

RESISTOR/CAPACITOR/OSILLATOR

Rawmat Thick-Film Resistor Array

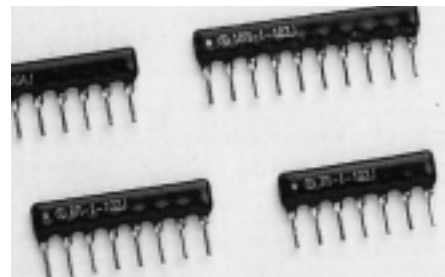
RE Rawmat

Features

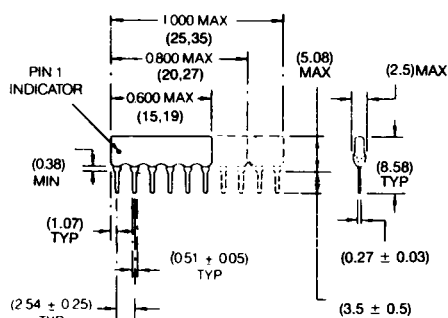
- Low profile, single in line package
- High stable thick film
- Low temperature coefficient
- Reduces total assembly costs
- Resistor elements protected by tough epoxy conformal coating
- Wide resistance range
- Low cost

Specifications

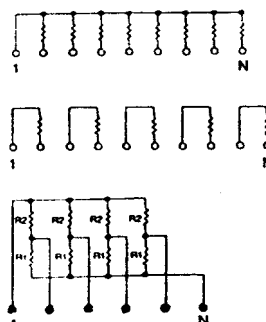
- Resistance Range : 22 Ω to 2.2M Ω
- Resistance tolerance : $\pm 2\%$ $\pm 2\%$, whichever is greater
 $\pm 5\%$ $\pm 2\%$, whichever is greater
- Operating Temperature Range : -55 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$
- Maximum Operating Voltage : 100VDC
- Voltage Coefficient of Resistance : 50ppm/V typical
- Temperature Coefficient of Resistance :
 $\pm 100\text{ppm}$, $\pm 200\text{ppm}$, $\pm 300\text{ppm}$



Physical Dimensions



Standard Circuits



- 1 Schematic
common bus. pin 1 is common,
4 pins to 12pins.
- 2 Schematic
Isolated resistors
4, 6, 7, 10 or 12 pins
- 4 Schematic
Dual terminator 6, 7 or 10 pins.

Thick-Film Chip Resistor

Features

- High purity alumina substrate
- Tight TCR
- Standard sizes 0805 and 1206
- Automatic placement compatibility
- Wave or reflow solderable
- Wrap-around termination
- Inner electrode protection
- Excellent high frequency characteristics

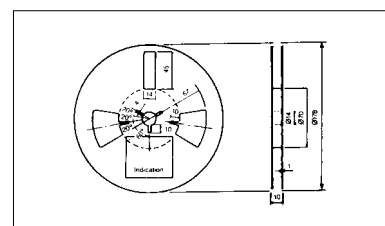
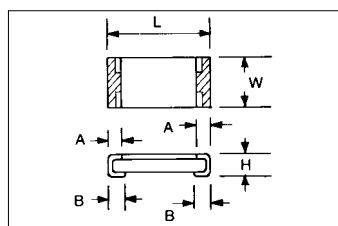
Specifications

- Power Rating : RCS - 1206 - 0.250W
RCS - 0805 - 0.155W
- Rated C.W.V : RCS - 1206 - 200V
RCS - 0805 - 100V
- Resistance Range : 10 Ω to 10M Ω
- Resistance tolerance : $\pm 1\%$ (F), $\pm 2\%$ (G), $\pm 5\%$ (J)
- Operating Temperature Range : -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$



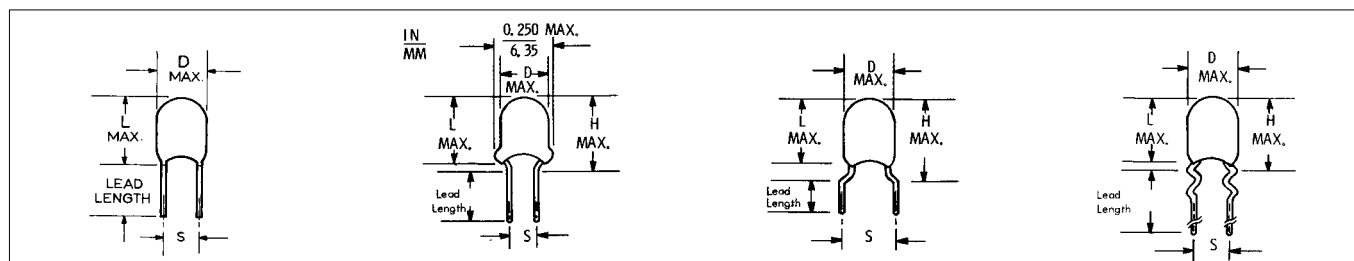
Physical Dimensions

	RSC-1206	RSC-0805
L	3.20 $\pm$ 0.15	2.10 $\pm$ 0.15
W	1.60 $\pm$ 0.15	1.25 $\pm$ 0.15
H	0.60 $\pm$ 0.15	0.50 $\pm$ 0.15
A	0.35 $\pm$ 0.20	0.35 $\pm$ 0.20
B	0.35 $\pm$ 0.20	0.35 $\pm$ 0.20

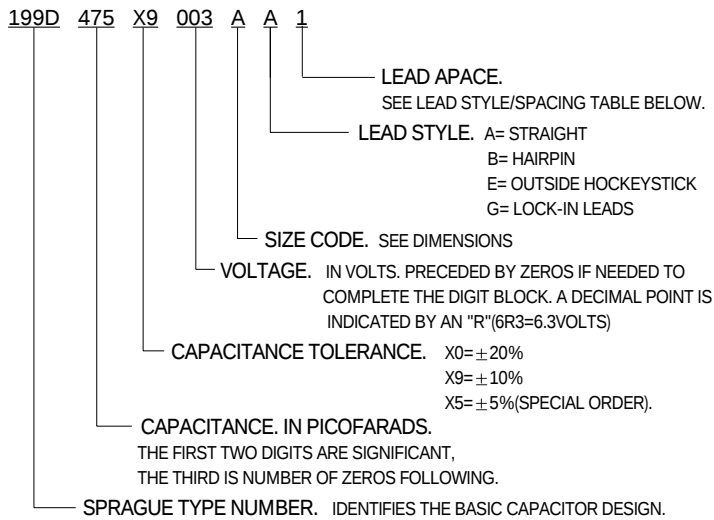


Vishay Sprague Axial-type Tantal Capacitor

VISHAY



Sprague Axial-type Tantal Capacitor (cont.) Catalog Numbering System



● Performance Characteristics

Operating Temperature.

-55 °C to +85 °C, and with voltage derating to two-thirds the +85 °C rating at +125 °C.

Capacitance Tolerance.

At 120Hz, +25 °C. ±25%, ±10% standard; ±5% available.

Dissipation Factor.

At 120Hz, +25 °C. Dissipation factor, as determined from the expression $2\pi fRC$, shall not exceed the value listed in the standard Ratings tables.

DC Leakage Current(DCL Max.).

