



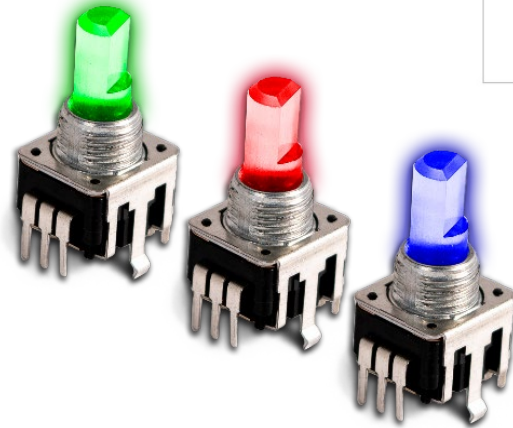
Series 12VR

12mm Panel Potentiometer w/Illuminated Shaft

- Compact 12mm package size
- Single, dual and tri-color LED backlit shaft
- Rotational life (30,000 cycles)
- Switch life (20,000 cycles)
- Variety of standard resistances & tapers

Applications

- Consumer portable electronics
- Commercial appliances
- Instrument amplifiers and guitar effects
- Keyboards and synthesizers
- Communications equipment



Ordering Information

Series	LED Option	Terminal Configuration	Shaft Length	Shaft Trim	LED Color	Detent Option	Resistance Code	Resistance Taper
12VR	3	H	20	B	T	N	103	B1

Code	Spec.
H	Vertical/Rear Mount Thread Bushing, PC Pins
S	Horizontal/Side Mount Thread Bushing, PC Pins

Code	Spec.
B	Knurled (18 teeth)
F	Flatted

Code	Spec.
N	No Detent

Code	Spec.*
A3	15% Log
B1	linear
C3	15% Antilog

Code	Spec.
1	1-Color (no switch)
2	2-Color (w/switch)
3	3-Color (w/switch)

Code	Spec.
15	15 mm
20	20 mm

Code	Spec.
1	Red
2	Blue
3	Orange
4	White
5	Green
A	Blue/Orange
B	Green/Red
C	Blue/Green
D	Green/Orange
E	Blue/Red
T	Red/Green/Blue

Code	Spec.
502	5kΩ
103	10kΩ
203	20kΩ
503	50kΩ
104	100kΩ
254	250kΩ

* Other JIS tapers are available. See charts.



Electrical Specifications

		Min	Typical	Max	Unit
Total Resistance Tolerance	<250kΩ	-20	–	+20	%
	≥250kΩ	-30	–	+30	%
Power Rating		–	+0.05	–	watt
Operating Voltage		–	–	+50	VAC
		–	–	+10	VDC
Residual Resistance	10kΩ to 50kΩ	–	–	30	Ω
	>50kΩ	–	–	1	%
Slider Noise		–	–	+100	mV
Switch Rating	@ 5 VDC	–	+10	–	mA
Switch Contact Resistance		–	–	+100	mΩ
LED Reverse Voltage		–	+5	–	VDC
Insulation Resistance	250 VDC for 1 min.	+100			MΩ
Dielectric Strength	300 VAC for 1 min. no arcing				
Taper	Linear and audio options (see charts)				

Mechanical

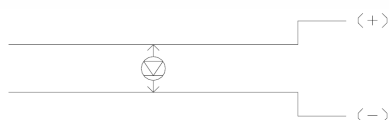
Total Mechanical Travel	300° ± 5°
Operating Torque	
No switch	10 to 120 gf-cm
With switch	10 to 80 gf-cm
Shaft Wobble	0.7 x L/30mm p-p max.; L = Shaft Length
Shaft Push-Pull Strength	8 kgf for 10 sec.
Stop Strength	3 kgf-cm min.
Rotational Life	
No switch	15,000 cycles
With switch	30,000 cycles
Switch Life	20,000 cycles
Switch Type	SPST – Momentary Push
Switch Stroke	0.30 ± 0.15 mm
Shaft Push Force	450 ± 200 gf max.
Panel Nut Tightening Torque	10 kgf-cm
IP Rating	40
Mounting Hardware	One flat washer and one mounting hex nut supplied with each unit
Packaging	Tray
Weight	4 grams

