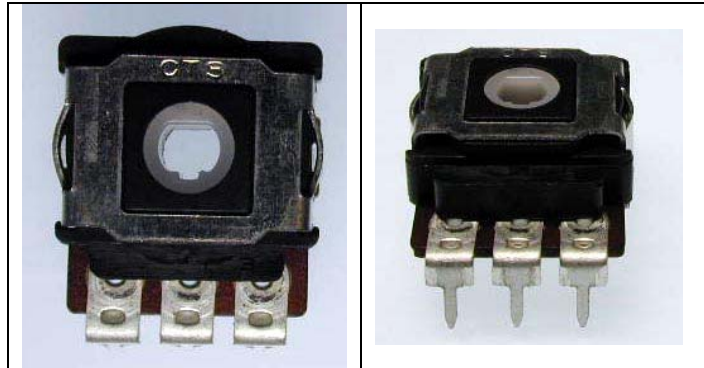


Figure 2. Top and side view of CTS 280 potentiometer

Series 280 Features

1. High linearity. Linearity is critical to insure the potentiometer output correctly corresponds to a position signal. The typical requirement is 2% linearity for a 16-position selector and 3% linearity for an 8-position selector.
2. Available with 360 degree continuous rotation (no detent). This allows it to replace an endless rotation rotary switch function.
3. Available with a hollow rotor to allow a plug-in shaft (see Figure 2).
4. Minimum 10,000 life cycles.
5. Small frame size of 16 mm.

Feature	CTS 280 Specification
Frame size	16mm
Body dimension (L X W X H, mm)	18 X 21 X 10.19
Terminal Style	Through hole
Linearity	5%, 3%, 2%
Operating Temperature	-25 to 100°C
Electric angle	340 degree
Life cycle	10K, 100K
Mechanical angle	360 degree, continuous rotation
Overall Resistance	1K to 1M Ohm
Resistance Tolerance	30%, 20%, 10%
Drawing	See Figure 3

Table 1. Basic Series 280 Specification

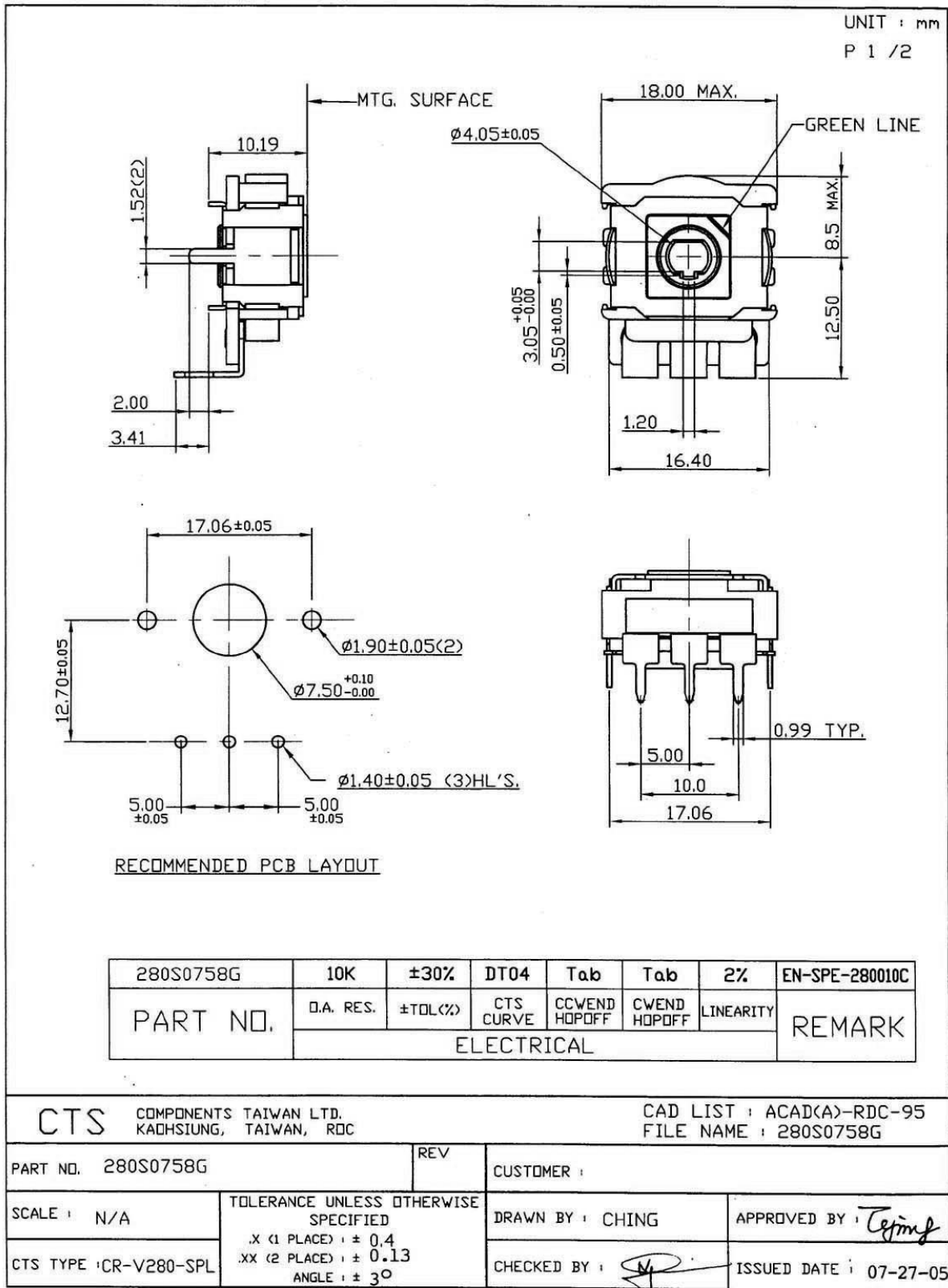


Figure 3. Typical Series 280 Drawing

Availability

Samples are readily available for the item shown in Figure 3. Custom-made samples are also available upon request. Please contact CTS or your local representative to discuss your application.

Conclusion

Recent successes with manufacturers in Europe have identified the Series 280 potentiometer as a competitive component well suited for a function selector application. Many opportunities are unexplored with manufacturers who require similar solutions for the following:

- Clothes washers, clothes dryers, dishwashers
- Other appliances with microprocessors or IC components
- Panel controls and position sensors for home appliances, industrial instrumentation, and automotive applications.

Links to Examples of Appliances Using Potentiometers as Function Selectors:

<http://products.geappliances.com/ProdContent/Dispatcher>
<http://www.indesit.co.uk/indesit/productlinepage.do?productLineCode=42>

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