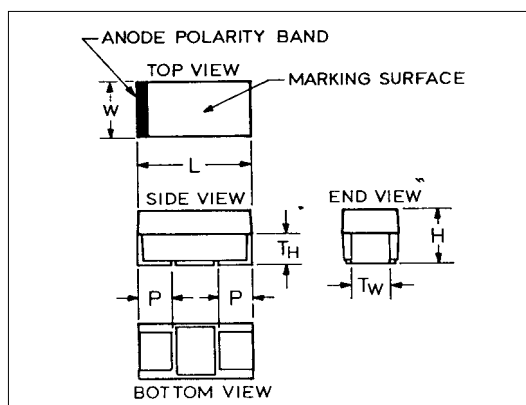
At +25 °C the leakage current shall not exceed the values listed in the standard Ratings tables.

Standard Ratings

μF	Case Code	Catalog Numbers		Max.DCL @+25 °C (μA)	Max.D.F @+25 °C 120Hz(%)
		Cap.Tot. ±20%	Cap.Tot. ±10%		
16WVDC @+85 °C, 10WVDC @+125 °C					
2.2	A	199D225X0016A__	199D225X9016A__	0.5	6
3.3	A	199D335X0016A__	199D335X9016A__	0.5	6
4.7	B	199D475X0016B__	199D475X9016B__	0.7	6
6.8	B	199D685X0016B__	199D685X9016B__	1.0	6
10	C	199D106X0016C__	199D106X9016C__	1.5	8
15	C	199D156X0016C__	199D156X9016C__	2.4	8
22	D	199D226X0016D__	199D226X9016D__	3.5	8
33	D	199D336X0016D__	199D336X9016D__	4.0	8
47	E	199D476X0016E__	199D476X9016E__	5.0	8
68	E	199D686X0016E__	199D686X9016E__	6.0	8
100	F	199D107X0016F__	199D107X9016F__	7.0	10
150	F	199D157X0016F__	199D157X9016F__	8.0	10
25WVDC @+85 °C, 17WVDC @+125 °C					
1.0	A	199D105X0025A__	199D105X9025A__	0.5	4
1.5	A	199D155X0025A__	199D155X9025A__	0.5	6
2.2	A	199D225X0025A__	199D225X9025A__	0.5	6
3.3	B	199D335X0025B__	199D335X9025B__	0.8	6
4.7	B	199D475X0025B__	199D475X9025B__	1.0	6
6.8	C	199D685X0025C__	199D685X9025C__	1.5	6
10	C	199D106X0025C__	199D106X9025C__	2.5	8
15	D	199D156X0025D__	199D156X9025D__	3.0	8

μF	Case Code	Catalog Numbers		Max.DCL @+25 °C (μA)	Max.D.F @+25 °C 120Hz(%)
		Cap.Tot. ±20%	Cap.Tot. ±10%		
22	D	199D226X0025D__	199D226X9025D__	4.0	8
33	E	199D336X0025E__	199D336X9025E__	5.0	8
47	E	199D476X0025E__	199D476X9025E__	6.0	8
68	F	199D686X0025F__	199D686X9025F__	7.0	8
35WVDC @+85 °C, 23WVDC @+125 °C					
0.1	A	199D104X0035A__	199D104X9035A__	0.5	4
0.15	A	199D154X0035A__	199D154X9035A__	0.5	4
0.22	A	199D224X0035A__	199D224X9035A__	0.5	4
0.33	A	199D334X0035A__	199D334X9035A__	0.5	4
0.47	A	199D474X0035A__	199D474X9035A__	0.5	4
0.68	A	199D684X0035A__	199D684X9035A__	0.5	4
1.0	A	199D105X0035A__	199D105X9035A__	0.5	4
1.5	A	199D155X0035A__	199D155X9035A__	0.5	6
2.2	B	199D225X0035B__	199D225X9035B__	0.7	6
3.3	B	199D335X0035B__	199D335X9035B__	1.0	6
4.7	C	199D475X0035C__	199D475X9035C__	1.5	6
6.8	D	199D685X0035D__	199D685X9035D__	2.3	6
10	D	199D106X0035D__	199D106X9035D__	3.5	8
15	E	199D156X0035E__	199D156X9035E__	4.0	8
22	E	199D226X0035E__	199D226X9035E__	5.0	8
33	F	199D336X0035F__	199D336X9035F__	6.0	8
47	F	199D476X0035F__	199D476X9035F__	7.0	8

Chip-Type Tantal Capacitor



● performance Characteristics

Operating Temperature.

-55 °C to +85 °C, and with voltage derating to two-thirds the +85 °C rating at +125 °C.

Capacitance Tolerance.

At 120Hz, +25 °C. ±25%, ±10% standard; ±5% available.

DC Leakage Current(DCL Max.).

At +25 °C the leakage current shall not exceed the values listed in the standard Ratings tables.

At +85 °C DCL shall not exceed 10 times the values listed in the Standard Ratings tables.

At +125 °C DCL shall not exceed 12 times the values listed in the Standard Ratings tables.



Catalog Numbering System

293D 105 X0 010 A 2 T

REEL SIZE AND
PACKAGING
ORIENTATION.

T=7" REEL, CATHODE NEAREST SPROCKET HOLE.
V=7" REEL, ANODE NEAREST SPROCKET HOLE.
W=13" REEL, CATHODE NEAREST SPROCKET HOLE.(PREFERRED).
X=13" REEL, ANODE NEAREST SPROCKET HOLE

TERMINATION. 2=SOLDERABLE COATING(STANDARD)

CASE CODE. SEE RATINGS AND CASE CODES TABLE.

D-C VOLTAGE RATING. AT+85 °C. IN VOLTS. PRECEDED BY ZEROS IF NEEDED TO COMPLETE THE THREE
DIGIT BLOCK A DECIMAL POINT IS INDICATED BY AN "R"(6R3=6.3 VOLTS).

CAPACITANCE TOLERANCE. X0= ±20%
X9= ±10%
X5= ±5%(SPECIAL ORDERA)

CAPACITANCE CODE. EXPRESSED IN PICO FARADS. THE FIRST TWO DIGITS ARE SIGNIFICANT, THE THIRD IS THE
NUMBER OF ZEROS FOLLOWING.

