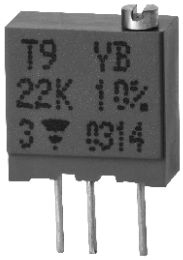
3/8" Square Multi-Turn Fully Sealed Container Cermet Trimmer



FEATURES

- Military and professional grade
- 0.5 W at 70 °C
- Product qualification according to CECC 41101-004 (A, B, C, D, E)
- Tests according to CECC 41000 or IEC 60393-1
- GAM T1
- Fully sealed
- Operating temperature range -55 °C to +155 °C
- Wide ohmic range from 10 Ω to 2.2 MΩ
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

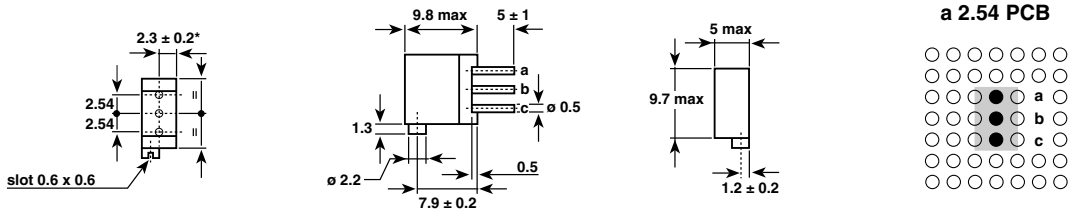
DESIGN SUPPORT TOOLS

click logo to get started

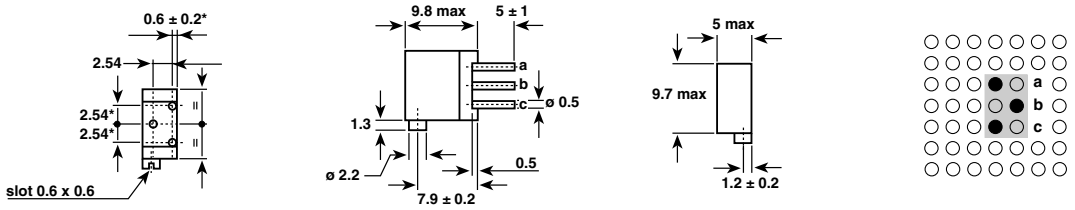
3D Models Available

DIMENSIONS in millimeters (± 0.5 mm)

