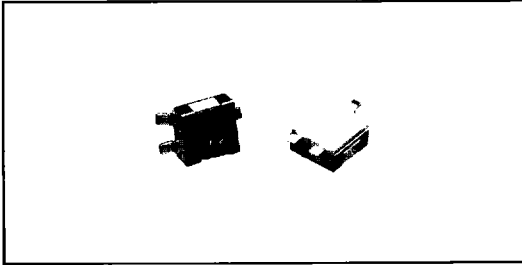


# MODELS TS53YJ and TS53YL Cermet Trimmers

Surface Mount, Miniature, Single Turn  
Fully Sealed



## FEATURES

- 0.20 watt at + 85° C, 0.25 watt at + 70° C
- Excellent stability
- Wide ohmic range
- Fully sealed
- Low temperature coefficient
- Low contact resistance variation (CRV)
- Small size for optimum packing density
- Suitable for manual or automatic operations

## APPLICATIONS

The TS53 trimming potentiometers have been designed for surface mount applications. They offer volumetric efficiency and have dimensions of .197" x .197" x .106" [5.0mm x 5.0mm x 2.7mm] with high performance and stability.

The TS53 models are suitable for both manual or automatic operation and can withstand wave, vapor phase and reflow soldering techniques.

## ELECTRICAL SPECIFICATIONS

- Electrical Travel:** 220° ± 15°
- Resistance Range:** 10 ohm to 1 Megohm.
- Standard Series:** 1 - 2 - 5.
- Resistance Tolerance:** ± 20% standard.
- Temperature Coefficient:** ± 50PPM/°C for Rn > 100 ohm typical.
- Power Rating (Linear law):** 0.20 watt at + 85° C or 0.25 watt at + 70° C. Logarithmic not applicable.
- Limiting Element Voltage (Linear law):** 200 V.
- Contact Resistance Variation:** 1% or 3 ohm.
- End Resistance Variation:** 1 ohm typical.
- Dielectric Strength:** 1000 V RMS.
- Insulation Resistance:** 10<sup>10</sup> Megohm.

## MECHANICAL SPECIFICATIONS

- Mechanical Travel:** 270° ± 10°
- Operating Torque:** 2.2 oz. in. maximum.
- End Stop Torque:** 5.0 oz. in. maximum.
- Weight:** .008 ounce maximum.
- Resistive Element:** Cermet.

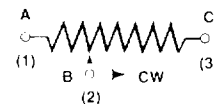
## ENVIRONMENTAL SPECIFICATIONS

- Temperature Range:** - 55° C to + 155° C.
- Climatic Category:** 55/125/56.
- Sealing:** Sealed container, solder immersion IP67. Water washable.
- Soldering Cycle (Surface Mounting):** 2 minutes at + 215° C or 10 seconds at + 260° C or with a 40 watt iron, 3 seconds at + 350° C, according to VRCl.

## STANDARD RESISTANCE ELEMENT DATA

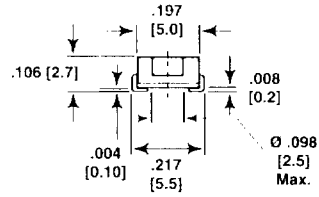
STANDARD RESISTANCE VALUES (Ohms)	LINEAR LAW			TC - 55° C + 125° C PPM/° C
	MAXIMUM POWER @ + 85° C (Watts)	MAXIMUM WORKING VOLTAGE (Volts)	MAX. CURRENT THROUGH ELEMENT (mA)	
10	0.20	1.41	141.0	0 ± 200
20	0.20	2.00	100.0	
50	0.20	3.16	63.0	
100	0.20	4.47	45.0	
200	0.20	6.32	32.0	
500	0.20	10.0	20.0	
1k	0.20	14.1	14.0	
2k	0.20	20.0	10.0	
5k	0.20	31.6	6.3	
10k	0.20	44.7	4.5	
20k	0.20	63.2	3.2	± 100
50k	0.20	100.0	2.0	
100k	0.20	141.0	1.4	
200k	0.20	200.0	1.0	
500k	0.08	200.0	0.4	
1M	0.04	200.0	0.2	

## CIRCUIT DIAGRAM

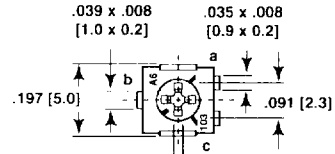


**DIMENSIONAL CONFIGURATIONS** [Numbers in brackets indicate millimeters]

**TS53YJ**

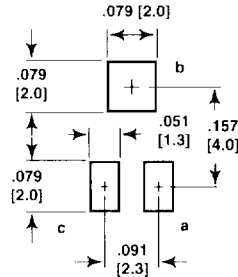


Deep: .022 [0.55]  
Maximum Deep (center): .028 [0.7]

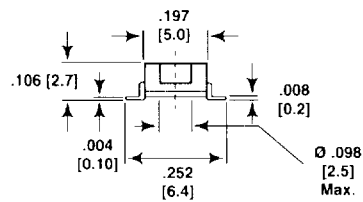


Cruciform Screwdriver Slot  
Ø .098 x .02  
[2.5 x 0.5]

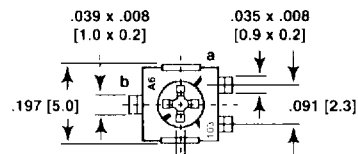
**Recommended Soldering Areas**



**TS53YL**

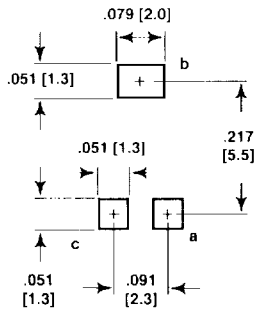


Deep: .022 [0.55]  
Maximum Deep (center): .028 [0.7]