SPRAGUE TYPE NUMBER. IDENTIFIES THE BASIC CAPACITOR DESIGN. SEE TAPE AND REEL SPECIFICATIONS, PAGE 47,48

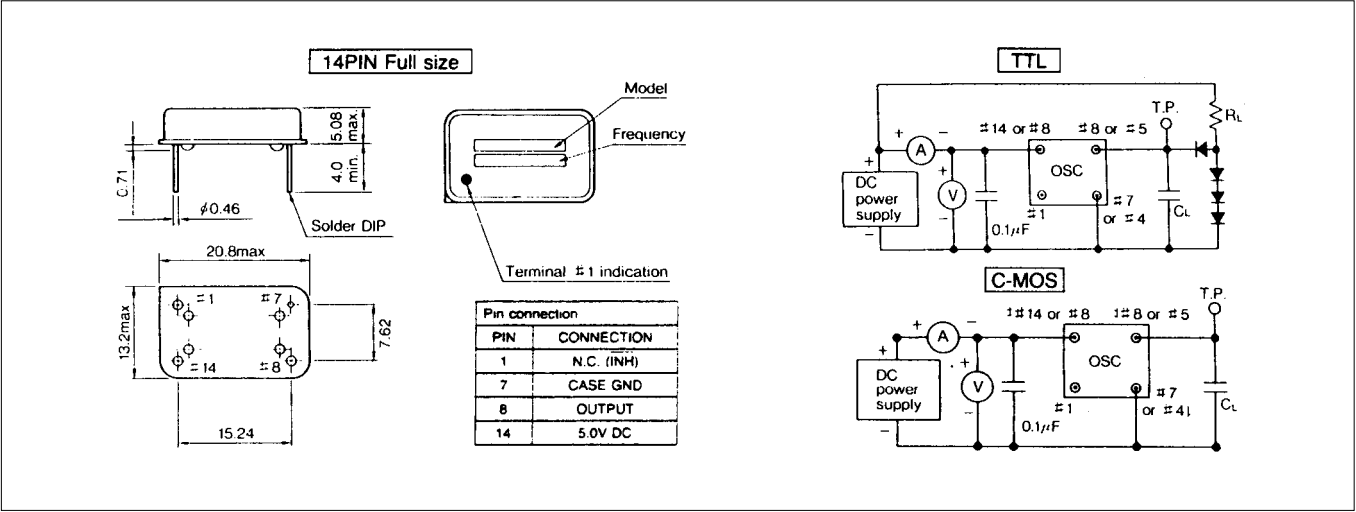
Standard Ratings

Cap μF	Case Code	Catalog P/N	Max.DCL @+25 °C (μA)	Max.D.F @+25 °C 120Hz (%)	Max.ESR 100KHz (Ohms) (Ω)	Max.Ripple 100KHz I rms(Amps) (A)
16WVDC@+85 °C,20V SURGE; 10WVDC@+125 °C,12V SURGE						
1.0	A	293D105X0016A2T	0.5	4	11.0	0.080
2.2	A	293D225X0016A2T	0.5	6	7.0	0.100
3.3	A	293D335X0016A2T	0.5	6	6.2	0.106
4.7	B	293D475X0016B2T	0.7	6	3.6	0.149
6.8	B	293D685X0016B2T	1.1	6	3.3	0.156
10.0	C	293D106X0016C2T	1.6	6	2.2	0.224
22.0	C	293D226X0016C2T	3.5	6	1.6	0.262
22.0	D	293D226X0016D2T	3.5	6	1.1	0.369
33.0	D	293D336X0016D2T	5.3	6	0.9	0.408
47.0	D	293D476X0016D2T	7.5	6	0.8	0.433
68.0	D	293D686X0016D2T	10.9	6	0.7	0.463
25WVDC@+85 °C,32V SURGE; 10WVDC@+125 °C,12V SURGE						
0.47	A	293D474X0025A2T	0.5	4	14.0	0.071
0.68	A	293D684X0025A2T	0.5	4	10.0	0.084
1.0	A	293D105X0025A2T	0.5	4	9.0	0.088
2.2	B	293D225X0025B2T	0.6	6	4.5	0.133
3.3	B	293D335X0025B2T	0.8	6	3.6	0.149
Cap μF	Case Code	Catalog P/N	Max.DCL @+25 °C (μA)	Max.D.F @+25 °C 120Hz (%)	Max.ESR 100KHz (Ohms) (Ω)	Max.Ripple 100KHz I rms(Amps) (A)
4.7	C	293D475X0025C2T	1.2	6	2.4	0.214
6.8	C	293D685X0025C2T	1.7	6	2.0	0.235
10.0	C	293D106X0025C2T	2.5	6	1.8	0.247
15.0	E	293D156X0025E2T	3.8	6	1.0	0.381
22.0	D	293D226X0025D2T	5.5	6	0.8	0.433
35WVDC@+85 °C,46V SURGE; 23WVDC@+125 °C,28V SURGE						
0.10	A	293D104X0035A2T	0.5	4	24.0	0.054
0.22	A	293D224X0035A2T	0.5	4	18.0	0.058
0.33	A	293D334X0035A2T	0.5	4	15.0	0.062
0.47	A	293D474X0035A2T	0.5	4	12.0	0.068
0.68	A	293D684X0035A2T	0.5	4	9.0	0.088
1.0	B	293D105X0035B2T	0.5	4	6.5	0.111
1.5	B	293D155X0035B2T	0.5	6	5.2	0.124
2.2	B	293D225X0035B2T	0.8	6	4.2	0.138
3.3	C	293D335X0035C2T	1.2	6	2.5	0.210
4.7	C	293D475X0035C2T	1.6	6	2.2	0.224
6.8	D	293D685X0035D2T	2.4	6	1.3	0.340
10.0	D	293D106X0035D2T	3.5	6	1.0	0.387

JTC Crystal Oscillator

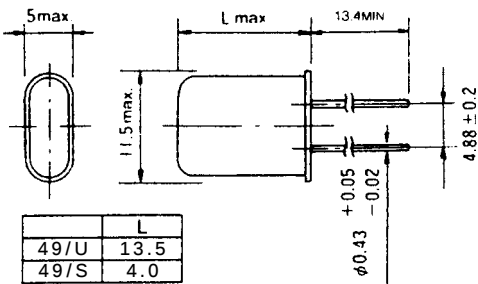
	MXO-007T	MXO-010T	MXO-007C	MXO-107C
Output	TTL	TTL	TTL & CMOS	TTL & CMOS
Holder Type	14pin	14pin	14pin	8pin half size
Frequency Range	1.0~70MHz	70~100MHz	500K~70MHz	1.0~70MHz
Frequency Tolerance	±100ppm, ±500ppm			
Operating Temp Range	0~+70 °C			
Storage Temp. Range	-55~+125 °C			
Supply Voltage	+5VDC ±5%			
	'0'Level	+0.4Vmax/a~32MHz +0.5Vmax/32~70MHz	+0.5Vmax	0.5Vmax
	'1'Level	±2.4Vmin	+2.4Vmin	Vpp-0.5Vmin
	Rise & Fall Time	15ns max(1.0~8.39MHz) 10ns max(9.0~31.9MHz) 6ns max(32~70MHz)	4ns max	10ns max
	Symmetry	40~60% at 1.4VDC Level		40~60%(50%VDD)/F ≥10MHz 45~55%(50%VDD)/F<10MHz
	Output Load	10TTL	5TTL	50pF or 5 TTL / F ≥25MHz 50pF or 10 TTL / F<25MHz
Current Consumption	50mA max/1~4MHz 40mA max/42~32MHz 50mA max/32~70MHz		50mA max	30mA max / F ≤30MHz 40mA max / F>30MHz

Crystal Osillator (cont.)

