

Series 392 and RV6/392M  
**0.5 Watt Thick-Film**  
Conductive-Plastic Potentiometer



### Description

Our Series 392 and RV6/392M, are economical potentiometers designed to meet wave soldering applications for mounting to PC boards. They meet flow solderability and washability test requirements, and MIL-R-94 standards apply where appropriate.

Series 392M incorporates all the washable characteristics of the Series 392, the new military version Series 392M is now QPL listed under MIL-R-94 Style RV6. Turn to the stock options, page 56 for a complete listing of available types and stock values.

### Features

- Washable and wave solderable
- Shaft seal standard
- Locking bushings available standard
- Low cost
- Made in accordance to MIL-R-94

### Series 392 Electrical Specifications

#### Resistance Range

100 $\Omega$  to 5 Megohms, linear; 500 $\Omega$  to 2 Megohms, tapered (commercial).

100 $\Omega$  to 1 Megohm, linear; 500 $\Omega$  to 1 Megohm, tapered (392M/RV6).

#### Resistance Tolerance

Linear, up to 1 Megohm  $\pm 10\%$ ; 1 Megohm to 5 Megohms  $\pm 20\%$ .

Tapers, up to 250K $\Omega$   $\pm 10\%$ ; 250K $\Omega$  to 5 Megohms  $\pm 20\%$ .

#### Power Rating (Watts)

0.5 watt maximum continuous power rating for linear taper, but voltage not to exceed rating. Full rating @ 70°C, derated linearly to zero watts at 120°C. Derate all non-linear tapers by multiplying wattage rating by 0.5. See Chart B, page 52. Bushingless style derated to .25 watt.

#### Electrical Rotation

295°  $\pm 5^\circ$

#### Effective Rotation

265°, +0°/-10°

#### Tapers

Right or left-hand available. See Chart A, page 51.

#### Taper Tolerance

$\pm 20\%$  of nominal resistance @ 50%  $\pm 3\%$  mechanical rotation

#### End Resistance

4 $\Omega$  maximum for linear taper; 15 $\Omega$  maximum for non-linear tapers.

#### Dielectric Withstanding Voltage

750 Vac for 60 seconds @ ATM pressure.

350 Vac for 60 seconds @ 3.4 in. Hg.

#### Working Voltage

350 Vdc across end terminals, but power not to exceed rating.

#### Resistance Temperature Characteristics

See Chart C, page 52.

#### Dynamic Noise

Linear single controls maximum initial noise level 1.5% of total resistance. Measurement made using a constant current source and oscilloscope detection technique. 1% available on special order.

#### Linearity

$\pm 5\%$  independent linearity measured over 1% to 99% voltage ratio output.

#### Voltage Coefficient

.008%/Volt, maximum

## Series 392 Mechanical Specifications

### Mechanical Rotation

295° ±5°

### Stop Torque

3 lb. in. minimum (metal shaft)  
2 lb. in. minimum (plastic shaft)

### Torque Range

.20 to 2.0 oz. in. Other torques available.

### Bushing Lengths

Metal: .25 in. (6.35mm), .375 in. (9.53mm), and .5 in. (12.7mm).

Plastic: .25 in. (6.35mm) and .375 in. (9.53 mm).

### Shafts, Standard

.125 in. (3.18mm) diameter

### Shaft Lengths

Metal: Lengths from flush with trimmer bushing to 3 in. (76.2mm) in 1/64 in. (0.40 mm) increments. Brass, nickel-plated.

Plastic: Standard lengths of 3/8 in. (9.53mm), 1/2 in. (12.7mm), 5/8 in. (15.88mm), 3/4 in. (19.05mm), and 7/8 in. (22.23mm) Flat is .094 ±.002 x .250 in. (2.39mm ±0.051 x 6.35 mm) long. Slot is in line with contact and the flat is opposite the contact.

### Switch

None available

### Seal

O-ring shaft seal standard all styles, and the complete unit is sealed for wave solder and wash processing. The shaft seal withstands 5 PSI pressure. Mounting seals are available. See Chart D, page 52.

### Housing

Thermoplastic polyester, blue (U.L. SE-O rating)

### Hardware

Mounting hardware available. Hex mounted nut 1/4 in. (6.35mm) x 32 thread, 5/16 in. (7.94mm) across flats 1/16 in. (1.59mm) thick. Internal tooth lockwasher, 13.32 in. (10.32mm) outside diameter x .025 in. (.64mm) thick. Hex jam nut 5/16 in. (7.94mm) across flats 5/32 in. (3.97mm) thick.

### Contact Material

Monel

### Solvent Resistance

Housing resistant to trichlorethylene, \*Chlorethene NU, \*\*Freon TMS, Freon TMC, carbon tetrachloride, toluene, MEK, ethyl acetate and gasoline. For solvents not listed, contact Factory.

## Mechanical Specifications continued

### Terminals

Solder-coated. P.C. pin or solder hook style. PC pins fit .100 in. (2.54mm) grid spacing and .034 in. (0.86mm) diameter board holes. Pin diameter is .028 in. (0.71mm).

### Weight (Approx.)

Metal shaft & bushing .25 oz.; Plastic .1 oz.

\*T.M. Dow Chemical Co.

\*\*T.M. DuPont

## Series 392 Operational Specifications

### Operating Temperature Range

-40°C to +120°C.; Storage Temperature Range -55°C to +120°C.

