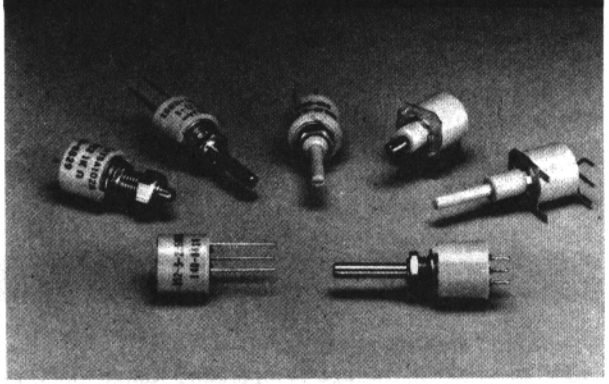
Series 392 and RV6/392M

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
100Ω to 5 Megohms, linear; 500Ω to 2 Megohms, tapered (commercial).
100Ω to 1 Megohm, linear; 500Ω to 1 Megohm, tapered (392M/RV6).

Resistance Tolerance
Linear, up to 1 Megohm ±10%; 1 Megohm to 5 Megohms ±20%.
Tapers, up to 250KΩ ±10%; 250KΩ to 5 Megohms ±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° ±5°

Effective Rotation
265,° +0°/ -10°

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

Taper Tolerance
±20% of nominal resistance @ 50% ± 3% mechanical rotation

End Resistance
4Ω maximum for linear taper; 15Ω 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
±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, toulene, MEK, ethyl acetate and gasoline. For solvents not listed, contact Factory.

Mechanical Specifications continued, next column

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 (Aprox.)
Metal shaft & bushing .25 oz.; Plastic .1 oz.

*T.M. Dow Chemical Co. **T.M. DuPont

Series 392 Operational Specifications

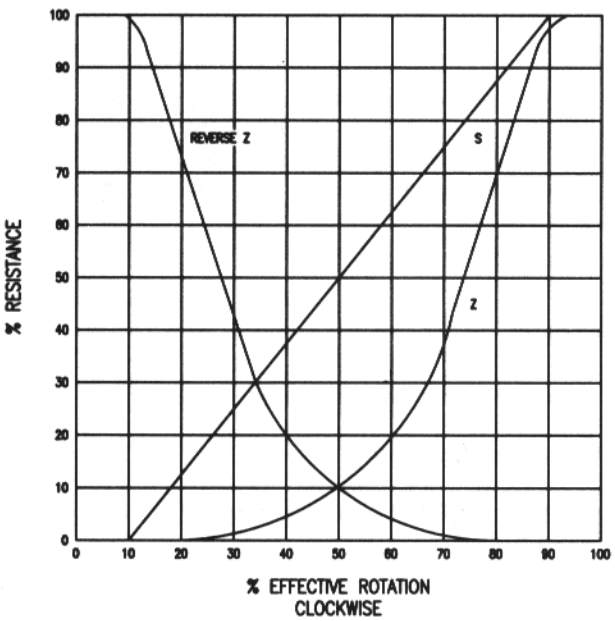
Operating Temperature Range
-40°C to +120°C.; Storage Temperature Range -55°C to +120°C.

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.