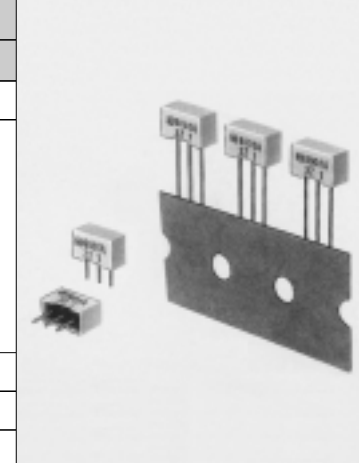


Crystal Unit

Frequency	Type	Harmonics	HC-49/S	HC-49/U, HC-50/U
1.84~2.00 MHz	Fundamental	-	-	600 $\varnothing$ max
2.00~3.00 MHz	Fundamental	-	-	400 $\varnothing$ max
3.00~3.50 MHz	Fundamental	-	-	250 $\varnothing$ max
3.50~4.00 MHz	Fundamental	-	150 $\varnothing$ max	100 $\varnothing$ max
4.00~7.00 MHz	Fundamental	-	100 $\varnothing$ max	80 $\varnothing$ max
7.00~10.0 MHz	Fundamental	-	90 $\varnothing$ max	50 $\varnothing$ max
10.0~15.0 MHz	Fundamental	-	70 $\varnothing$ max	40 $\varnothing$ max
15.0~25.0 MHz	Fundamental	-	50 $\varnothing$ max	30 $\varnothing$ max
20.0~25.0 MHz	Third	-	60 $\varnothing$ max	50 $\varnothing$ max
25.0~50.0 MHz	Third	-	50 $\varnothing$ max	40 $\varnothing$ max
50.0~75.0 MHz	Third	-	60 $\varnothing$ max	40 $\varnothing$ max
75.0~150.0 MHz	Fifth	-	80 $\varnothing$ max	70 $\varnothing$ max

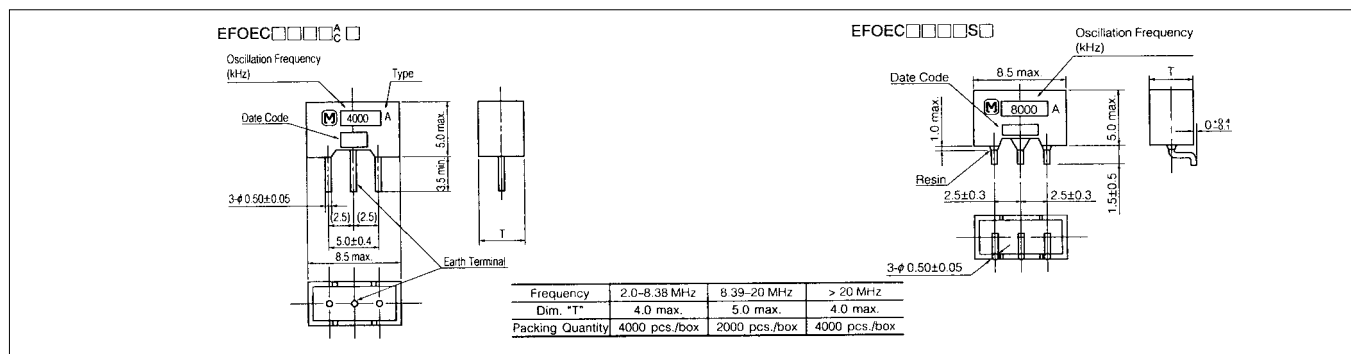


Panasonic Ceramic Resonator (Built-In Capacitors Type)

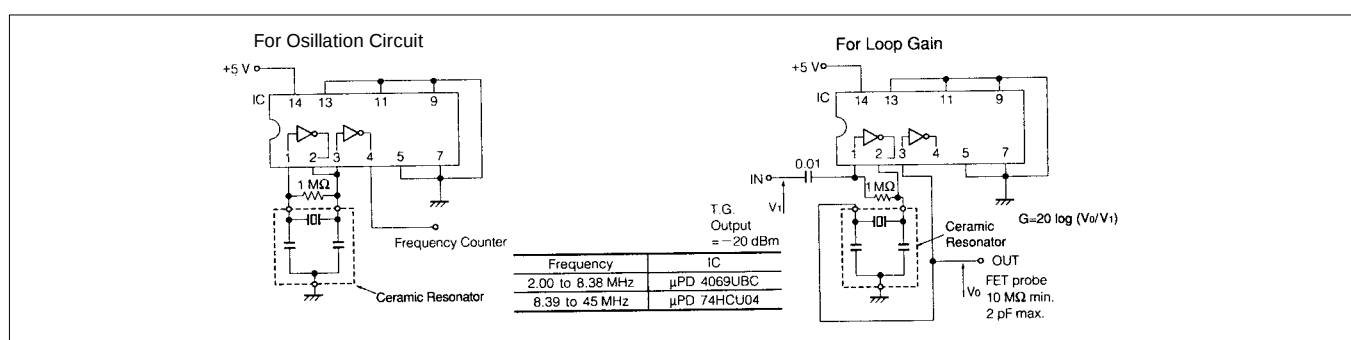
Part Number				
Bulk Type	Taped Type	Oscillation Frequency	Loop Gain(G)	
EFOEC2004A5	EFOEC2004T5	2.00 MHz $\pm$ 1.0%	10 dB	
EFOEC3584A4	EFOEC3584T4	3.58 MHz $\pm$ 0.5%	10 dB	
EFOEC4004A4	EFOEC4004T4	4.00 MHz $\pm$ 0.5%		
EFOEC4194A4	EFOEC4194T4	4.19 MHz $\pm$ 0.5%		
EFOEC5004A4	EFOEC5004T4	5.00 MHz $\pm$ 0.5%		
EFOEC6004A4	EFOEC6004T4	6.00 MHz $\pm$ 0.5%		
EFOEC8004A4	EFOEC8004T4	8.00 MHz $\pm$ 0.5%		
EFOEC1005C4	EFOEC1005T4	10.00 MHz $\pm$ 0.5%	14 dB	
EFOEC2005C4	EFOEC2005T4	20.00 MHz $\pm$ 0.5%	10 dB	
EFOEC3385C4	EFOEC3385T4	33.868 MHz $\pm$ 0.5%	8 dB	

- Operating Temperature Range: -20 to 80℃
- Frequency Drift: 0.3% max./10 years

Dimensions (mm)



Test Circuit Diagram



NOISE SUPPRESSION

Okaya Spark Quencher



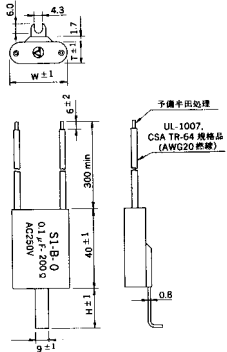
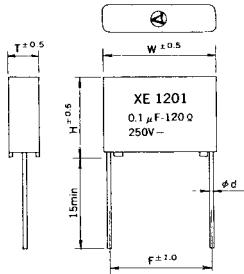
Type	Line Voltage	C (μF)	R (Ω)	Operating Temp (°C)	Safety Standard Comply with requirements
XA 120033	125VAC	0.033	120	-40~	CSA C22.2(UL-1414) (CSA C22.2 UL-1414) AW G20
XA 1201	125VAC	0.1	120	+85	
XAB 1201	125VAC	0.1	120	+85	
XAB 1202	125VAC	0.2	120	+85	
AU 120033	125VAC	0.033	120	+85	UL-1414 UL-1414 UL-1414 UL-1414 UL-1414 UL-1414 UL-1414
AU 1201	125VAC	0.1	120	+85	
AU 047033	125VAC	0.033	47	+85	
AU 0471	125VAC	0.1	47	+85	
AU 010033	125VAC	0.033	10	+85	
AU 0101	125VAC	0.1	10	+85	
CRE-10201	250VAC	0.1	200	+85	
CRE-20151	250VAC	0.2	150	+85	UL-1414, CSA C22.2 VDE0556-1;(SEMKO) VDE0556-1;(SEMKO) VDE0556-1;(SEMKO) VDE0556-1;(SEMKO) VDE0556-1;(SEMKO) AWG20 VDE0556-1;(SEMKO) AWG20 VDE0556-1;(SEMKO) AWG20 VDE0556-1;(SEMKO) AWG20
CRE-30680	250VAC	0.3	68	+85	
CRE-50500	250VAC	0.5	50	+85	
3 CR-50500	250VAC	0.5/1 ∅	50/1 ∅	+85	
XE 12001	250VA C	0.01	120	-40~	
XE 120033	250VA C	0.033	120	+85	
XE 1201	250VA C	0.1	120	+85	
XE 1202	250VA C	0.2	120	+85	
XEB 12001	250VA C	0.01	120	+85	
XEB 120033	250VA C	0.033	120	+85	
XEB 1201	250VA C	0.1	120	+85	
XEB 1202	250VA C	0.2	120	+85	
S1-B-0	250VA C	0.1	200	+85	Inconformity to electric equipment regulation
S2-A-0	250VA C	0.2	500	+85	
CRH-10680	500VA C	0.1	68	-40~	
CRH-20470	500VA C	0.22	47	+70	
CRH-30330	500VA C	0.33	33	+70	
CRH-50270	500VA C	0.47	27	+70	
3CRH-30330	500VA C	0.33/1 ∅	33/1 ∅	+70	
3CRH-50270	500VA C	0.47/1 ∅	27/1 ∅	+70	

Spark Quencher (cont.)