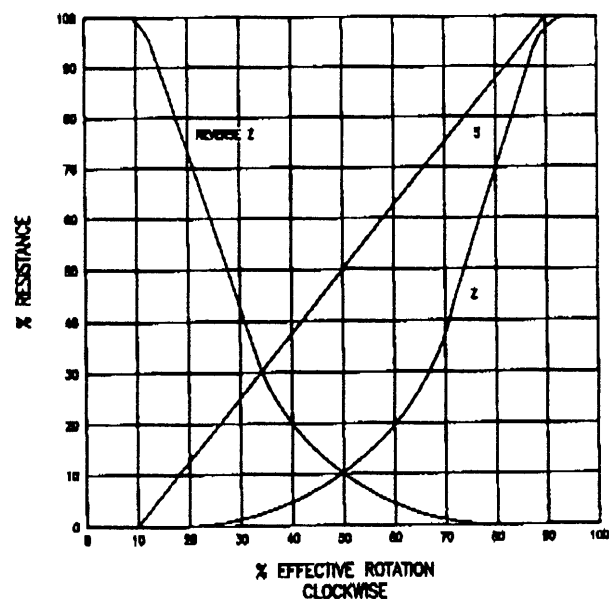
### Rotational Life

Rotational Life for linear control: 50,000 cycles, plain bushing style only. Change not to exceed 10% R (standard).

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

Figure 1

Chart A



### Curves Standard

The "S" taper is linear, the change in resistance value being directly proportional to the degree of rotation. It can be used either as right-hand or left-hand taper.

The "Z" taper attains 10% resistance value at 50% of clockwise rotation (left-hand).

The reverse "Z" taper attains 10% resistance value at 50% of counter-clockwise rotation (right-hand).

For conformity and special output curves, consult Factory.

Mechanical Specifications continued, next column

Figure 2  
Chart B

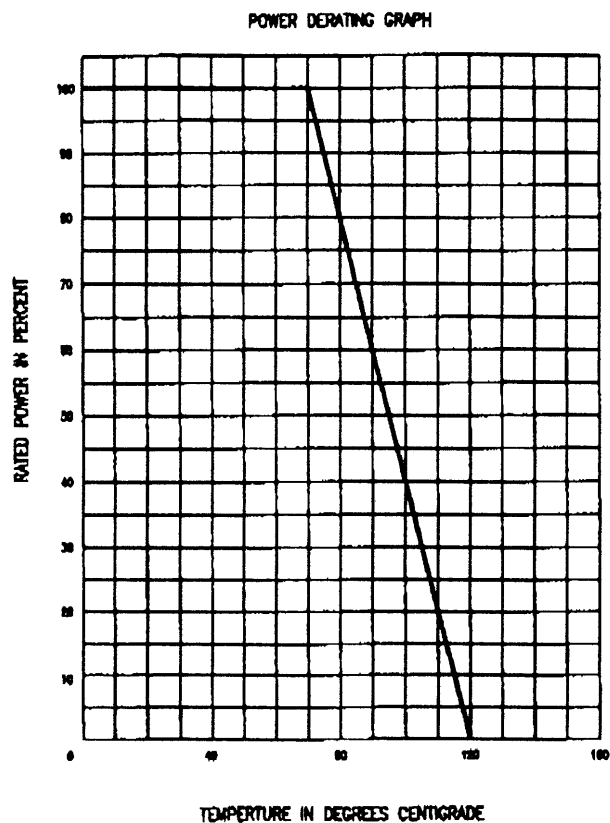
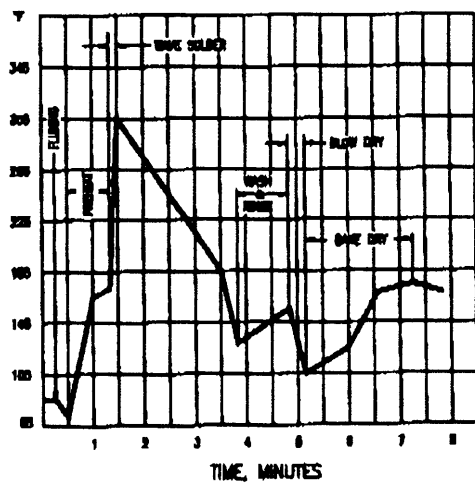


Figure 3  
Chart C

NOMINAL RESISTANCE	MAXIMUM PERCENT TEMPORARY RESISTANCE FROM 25°C						
	-55°C	-40°C	0°C	+25°C	+55°C	+85°C	+120°C
100 OHMS	±5.0	±4.0	±1.5	0	±1.5	±2.0	±3.5
10K OHMS	+7.0	+5.5	+2.0	0	±1.5	±2.5	±5.5
100K OHMS	+8.0	+6.0	+2.5	0	±2.0	±3.5	±6.0
1 MEGOHMS	+10.0	+8.0	+3.0	0	±2.5	±4.0	±7.5

Figure 4  
Chart D



Wave Solder And Board Wash Parameters  
Recommended Profile, Temperature on P.C. Board

Process Limits	Temperature	Time
Preheat Maximum	195°F	1 minute
Solder Temperature Maximum	550°F	
Maximum differential temperature after solder in wash (3/4T)	72°F	
Wash Temperature	150-160°F	1 1/2 minutes
Dry Temperature	160-220°F	2 minute