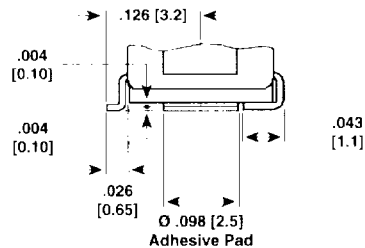
Cruciform Screwdriver Slot  
Ø .098 x .02  
[2.5 x 0.5]

**Recommended Soldering Areas**



**Adhesive Pad (detail)**

Version L



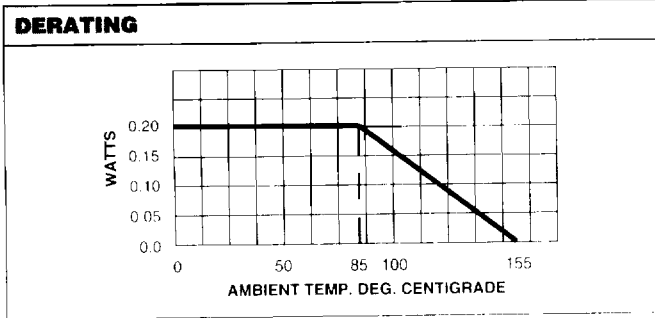
Version J

Adhesive Pad

**MODELS TS53YJ and TS53YL**

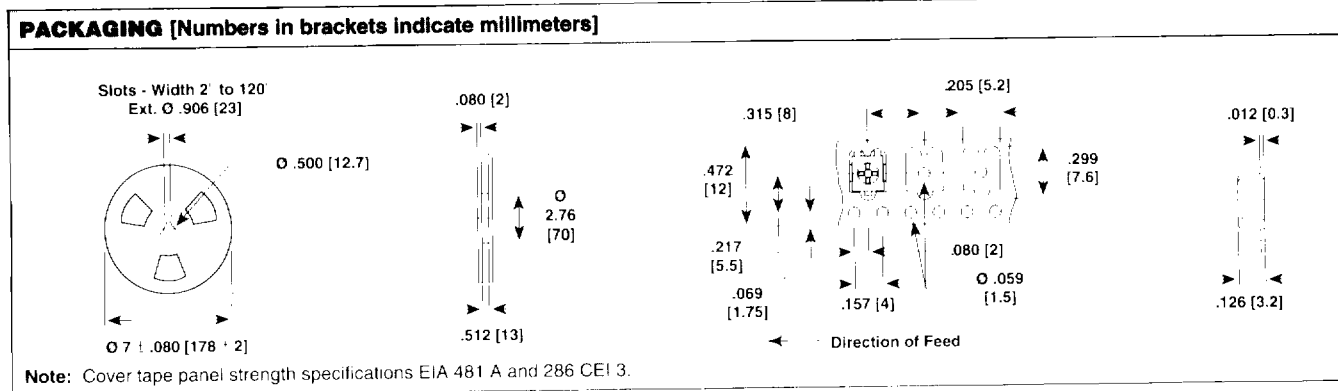
ENVIRONMENTAL PERFORMANCE		TYPICAL VALUES AND DRIFTS	
TEST*	CONDITIONS	$\frac{\Delta RT}{RT}$ %	$\frac{\Delta R1-2}{R1-2}$ %
Thermal Shock	5 cycles, - 55 C to + 125 C	1%	$\sqrt{\frac{V1-2}{V1-3}}$ 2%
Moisture Resistance (106)	10 cycles of 24 hours constituted with damp heat-cold-vibrations	2% Dielectric strength: 1000 V RMS Insulation resistance: > 10 <sup>10</sup> MΩ	3%
Long Term Damp Heat	Temperature = + 40 C, RH = 90 - 95%, 10% rated power/56 days	2% Dielectric strength 1000 V RMS Insulation resistance: > 10 <sup>10</sup> MΩ	3%
Shock (213/1)	3 successive shocks, in 3 directions, 100g, 6 ms	1%	$\sqrt{\frac{V1-2}{V1-3}}$ 1%
Vibration (204/D)	20g, 12 hours, 10 - 55 Hz	1%	$\sqrt{\frac{V1-2}{V1-3}}$ 1%
Rotational Life (electrical and mechanical)	100 cycles at rated power	3%	
Load Life	1000 hours at rated power, 90/30' ambient temperature + 85 C	2% Contact resistance variation: $\Delta R < 1\% R_n$	3%

\* Numbers in parenthesis refer to test method of MIL-STD-202 as modified by the detail specification.



### PART MARKING

- Trademark
- Ohmic value (3 digit code)
- Manufacturing date



### HOW TO ORDER

<u>TS53</u> MODEL	<u>YL</u> STYLE <div style="border: 1px solid black; padding: 2px; display: inline-block;">         YJ YL       </div>	<u>500kΩ</u> OHMIC VALUE	<u>± 20%</u> TOLERANCE	<u>TR</u> PACKAGING <div style="border: 1px solid black; padding: 5px; width: fit-content;">         Bulk, plastic box of 250 pieces, no code          Tape and reel:          TR = 500 pieces          TR1 = 2000 pieces       </div>
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Note: On delivery, the wiper is positioned at mid-travel.