Figure 2

Chart B

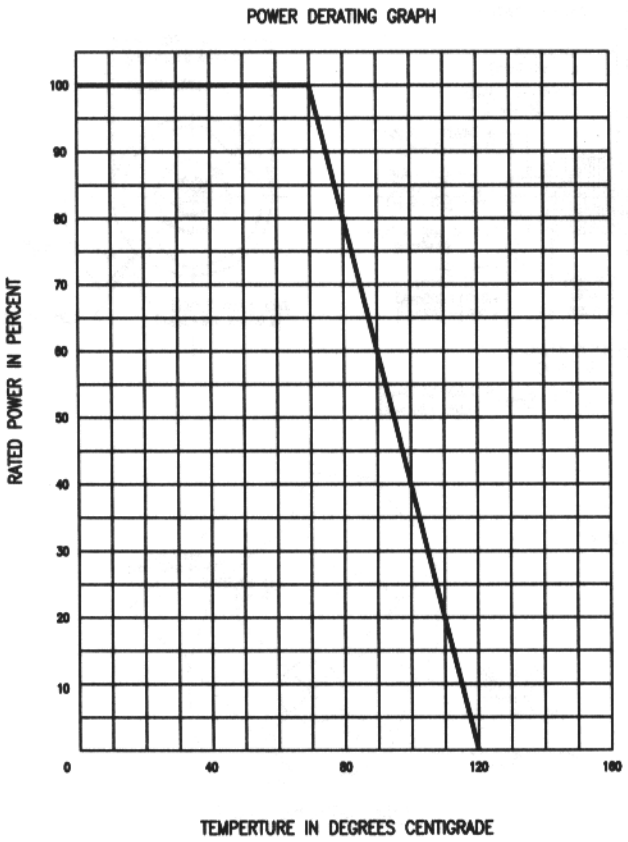


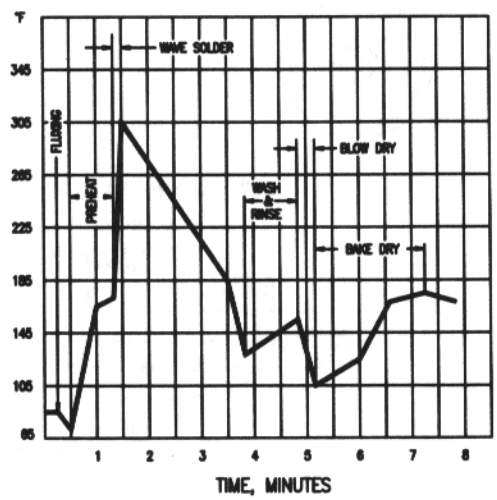
Figure 3

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

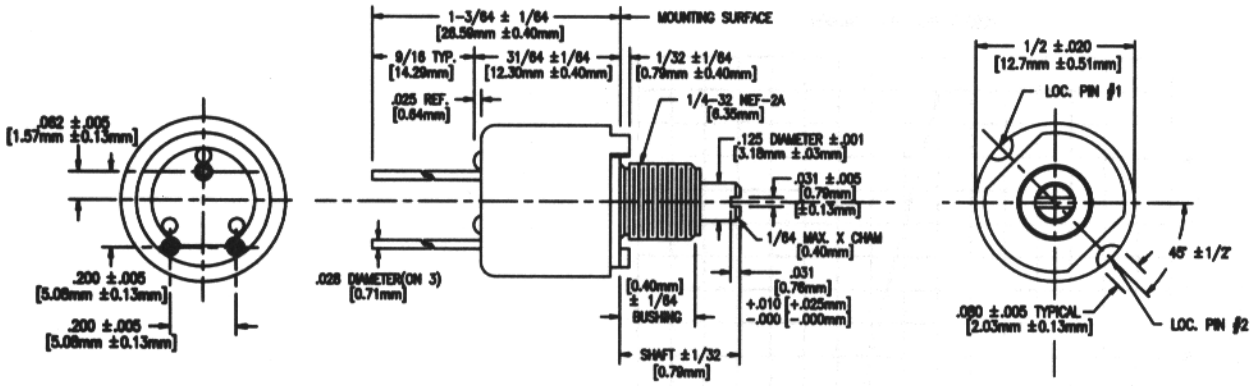


Wave Solder And Board Wash Parameters
Recommended Profile, Temperature on P.C. Board