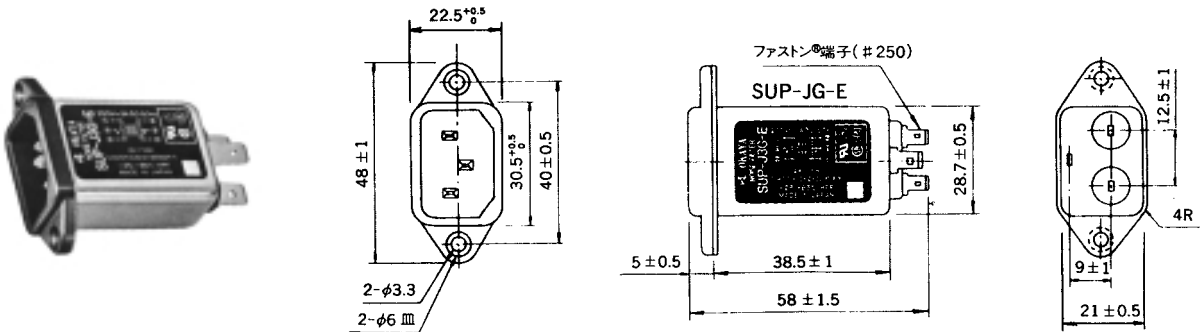
• XE Series

• S1-B-0, S2-A-0 Series



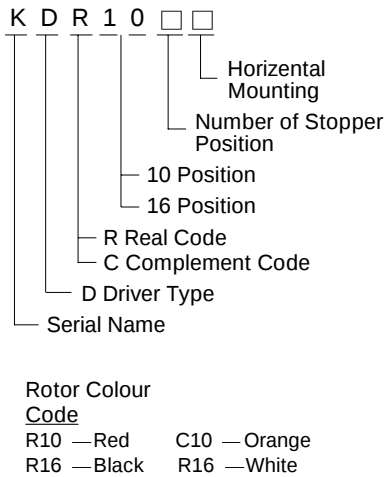
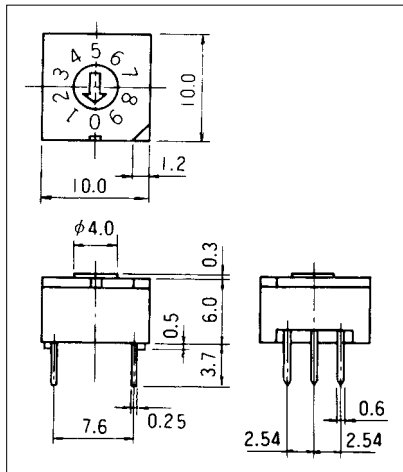
Noise Filter

Type	Rated Voltage	Rated Current(A)														Approved Safety Standard								Features	Construction	
		1	2	3	4	5	6	10	15	20	30	50	75	U A	C S A	V D E	T U V	S E M K O	N E M K O	D E M K O	E I	S E V	Lead Type		Appearance	
SUP-A □G-E	250	○		○			○							○	○	○		○	○	○	○	○	General usage (Small size)	F・SR	Inlet Socket	
SUP-B □G-E	250	○		○			○							○	○	○		○	○	○	○	○		F・SR		
SUP-B □G-ER	250	○		○			○							○	○	○		○	○	○	○	○	With discharge resistor	F・SR		
SUP-J □G-E	250			○			○	○	○					○	○	○		○	○	○	○	○	FCC	F・SR		
SUP-E □G-E	250	○		○			○							○	○	○							Medical	F・SR		
SUP-D □G-E	250	○		○			○							○	○	○		○					Side Terminal / Vertical Connection	SR		
SUP-F □H-ER	250			○			○	○						○	○	○		○					FCC VDE	F・SR	Metal Case Inlet Socket	



SWITCH

Otax Rotary DIP Digital Code Switch



Mechanical Specifications

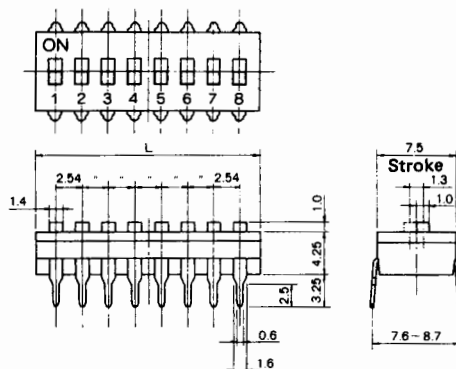
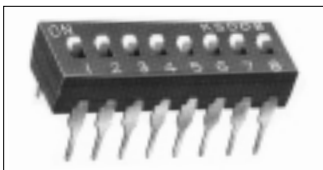
- Operating Force : 1kg - cm Max
- Stopper Strength : 5kg - cm Min
- Life : 30,000 steps Min
(Shaft Type 100,000 steps)

Electrical Specifications

- Rating : 0.4VA. AC. DC20V Max
- Contact Resistance : 50m Ω Max at 2V. DC. 10mA
- Insulation Resistance : 1,000M Ω Min at DC. 100V
- Dielectric Strength : 300V AC. 1minute
- Life : 20,000vsteps Min at 5V DC. 10mA
(Shaft Type 100,000 steps)

DIP Switch

• KSD (Slide Type)



K S D A 0 8

No of Position

Blank=ON down

A =ON up

D Slide Type

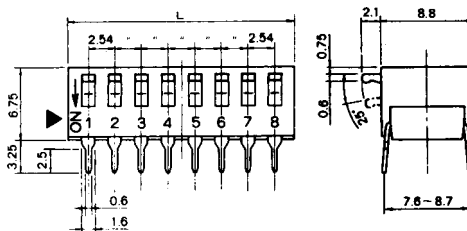
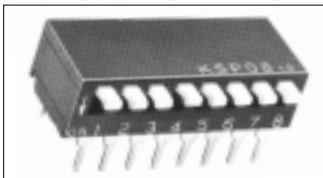
S Flat Kobe Slide Type

P PIANO Type (ON down)

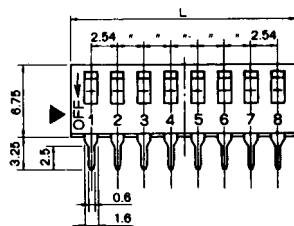
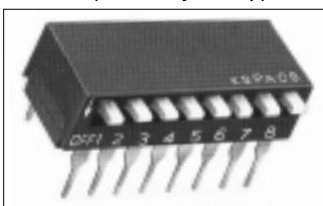
PA PIANO Type (ON up)

