

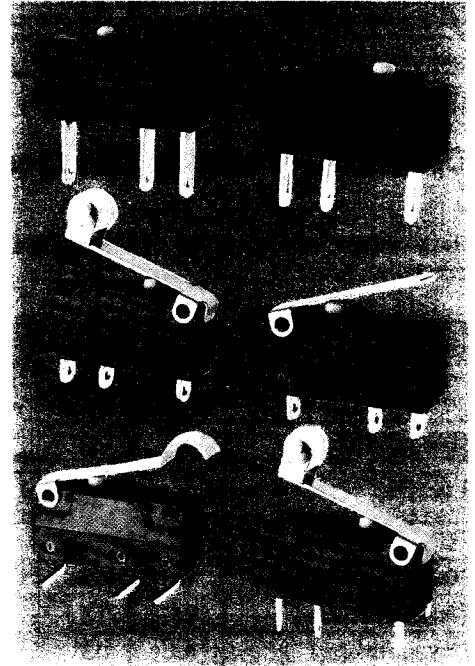
Burgess

V4N Series

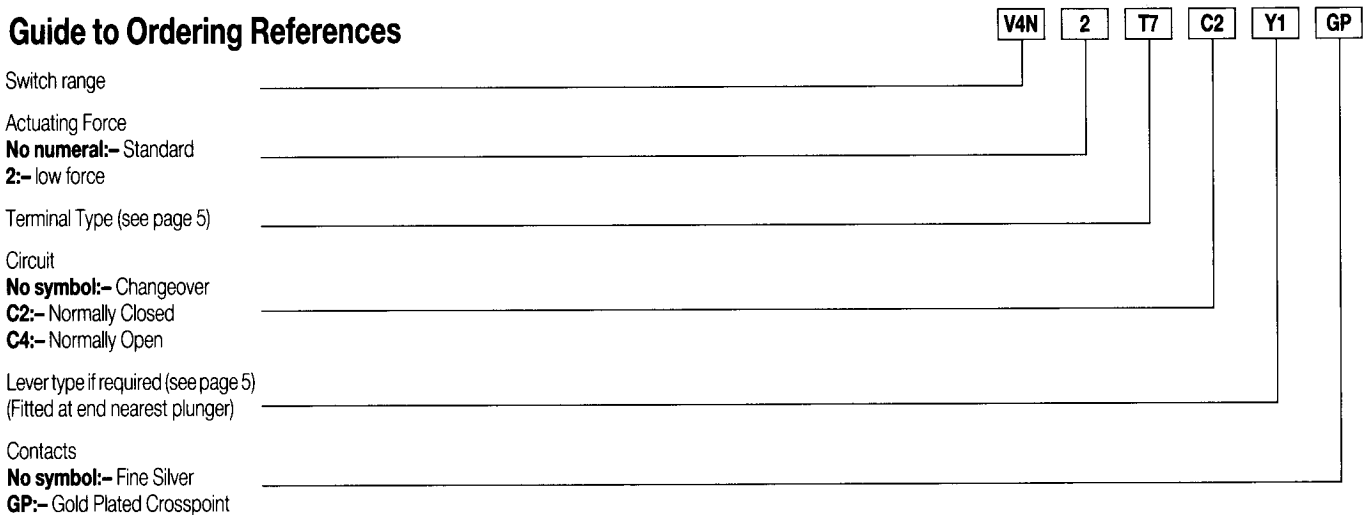
An exciting new range of sub-miniature switches embracing a host of innovative design features:-

- Seven terminal options – all sealed
- Mounting holes or moulded pegs
- Standard and low force models
- Wide range of clip on levers
- Snap on terminal covers
- Silver contacts for power switching; gold crosspoint for logic circuits
- Long overtravel versions

The ultimate in versatility.



Guide to Ordering References



NB: Long overtravel versions are available consult Burgess.

**Data Sheet
217**

Issued April 1989

Operating Characteristics (Standard Force)

Measured from mounting holes.