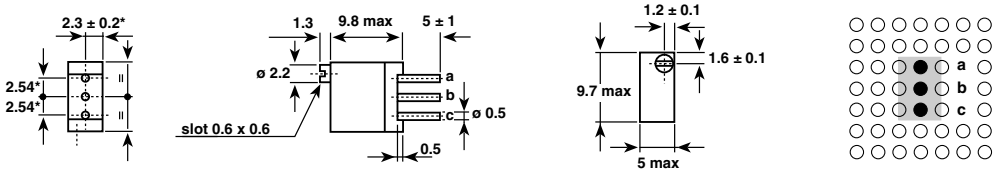
T9XA (PM81A) A



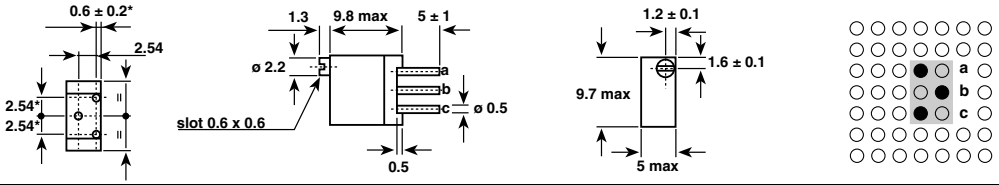
T9XB (PM81B) C



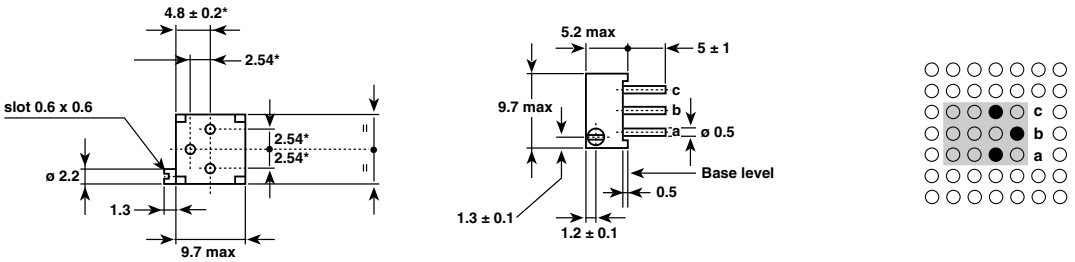
T9YA (PM82A) B



T9YB (PM82B) D



T9Z (PM83) E



Note

(1) To be measured at base level

For technical questions, contact: sferpottrimmers@vishay.com

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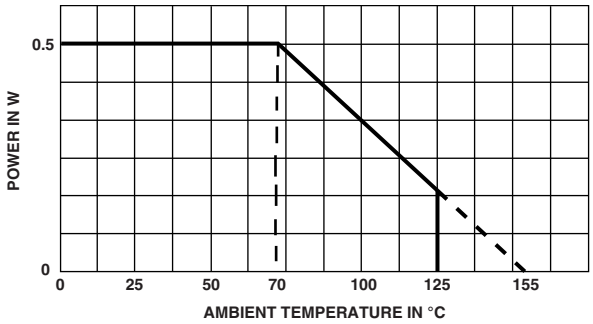
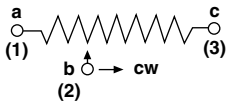
ELECTRICAL SPECIFICATIONS		
Resistive element		Cermet
Electrical travel		21 turns ± 2
Resistance range		10 Ω to 2.2 MΩ
Standard series E3		1 - 2.2 - 4.7 and on request 1 - 2 - 5
Tolerance	**Standard**	10 %
	On request	5 %
Power rating	**Linear**	0.5 W at +70 °C 
Circuit diagram		
Temperature coefficient		See Standard Resistance Element table
Limiting element voltage (linear law)		250 V
Contact resistance variation		2 % Rn or 2 Ω
End resistance (typical)		1 Ω
Dielectric strength (RMS)		1000 V
Insulation resistance (500 V_{DC})		10^6 MΩ

MECHANICAL SPECIFICATIONS	
Mechanical travel	23 turns ± 5
Operating torque (max. Ncm)	1.5
End stop torque	Clutch action
Net weight	Approx. 0.82 g
Wiper (actual travel)	Positioned at approx. 50 %
Terminals	Pure Sn (code e3)

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-55 °C to +155 °C
Climatic category	55/125/56
Sealing	Fully sealed - IP67

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PERFORMANCES

CECC 41100		REQUIREMENTS		TYPICAL VALUES AND DRIFTS	
TESTS	**CONDITIONS**	$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)
Climatic sequence	Phase A dry heat 125 °C Phase B damp heat Phase C cold -55 °C Phase D damp heat 5 cycles	± 2 %	± 3 %	± 0.5 %	± 1 %
Long term damp heat	56 days 40 °C, 93 % RH	± 2 % Dielectric strength: 700 V Insulation resistance: > 100 MΩ	± 3 %	± 0.5 % Dielectric strength: 1000 V Insulation resistance: > 10^4 MΩ	± 1 %
Rotational life	200 cycles	± 2 % Contact res. variation: < 3 % Rn	-	± 2 % Contact res. variation: < 1 % Rn	-
Load life	1000 h at rated power 90'/30' - ambient temp. 70 °C	± 2 % Contact res. variation: < 3 % Rn	± 3 %	± 1 % Contact res. variation: < 1 % Rn	± 2 %
Rapid temp. change	5 cycles -55 °C to +125 °C	± 1.5 %	$\Delta V_{1-2}/V_{1-3}$ ± 1 %	± 0.5 %	$\Delta V_{1-2}/V_{1-3}$ < ± 1 %
Shock	50 g at 11 ms 3 successive shocks in 3 directions	± 1 %	± 2 %	± 0.1 %	± 0.2 %
Vibration	10 Hz to 55 Hz 0.75 mm or 10 g during 6 h	± 1 %	$\Delta V_{1-2}/V_{1-3}$ ± 2 %	± 0.1 %	$\Delta V_{1-2}/V_{1-3}$ < ± 0.2 %

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability

STANDARD RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES	LINEAR LAW			TYPICAL TCR -55 °C TO +125 °C
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH WIPER	
Ω	W	V	mA	ppm/°C
10	0.5	2.2	224	± 100
22	0.5	3.3	150	
47	0.5	4.8	103	
100	0.5	7	70	
220	0.5	10.5	47	
470	0.5	15.3	32	
1K	0.5	22.4	22	
2.2K	0.5	33.2	15	
4.7K	0.5	48.5	10	
10K	0.5	70.7	7	
22K	0.5	105	4.8	
47K	0.5	153	3.2	
100K	0.5	224	2.2	
220K	0.28	250	1.1	
470K	0.13	250	0.53	
1M	0.06	250	0.25	
2.2M	0.028	250	0.11	

MARKING

- Vishay trademark
- Model
- Style
- Ohmic value (in Ω, kΩ, MΩ)
- Tolerance (in %)
- Manufacturing date
- Marking of terminal 3

PACKAGING

- In tube of 50 pieces code T20 (TU50)

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ORDERING INFORMATION (part number)

T	9	X	A	4	7	4	K	T	2	0			

Model	STYLE	OHMIC VALUE	TOLERANCE	PACKAGING	SPECIAL NUMBER
T9	**XA** **XB** **YA** **YB** **Z**	From 10 Ω to 2.2 MΩ **474** = 470 kΩ	**K** = 10 % on request **J** = 5 %	**T20** = tube 50 pieces	(If applicable) Given by Vishay for custom design

DESCRIPTION (for information only)

T9	XA	470K	10 %		TU		e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	SPECIAL	LEAD FINISH

RELATED DOCUMENTS

APPLICATION NOTES	
Potentiometers and Trimmers	www.vishay.com/doc?51001
Guidelines for Vishay Sfernice Resistive and Inductive Components	www.vishay.com/doc?52029

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