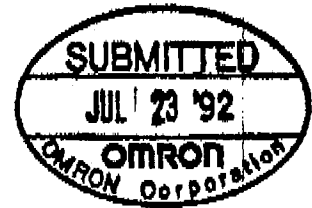


SPECIFICATION
OF
SUB MINIATURE BASIC SWITCH

TYPE NAME: D2F-L20

OUTLINE DRAWING No. 2444161-4

SPECIFICATION No. 1712414-0



WRITTEN : M. Furuta July 23, '92.

CHECKED : _____

APPROVED : H. Fukushima July 23, '92

OMRON Corporation

1. Construction

1-1 Functional type : Snap action

1-2 Configuration : Single pole double throw

1-3 Structure : Standard

1-4 Terminal form : For PC board

2. Operating characteristics

No.	Characteristics	Abb.	Units	Standards	Notes
1	Operating Force	O.F.	N	0.25 MAX.	(25gf) MAX.
2	Release Force	R.F.	N	0.01 MIN.	(1gf) MIN.
3	Pre Travel	P.T.	mm	— MAX.	
4	Movement Differential	M.D.	mm	1.2 MAX.	
5	Over Travel	O.T.	mm	1.1 MIN.	
6	Operating Position	O.P.	mm	8.7 ± 3.2	
7	Free Position	F.P.	mm	14.6 MAX.	
8	Total Travel Position	T.T.P.	mm		

3. Electrical characteristics

3-1 Contact Resistance

30 mΩ MAX. (Initial value)

Measuring method : Voltage drop method under 1 A , 6 V DC
at F.P. or T.T.P.

3-2 Insulation resistance and dielectric strength

No.	Items	Insulation resistance (500 VDC megger)	Dielectric strength (50 to 60 Hz 1 min)
1	Measuring parts		
1	Between each terminals of the same polarity	100 M Ω MIN.	600 V
2	Between each terminals and ground	100 M Ω MIN.	1,500 V
3	Between each terminals and non-live-metal parts	100 M Ω MIN.	1,500 V

3-3 Switching capacity ratings

Items	Rated Voltages(V)	Non-Inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
AC	125	3	3						
	250								
	480								
DC	8								
	14								
	30	2	2						
	125								
	250								

Note: 1. Inductive load has a power factor of 0.7 MIN.(AC) and a time constant of 7 msec MAX.(DC)

2. Lamp load has an Inrush current of 10 times the steady-state current .

3. Motor load has an Inrush current of 6 times the steady-state current .

3-4 Overload current test

It shall be possible to switch following conditions at frequency 8~10 times per minute, 50 operations.

AC 125 V 50(60) Hz 4.5 A Load

3-5 Temperature rise

It shall be below 50 °Crees under following conditions .

(1) Endurance test

Load : 125 VAC , 3 A Inductive , 10,000 operations

(2) Measuring

After test (1) , measured at terminal with current 3 A .

(at F.P or T.T.P.)

4. Mechanical characteristics

4-1 Vibration

(1) Miss contact: Not open 1 msec MAX.

(2) Conditions (at T.T.P.)

Vibration frequency range: 10 to 55 Hz

Double amplitude : 1.5 mm

Time : 2 hours

4-2 Shock

(1) Miss contact: Not open 1 msec. MAX.

(2) Conditions (at T.T.P.)

300 m/sec² MIN. (approx. 30G)

4-3 Strength

(1) Actuator strength

A force 10 times of the specified O.F. 2.45 N / minute to the operating direction vertically.

(2) Terminals strength

Solder terminals: To tensile direction — N — MIN.

Tab terminals: To drawing direction — N — MIN.

Screw terminals: Endurable break-off torque — N·m — MIN.

5. Environment in available

5-1 Temperature range

- 25 °C ~ + 65 °C

(Relative Humidity: under — % RH)

5-2 Humidity range

85 % RH MAX. (5°C~35°C)

6. Operation service life

6-1 Allowable operating frequency

Mechanical: 100 times /min. MAX.

Electrical: 30 times /min. MAX.

6-2 Allowable operating speed

5 ~ 500 mm /sec.