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

Figure 5

Series 392 Potentiometer Dimensions

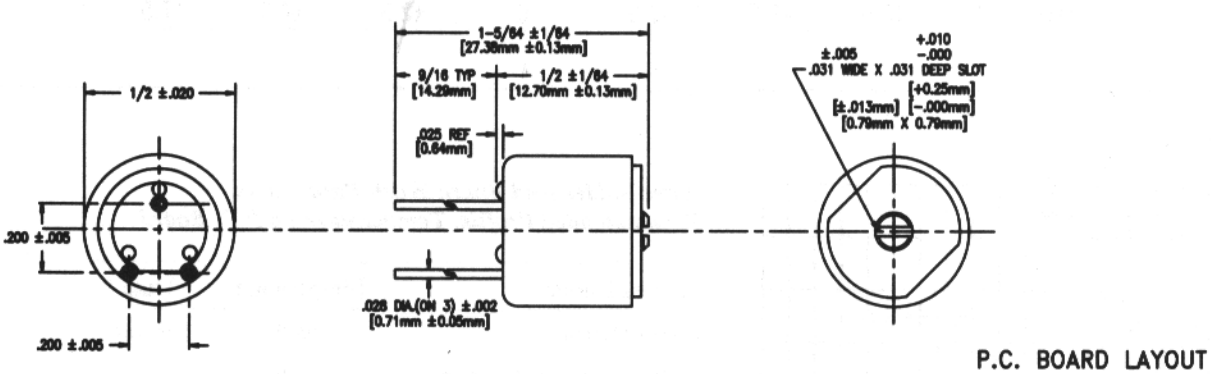


STOCK

BUSHING = 1/4"[6.35mm] LONG
SHAFT = 7/8"[22.23mm] LONG

Figure 6

Series 392-5 Trimmer Dimensions



P.C. BOARD LAYOUT

-100 GRID-

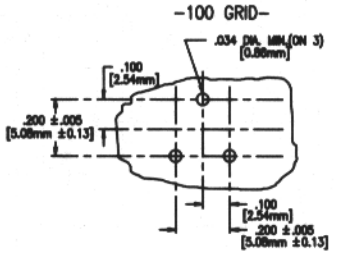