Range – V4NT6, V4NT7, V4NT81, V4NT82 and V4NT9.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	9.2	0.36	13.2	0.52	15.7	0.62	17.9	0.70	17.8	0.70	16.1	0.63
Operating position	8.4 ±0.4	0.33	10.7 ±1.3	0.42	11.5 ±2.0	0.45	12.4 ±2.6	0.49	15.7 ±1.3	0.62	13.4 ±1.5	0.53
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	1.4	5	0.5	1.8	0.35	1.26	0.3	1.1	0.5	1.8	0.5	1.8
Release Force (min)	0.28	1	0.07	0.25	0.06	0.2	0.04	0.14	0.07	0.25	0.07	0.25

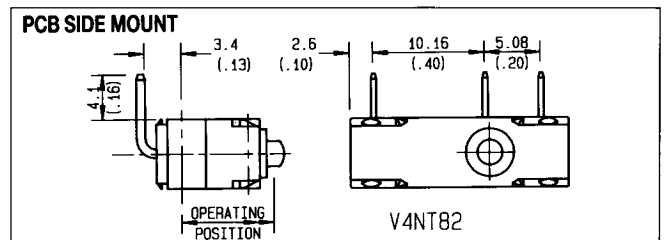
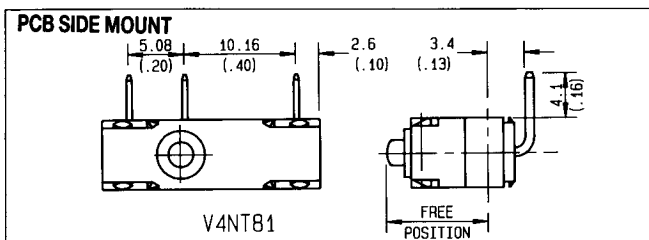
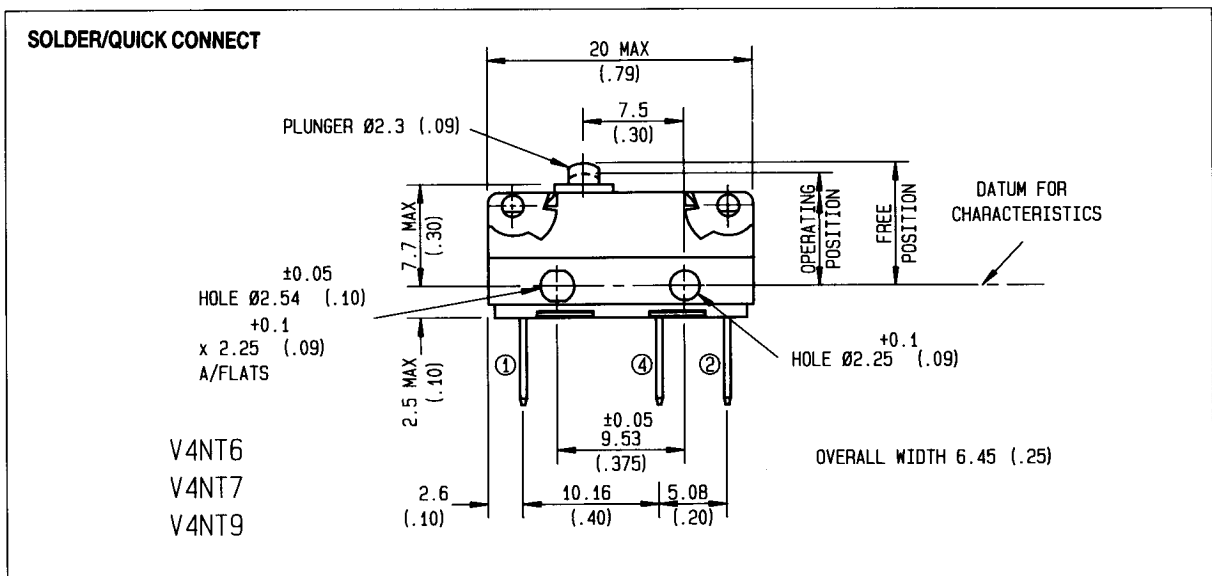
Operating Characteristics (Low Force)

Measured from mounting holes.