Series Name

• KSP (Piano key ON down)



• KSPA (Piano key ON up)



• No. of Position

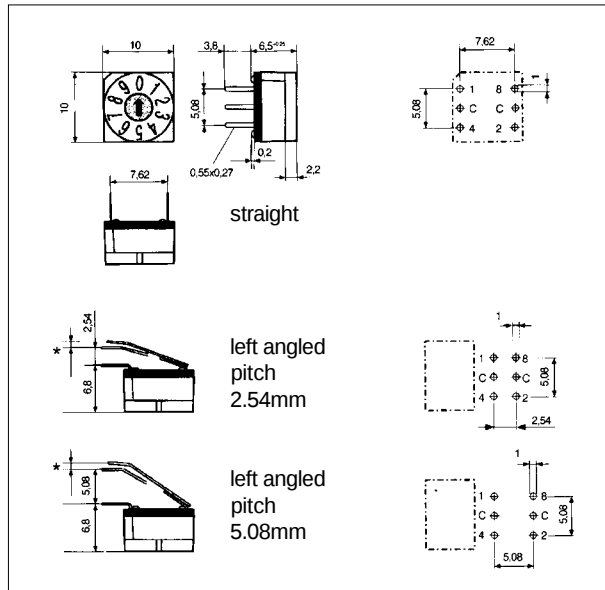
Slide & Flat knob slide	Piano ON down	Piano ON up	Flat knob slide Auto-Insertable
Code	Pole	Pole	Pole
02	2	2	2
03	3	3	-
04	4	4	4
05	5	5	-
06	6	6	6
07	7	7	-
08	8	8	8
09	9	9	-
10	10	10	10

☐ To be marketed at later date.

Hartmann PCB Code Switch

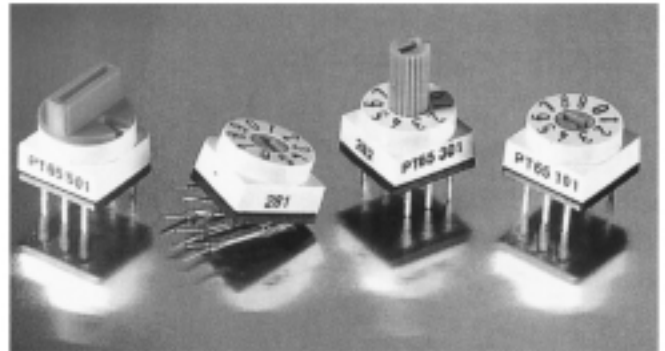
Standard type

Mounting hole patterns



Riveted rear terminals for extra support

PRINTHART PT65...



6.5mm high.
A variety of types and codes.

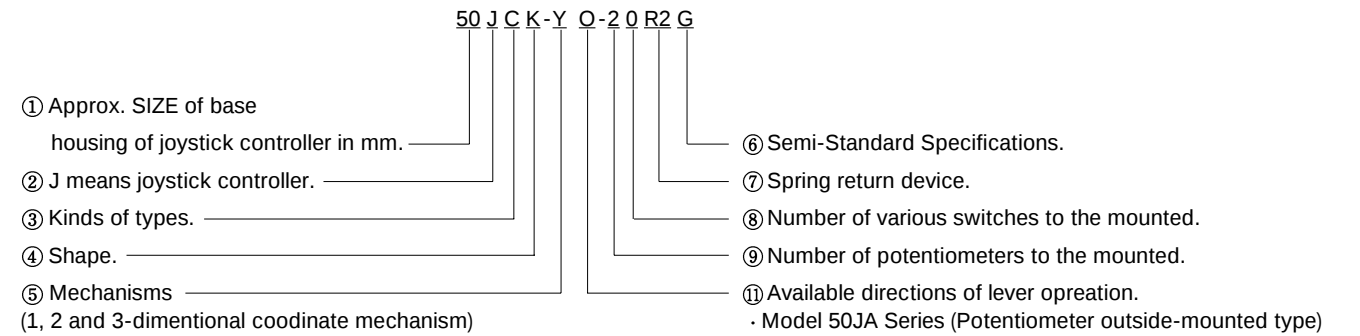
Screwdriver	Spindle	Segment / wheel Bouton	For individual / elements / pour des applications
PT65 101	PT65 301	PT65 501	PT65 701
PT65 101L254	PT65 301L254	PT65 501L254	PT65 701L254
PT65 101L508	PT65 301L508	PT65 501L508	PT65 701L508
PT65 102	PT65 302	PT65 502	PT65 702
PT65 102L254	PT65 302L254	PT65 502L254	PT65 702L254
PT65 102L508	PT65 302L508	PT65 502L508	PT65 702L508
PT65 103	PT65 303	PT65 503	PT65 703
PT65 103L254	PT65 303L254	PT65 503L254	PT65 703L254
PT65 103L508	PT65 303L508	PT65 503L508	PT65 703L508
PT65 106	PT65 306	PT65 506	PT65 706
PT65 106L254	PT65 306L254	PT65 506L254	PT65 706L254
PT65 106L508	PT65 306L508	PT65 506L508	PT65 706L508
PT65 112			
PT65 124			
PT65 125			
PT65 126			
PT65 131	PT65 331		
PT65 131L254	PT65 331L254		
PT65 131L508	PT65 331L508		

POTENTIOMETER

Sakae Joystick Controller

These are joystick controllers using precision potentiometers for industrial use and precision multi-directional operation.

The Nomenclature of Joystick Controller



Features

Most standardized joystick controllers.
Various specifications are easily available.
Applications 3-dimensional coordinate measuring apparatuses,
CAD/CAM/CAE display devices, robot operations, etc.

- Model 50JC Series(Potentiometer outside-mounted type)

Features

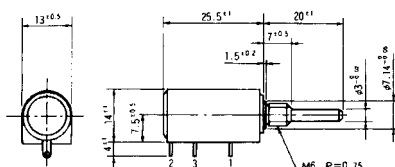
Very robustly constructed and mounted as standard with dust-and drip-proof return device which activates an operating lever to automatically return to center position.

Applications

Precision equipment for industrial use, vehicles, construction machinery, cranes, etc.

Precision Potentiometer

Model 22HP-10



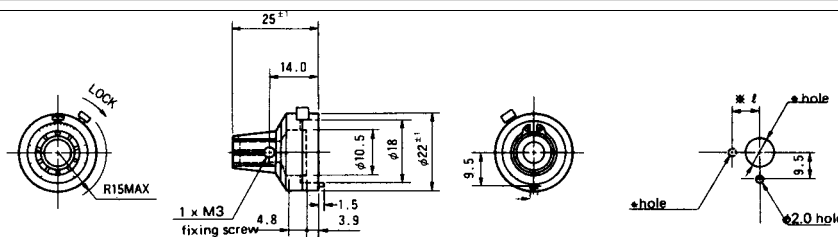
Model 12HP-10



No.	Dimensions (mm) Dia.xLength	Shaft Dia. (mm)	Standard Resistance Range (Ω)	Independent Linearity Tolerance ($\pm$)	Power Rating (W)	Mechanical Travel	Electrical Travel	Starting Torque Max. (gf.cm)
	(n:No of turns)							
22HP-10	$\varnothing 22 \times 19$	6	100-100K	0.25-0.1	2.0	$360^{\circ} \times n \pm 10^{\circ}$	$360^{\circ} \times n \pm 5^{\circ}$	100
12HP-10	$\varnothing 13 \times 25.5$	3	100-100K	0.25-0.1	1.5	$360^{\circ} \times n \pm 15^{\circ}$	$360^{\circ} \times n \pm 5^{\circ}$	30