Figure 7

Series 392 B-56 Stud Mounting

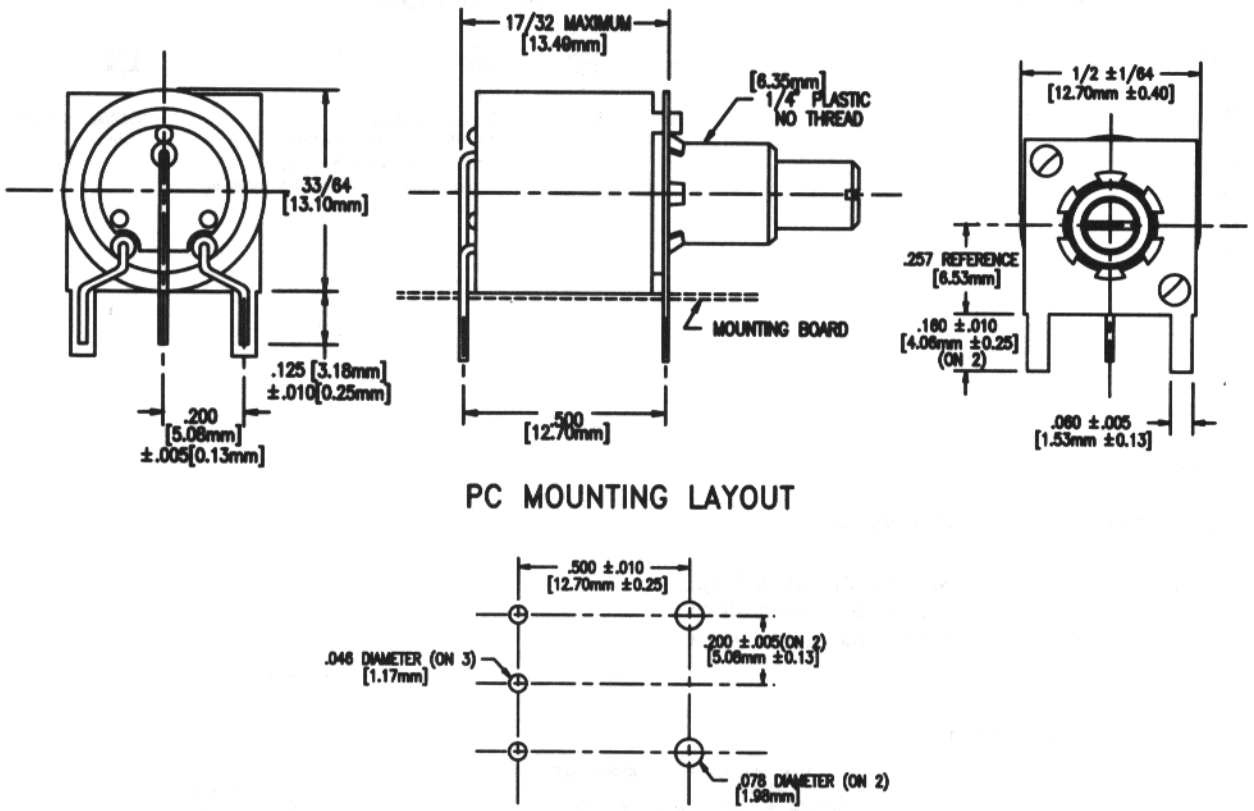
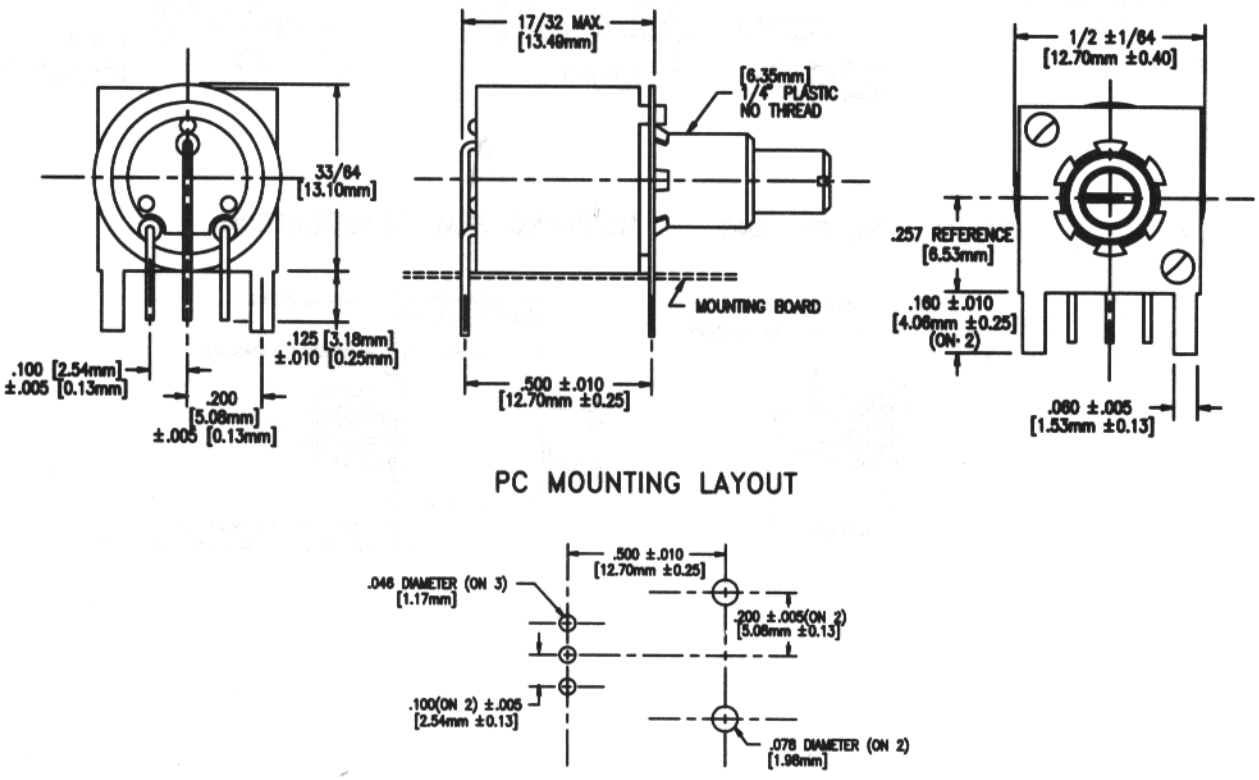


Figure 8

Series 392 B-57 Stud Mounting



Series 392 Standard Resistance Values

Stock Values (Ohms)

100
250
500
1K
2500
5K
10K
25K
50K
100K
250K
500K
1 Meg.
2.5 Meg.
5 Meg.