6-3 Service life

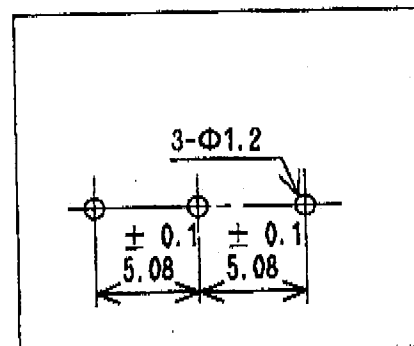
Item	The number of operations	Displacement of actuator
Electrical	30,000 MIN.	at rated OT value
Mechanical	300,000 MIN.	at rated OT value

SPECIAL NOTES

1. Switch mounting

1-1 Mounting of the panel

- Process based on right figure which shows processing of the mounting holes.
- Securely fix the switch using screws of specified size (M 2 x 2 screws) with the spring washers.
- Tighten the mounting screws of the switch at the specified torque 0.09 ~ 0.1 N · m (0.8 ~ 1 kgf · cm)



1-2 Notes on the switch operating and setting

- In the free position of a switch actuator, whereon external force is exerted upon the actuator.
- Sufficiently take a stroke of the actuator in operation.
(Nearly 90% specified DT)
- When the moment inertia of the operating body apply to the actuator, it may damage the switch. Consult OMRON beforehand.
- The operating body works to the way of the actuator movement.

1-3 Insulating and wiring on the switch

- Make sure that the switch is provided with an appropriate creepage and air-gap distance when mounting the switch on a metallic panel.
- Special separator is recommended to be provided on the switch mounting.

1-4 Soldering with wires

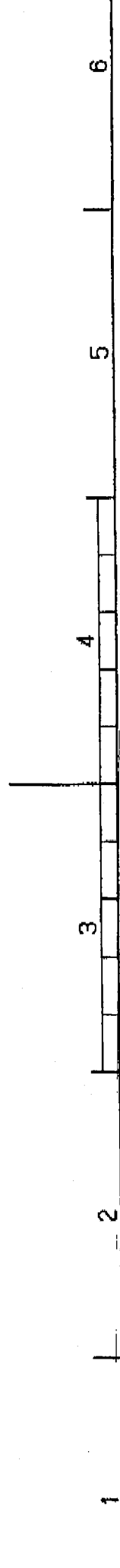
- Use the soldering iron rated at 30 to 60 W.
- Process time in soldering should be 3 seconds MAX.
- Be careful not to apply the external force within 1 min. after soldering.
- The solder is suitable to use a kind of containing rosin type flux, approx. Sn of 60% and Zn of 40%.
- Presoldering onto lead wires is recommended.

2. Conservation of products

Avoid to keep in the atmosphere, where happens organic gases and dusts, with high temperature and humidity.
Re check for long term conserved switch in 3 to 6 months after production may recommended.

3. The term of validity

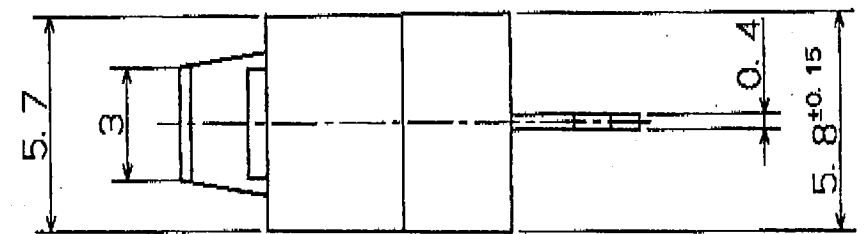
This specification will be invalid if we receive no approval or no order placement of yours within one year since this is submitted.



1. CHARACTERISTICS

TYPE	
OPERATING FORCE	0.25N(25gf)MAX
RELEASE FORCE	0.01N(1gf)MIN
PRE TRAVEL	—
OVER TRAVEL	1.1 mm MIN
MOVEMENT DIFFERENTIAL	1.2 mm MAX
OPERATING POSITION	8.7±3.2 mm
FREE POSITION	14.6 mm MAX

2. ELECTRICAL RATING
 3A 125V AC
 2A 30V DC



SCALE	5:1	T Y P E	D 2 F - L 2 0
3RD ANGLE		S U B	M I N I A T U R E B A S I C S W I T C H
SHEET		O U T L I N E	D R A W I N G
		D R W G N O.	2 4 4 4 1 6 1 - 4 A
		D E S I G N E D F O R	

MATERIAL					
FINISH					
TOLERANCES UNLESS SPECIFIED	DESIGNED	CHECKED	APPROVED		
	JUL 23 '92		<i>Jul 23 92</i>		
±0.4mm	M. FURUTA		<i>M. Furuta</i>		
SIGN	E/C NO.				
DATE	E/C CONTENTS				
SYM					

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