Environmental

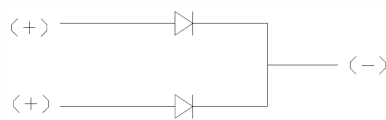
	Min	Typical	Max	Unit
Operating Temperature	-10	–	+70	°C
Storage Temperature	-30	–	+70	°C
Soldering Conditions				
Wave Solder	Preheat: 100°C max for 2 min max; Solder temperature: 260°C ± 5°C for 5 sec max.; No clean foam flux recommended			
Manual Solder	350°C ± 5°C for 3 sec max.; Sn95Ag5 no clean solder			
Wash	Not recommended			
Moisture Sensitivity Level	1			
ESD Classification (HBM)	Not applicable			

*All testing is performed at room ambient conditions except as noted. Users should verify device actual performance in their specific applications
This product is compliant to RoHS3 Directive 2015/863 Amendments of Annex II on 31 March 2015, and REACH SVHC Directive EC 1907/2006 Amendments of Annex XIV & Annex XVII on 15 January 2018.
Custom and value-added options available on request. Please contact your sales representative for additional information.*

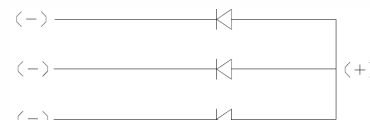
LED Specifications



1 color



2 color

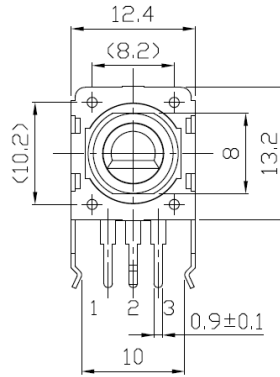
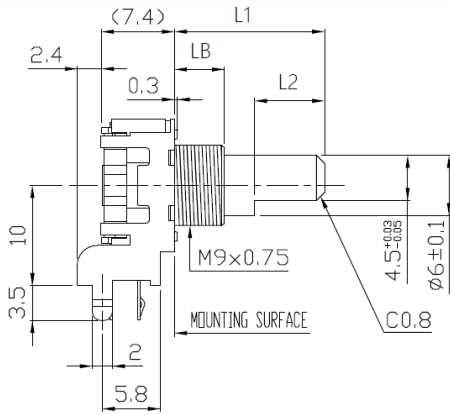


3 color

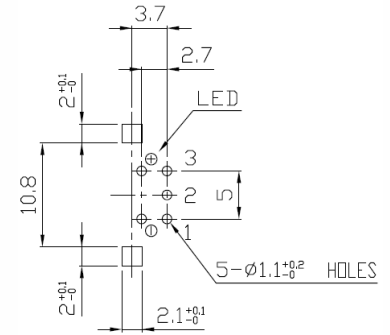
Emitted Color	Power Dissipation (mW)	DC Forward Current (mA)	Test Condition IF = 20 mA			
			Forward Voltage (V)			
			Minimum	Typical	Maximum	
Red	60	30	—	1.8	2.6	
Blue	72	20	—	3.2	3.6	
Orange	100	30	—	2.1	2.6	
White	72	20	—	3.2	3.6	
Green	72	20	—	3.2	3.6	
Blue/Orange	Blue	75	20	2.7	3.3	3.7
	Orange	60	25	1.7	2.0	2.4
Green/Red	Green	95	25	2.7	3.3	3.7
	Red	60	25	1.7	2.0	2.4
Blue/Green	Blue	75	20	2.7	3.3	3.7
	Green	95	25	2.7	3.3	3.7
Green/Orange	Green	95	25	2.7	3.3	3.7
	Orange	60	25	1.7	2.0	2.4
Blue/Red	Blue	75	20	2.7	—	3.7
	Red	60	25	1.7	—	2.4
Red/Green/Blue	Red	60	25	1.7	2.0	2.4
	Green	110	25	2.7	3.3	3.7
	Blue	110	25	2.7	3.3	3.7