Catalog Number	*Description*
392JA	Metal shaft and bushing
392JB	Plastic shaft and bushing
392-5 Trimmer	Plastic shaft and faceplate

Series 392 How To Order

Example: **392-JA-100**

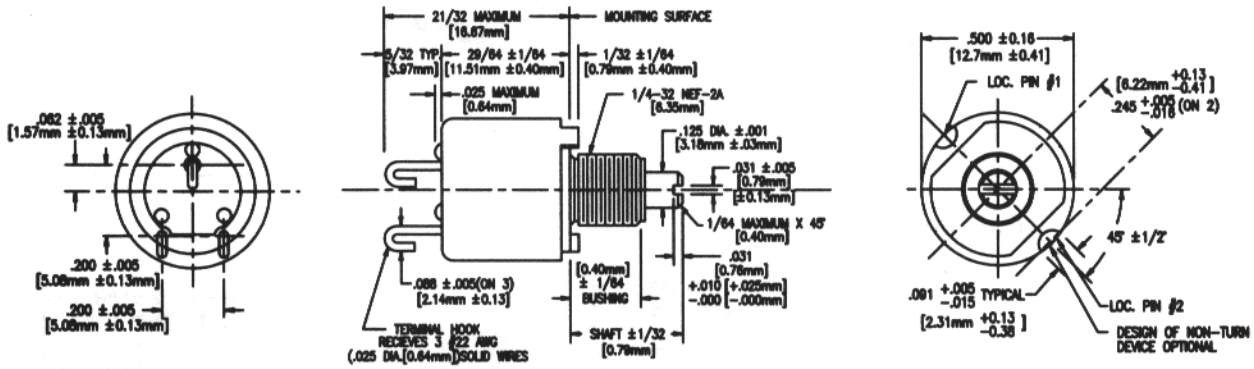
392 — Series

JA — Shaft & Bushing
JA = Metal shaft & bushing
JB = Plastic shaft & bushing
5 (Trimmer) = Plastic shaft & faceplate

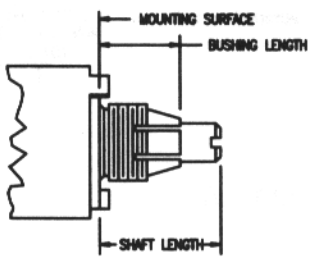
100 — Resistance Value (Ohms)

Figure 9

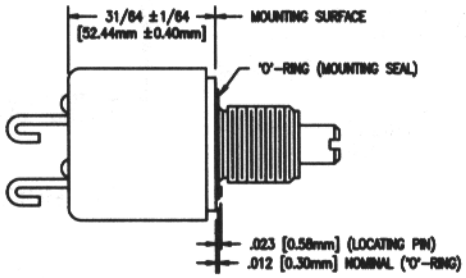
Series 392M/RV6 Dimensions



SPLIT LOCKING BUSHING



MOUNTING SEAL CONSTRUCTION



Series 392M/RV6 Standard Resistance Values

Stock Values (Ohms/Linear Taper)

RV6NAY			*RV6LAY*		
SD	*&*	*SL*	*SA*	*&*	*SD*
101A		252A	101A		252A
102A		253A	102A		253A
103A		254A	103A		254A
104A		501A	104A		501A
105A		502A	105A*		502A
153A		503A	153A		503A
154A		504A	154A*		504A
251A			251A*		205B*

Note: Special options available. Please consult Factory.
*Made to order. Please consult Factory.

Series 392M/RV6 How To Order

Example: **RV6-N-A-Y-S-D-10-4-A-P**

RV6 Series

N Bushing
N = Standard, 1/4 in. (6.35mm) long x 1/4 in. (6.35mm)-32-NEF-2A
L = Locking, 1/2 in. (12.7mm) long x 1/4 in. (6.35mm)-32-NEF-2A
S = Shaft & panel seal, standard bushing
T = Shaft & panel seal, locking bushing

A Switch
A = None

Y Temperature Characteristic

S Shaft Style
S = Slotted
F = Flatted

D Shaft Length
See Table Below

10 Resistance Significant Digits

4 Number of zeros that follow

A Tolerance & Taper
A = ±10% Linear
B = ±20% Linear
*C = Log CW ±10%
*D = Log CW ±20%
*E = Log CCW ±10%
*F = Log CCW ±20%
*10% resistance at 50% mechanical rotation.

P 392M Style

Shaft Length**

Symbol	*With 1/4 in. (6.35mm) Bushing N or S*	*With 1/2 in. (12.7mm) Bushing L or T*
A	5/8 in. (15.88mm)	5/8 in. (15.88mm)
B	1/2 in. (12.7mm)	-
D	7/8 in. (22.23mm)	7/8 in. (22.23mm)
L	3/8 in. (9.53mm)	-

**Shaft length from mounting surface.