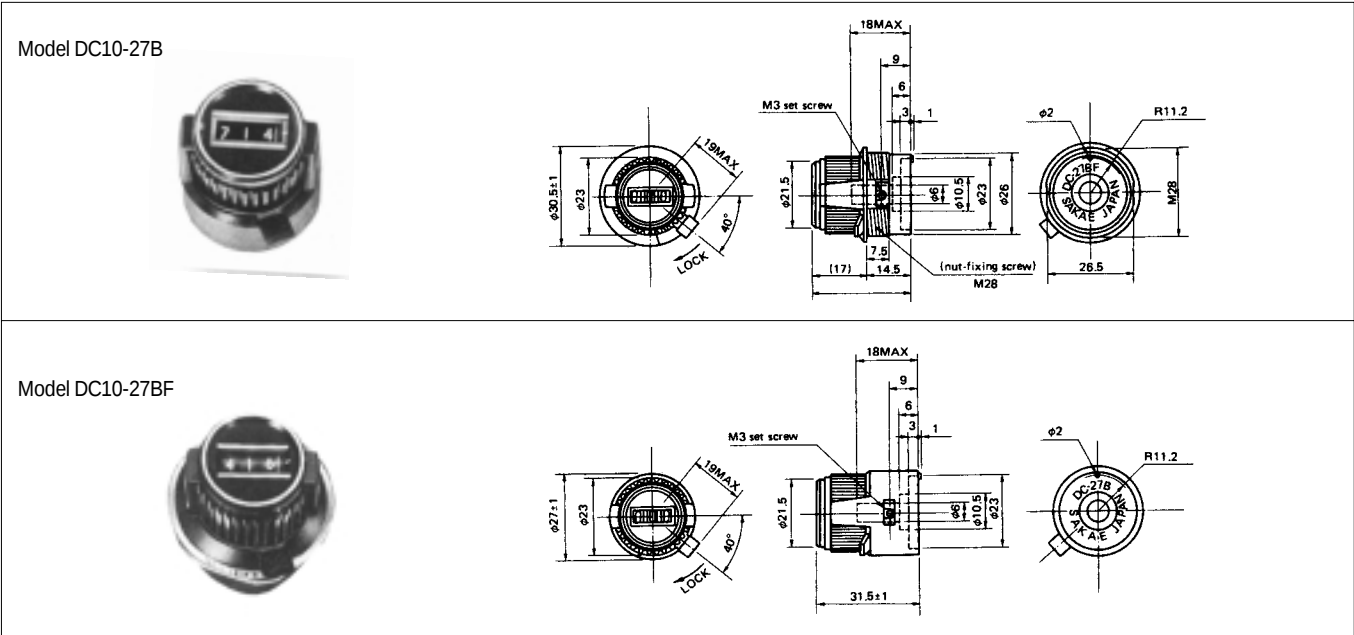
Precision Dial

Model MG20-22B



Precision Dial(cont.)

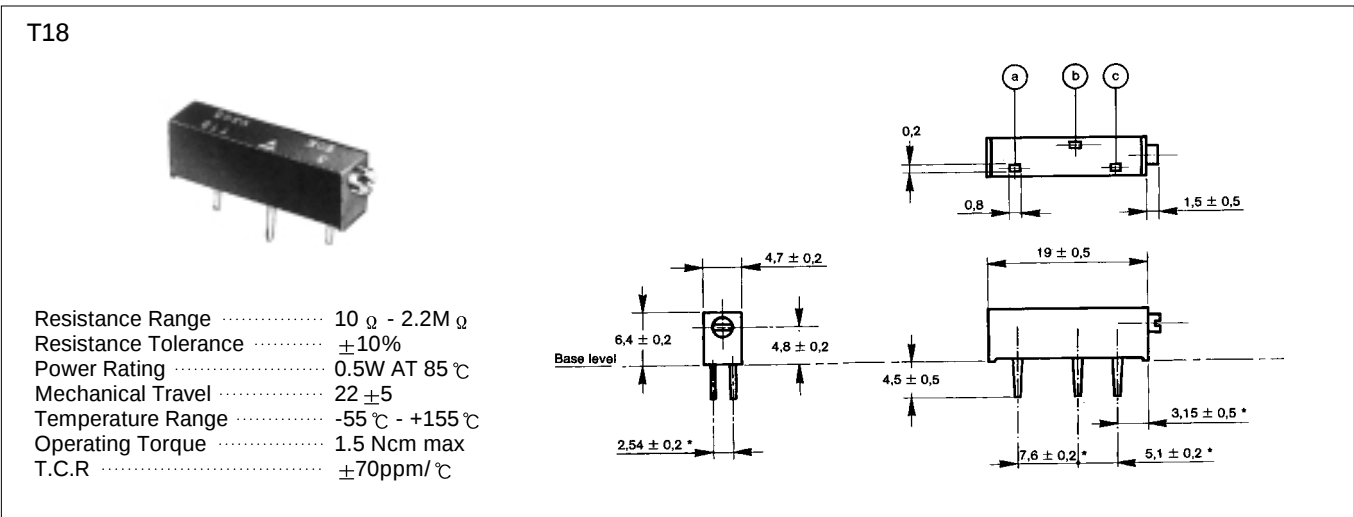
SAKAE TSUSHIN KOGYO CO., LTD.



Specification

Part No.	Number of Turns-Counting	Matching Shaft Dia.(mm)		Combinable Helcalohm Pot.	Lock Device	Operating Temperature Range	Weight (Approx. g)
		Standard	Special				
MG20-22B	20	6	3. 1/8" 4. 1/4"	10HP 22HP 12HHP 12HP 25HP 20HHP 12HPC 46HP 22HHP 20HP 46HD	Yes	-30℃ to 60℃	5
DC10-27B	10	6 1/4"	3 1/8" 4	22HP 22HHP 22HP 25HP-D 22HHP-N	Yes	-30℃ to 60℃	30
DC10-27BF	10	6 1/4"	3 1/8" 4	22HP 22HP-N 22HHP	Yes	-30℃ to 60℃	30

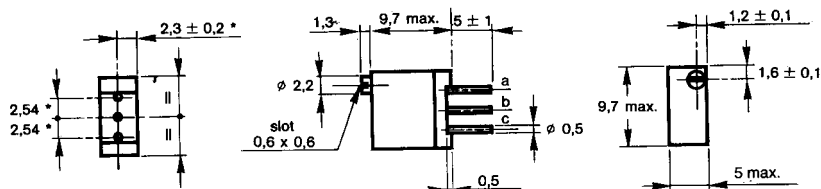
Vishay Sfernice Trimmer Potentiometer





Trimmer Potentiometer (cont.)