Mechanical Specifications

Series 12VR Horizontal/Side Mount with 1-Color LED

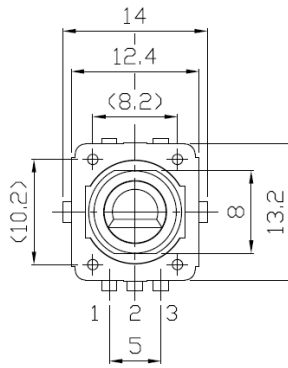
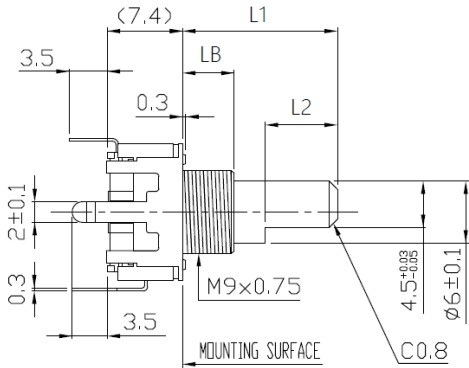


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

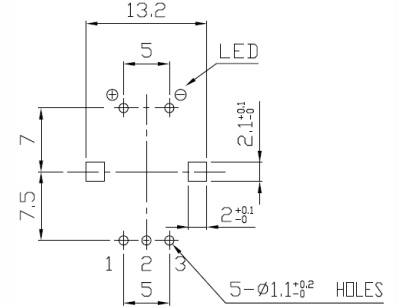


P.C.B. MOUNTING DETAIL
(TOLERANCE±0.1)
*VIEWED FROM MOUNTING SIDE
(P.C.B) t=1.4mm

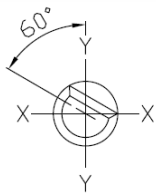
Series 12VR Vertical/Rear Mount with 1-Color LED



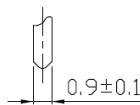
SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION



P.C.B. MOUNTING DETAIL
(TOLERANCE±0.1)
*VIEWED FROM MOUNTING SIDE
(P.C.B) t=1.6mm

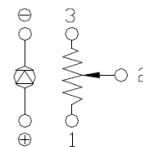


SHAFT SHOWN IN FULL CCW POSITION



TERMINAL DETAIL

CIRCUIT DIAGRAM

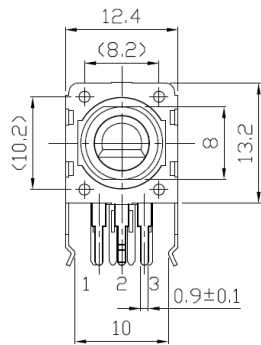
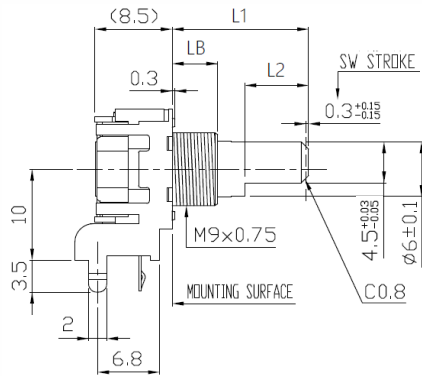


TOLERANCES UNLESS OTHERWISE SPEC	
L ≤ 10	±0.3
10 < L ≤ 100	±0.5
100 < L	±0.8
ANGULAR DIMENSION	±5°

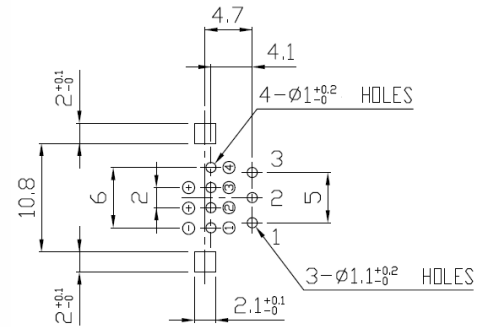
Unit: mm

Mechanical Specifications

Series 12VR Horizontal/Side Mount with 2-Color LED

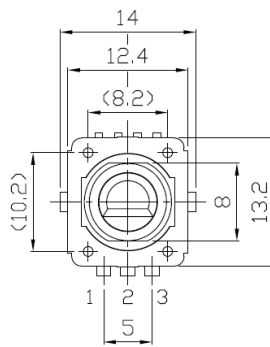
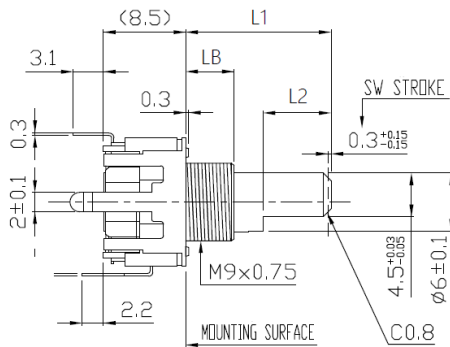


SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION

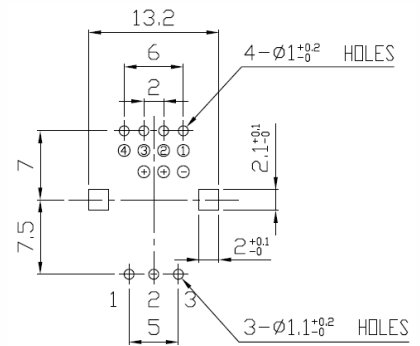


P.C.B. MOUNTING DETAIL
(TOLERANCE±0.1)
*VIEWED FROM MOUNTING SIDE
(P.C.B) t=1.4mm

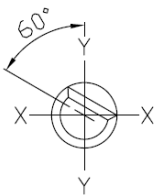
Series 12VR Vertical/Rear Mount with 2-Color LED



SHAFT SHOWN IN CENTER POSITION
OR CENTER CLICK POSITION



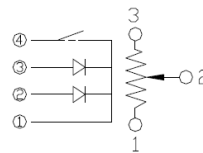
P.C.B. MOUNTING DETAIL
(TOLERANCE±0.1)
*VIEWED FROM MOUNTING SIDE
(P.C.B) t=1.4mm



SHAFT SHOWN IN FULL CCW POSITION



TERMINAL DETAIL



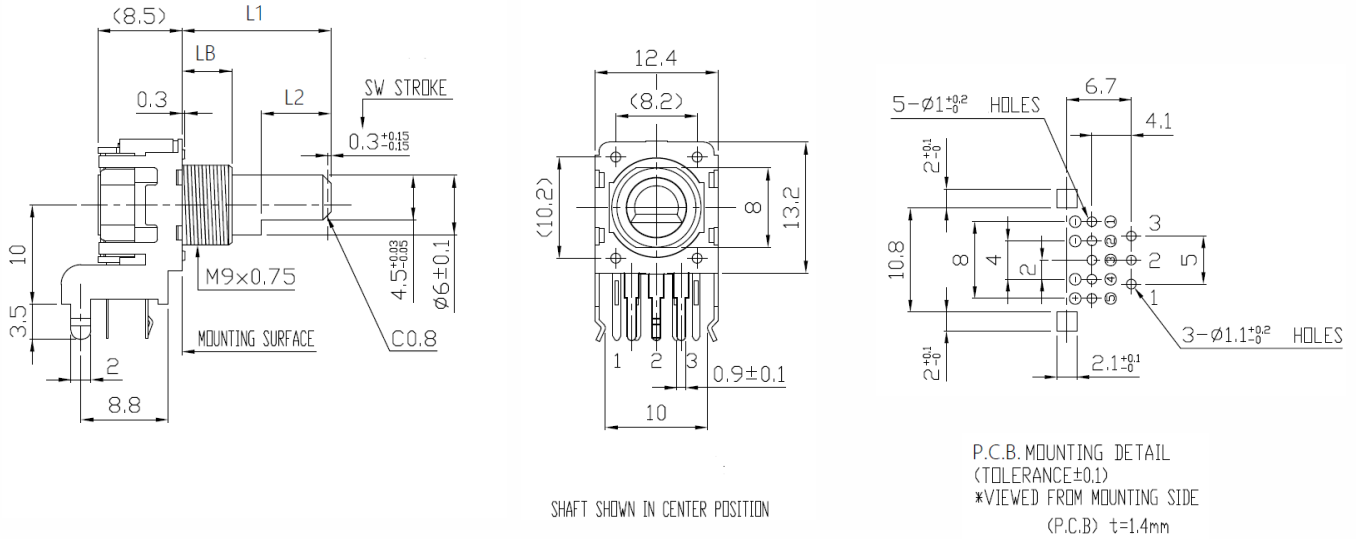
CIRCUIT DIAGRAM

TOLERANCES UNLESS OTHERWISE SPEC.	
L ≤ 10	±0.3
10 < L ≤ 100	±0.5
100 < L	±0.8
ANGULAR DIMENSION	±5°

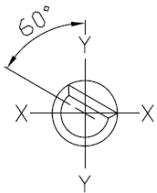
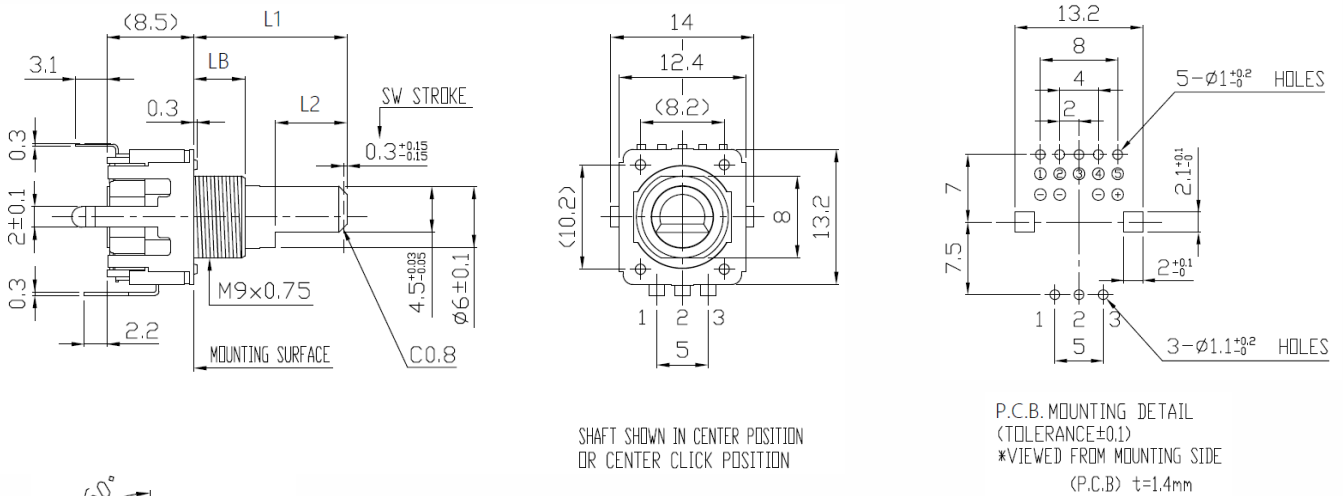
Unit: mm

Mechanical Specifications

Series 12VR Horizontal/Side Mount with 3-Color LED



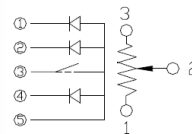
Series 12VR Vertical/Rear Mount with 3-Color LED



SHAFT SHOWN IN FULL CCW POSITION



TERMINAL DETAIL



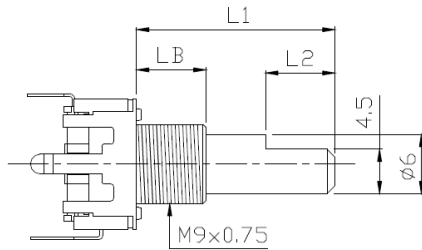
CIRCUIT DIAGRAM

TOLERANCES UNLESS OTHERWISE SPEC	
$L \leq 10$	±0.3
$10 < L \leq 100$	±0.5
$100 < L$	±0.8
ANGULAR DIMENSION	±5°

Unit: mm

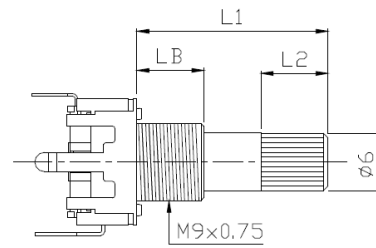
Mechanical Specifications

Series 12VR Shaft Trim Options



Flatted Shaft

LENGTH		
L1	L2	LB
15	7	5
20	7	7



18 Tooth Knurled Shaft

LENGTH		
L1	L2	LB
15	7	5
20	7	7

Electrical Specification

Series 12VR Taper Graphs