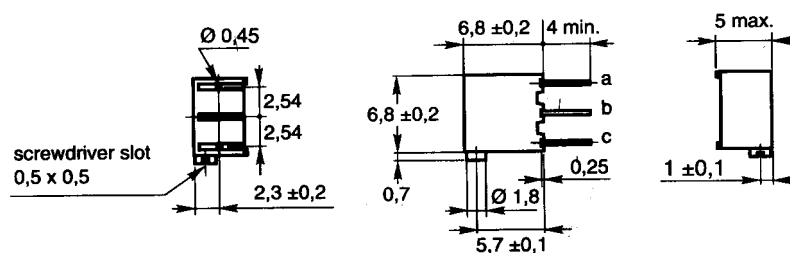
T93YA



Resistance Range 10 Ω - 2.2M Ω
 Resistance Tolerance $\pm 10\%$
 Power Rating 0.5W AT 85 $^{\circ}\text{C}$
 Mechanical Travel 22 ± 5

Temperature Range -55 $^{\circ}\text{C}$ - +155 $^{\circ}\text{C}$
 Operating Torque 1.5 Ncm max
 T.C.R $\pm 70\text{ppm}/^{\circ}\text{C}$

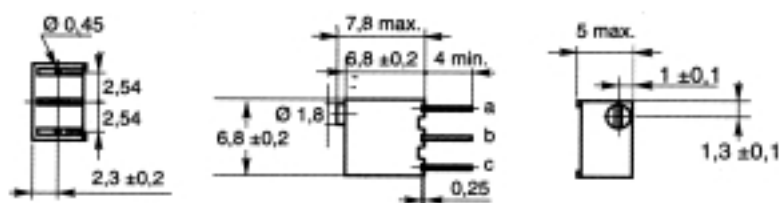
T63XA



Resistance Range 10 Ω - 2M Ω
 Resistance Tolerance $\pm 10\%$
 Power Rating 0.25W AT 85 $^{\circ}\text{C}$
 Mechanical Travel 15 ± 5

Temperature Range -55 $^{\circ}\text{C}$ - +155 $^{\circ}\text{C}$
 Operating Torque 1.5 Ncm max
 T.C.R $\pm 50\text{ppm}/^{\circ}\text{C}$

T63YA



Resistance Range 10 Ω - 2M Ω
 Resistance Tolerance $\pm 10\%$
 Power Rating 0.25W AT 85 $^{\circ}\text{C}$
 Mechanical Travel 15 ± 5

Temperature Range -55 $^{\circ}\text{C}$ - +155 $^{\circ}\text{C}$
 Operating Torque 1.5 Ncm max
 T.C.R $\pm 50\text{ppm}/^{\circ}\text{C}$

GF06 Series(Cermet)

Model GF06P Top Adjustment Type
GF06S Side Adjustment Type

Resistance Range 10 Ω - 1M Ω
Resistance Tolerance $\pm 20\%$
Resistance Taper Linear 'B'
Power Rating 0.3W AT 70 $^{\circ}$ C
Mechanical Travel 300 $^{\circ}$ $\pm 10^{\circ}$
Temperature Range -55 $^{\circ}$ C - +125 $^{\circ}$ C
Operating Torque 350gf.cm Max
T.C.R ± 100 ppm/ $^{\circ}$ C

GF06S Side Adjustment Type

Resistance Range	10 Ω - 1M Ω
Resistance Tolerance	$\pm 20\%$
Resistance Taper	Linear 'B'
Power Rating	0.3W AT 70 $^{\circ}$ C
Mechanical Travel	300 $^{\circ}$ $\pm 10^{\circ}$
Temperature Range	-55 $^{\circ}$ C - +125 $^{\circ}$ C
Operating Torque	350gf.cm Max
T.C.R	+100ppm/ $^{\circ}$ C

The technical drawings show three views of the 90C02 package:

- Top View:** A square package with dimensions 6.8 ± 0.2 mm on both sides. The pin pitch is 3 ± 0.2 mm. The central area contains a circular logo.
- Side View:** Shows the package height as 5.3 ± 0.5 mm. The lead length is 5 ± 1 mm. The maximum lead thickness is 0.5 Max. . The base width is $3 - 0.5 \pm 0.1 \times 10.3$.
- Bottom View:** Shows the underside of the package with dimensions 5 ± 0.3 mm. It includes internal reference numbers 1, 2, and 3. The overall width is 2.5 ± 0.3 mm and the depth is 1.5 mm.

Resistance Range	100 Ω - 1M Ω
Resistance Tolerance	$\pm 25\%$
Resistance Taper	Linear 'B'
Power Rating	0.3W AT 70 $^{\circ}$ C
Mechanical Travel	250 $^{\circ}$ $\pm 10^{\circ}$
Temperature Range	-30 $^{\circ}$ - +100 $^{\circ}$ C
Operating Torque	150gf.cm Max
T.C.R	$\pm 250\text{ppm}/^{\circ}\text{C}$

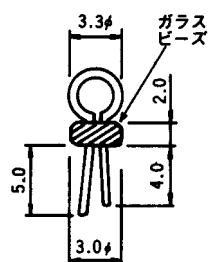
[illegible]

Resistance Range	10 Ω - 1M Ω
Resistance Tolerance	$\pm 20\%$
Power Rating	0.75W AT 70 $^{\circ}\text{C}$
Adjustment turns	1.5 $\pm$ 3
Temperature Range	-55 $^{\circ}\text{C}$ - +125 $^{\circ}\text{C}$
Operating Torque	300gf.cm Max
T.C.R	$\pm 100\text{ppm}/^{\circ}\text{C}$

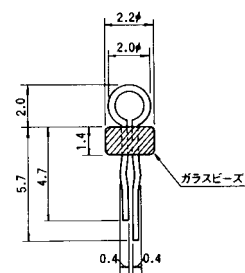
TERMINAL

MAC8 Terminal

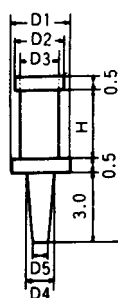
LC-2-G(R.G.Y)



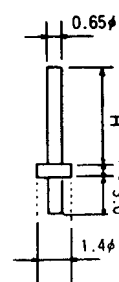
LC-3-G.S



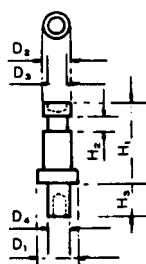
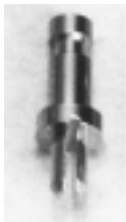
ST-1-1



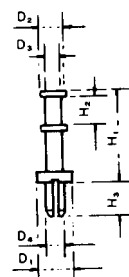
CH-2-1



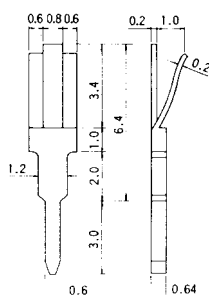
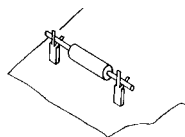
CT-1-1



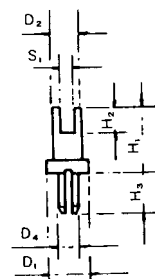
WT-2-1



AK-1-1



AT-1-1



Part No.	D ₁	D ₂	D ₃	D ₄	D ₅	H ₁	H ₂	H ₃
CH - 2 - 1	-	-	-	-	-	7.0	-	-
CT - 1 - 1	3.0	2.0	1.4	1.62	-	6.0	1.0	3.0
ST - 1 - 1	2.0 φ	1.8 φ	1.2 φ	0.8 φ	0.65 φ	3.0	-	-
WT - 1 - 1	3.0	2.2	1.3	1.62	-	8.0	2.5	3.0
AT - 1 - 1	3.0	2.2	-	1.62	-	5.0	2.0	3.0