Range – V4N2T6, V4N2T7, V4N2T81, V4N2T82 and V4N2T9.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	9.2	0.36	13.2	0.52	15.7	0.62	17.9	0.70	17.8	0.70	16.1	0.63
Operating position	8.4 ±0.4	0.33	10.7 ±1.3	0.42	11.7 ±2.0	0.46	12.8 ±2.6	0.50	15.7 ±1.3	0.62	13.4 ±1.5	0.53
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	0.5	1.8	0.2	0.7	0.15	0.54	0.1	0.36	0.2	0.7	0.2	0.7
Release Force (min)	0.1	0.35	0.02	0.07	0.01	0.03	0.01	0.03	0.02	0.07	0.02	0.07



Operating Characteristics (Standard Force)

Measured from stand offs on base of switch.

Range – **V4NT8**.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	12.6	0.50	16.6	0.65	19.1	0.75	21.3	0.84	21.2	0.83	19.5	0.77
Operating position	11.8 ±0.4	0.46	14.1 ±1.3	0.56	14.9 ±2.0	0.59	15.8 ±2.6	0.62	19.1 ±1.3	0.75	16.8 ±1.5	0.66
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	1.4	5	0.5	1.8	0.35	1.26	0.3	1.1	0.5	1.8	0.5	1.8
Release Force (min)	0.28	1	0.07	0.25	0.06	0.2	0.04	0.14	0.07	0.25	0.07	0.25

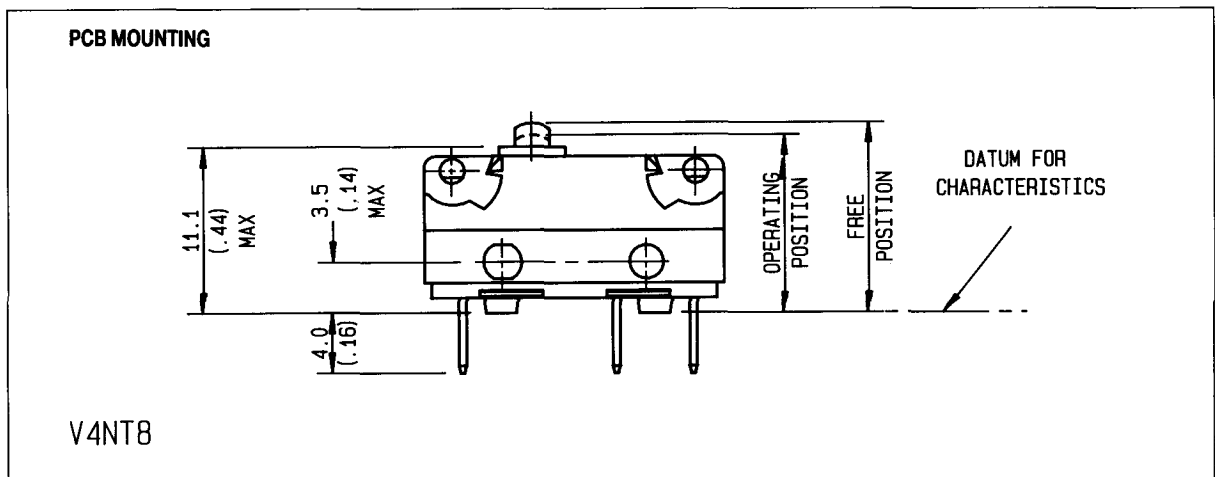
Operating Characteristics (Low Force)

Measured from terminal.

Range – **V4N2T83**.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	13.6	0.54	17.6	0.69	20.1	0.79	22.3	0.88	22.2	0.87	20.5	0.81
Operating position	12.6 ±0.4	0.50	14.9 ±1.3	0.59	15.7 ±2.0	0.62	16.6 ±2.6	0.65	19.9 ±1.3	0.78	17.6 ±1.5	0.69
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	0.5	1.8	0.2	0.7	0.15	0.54	0.1	0.36	0.2	0.7	0.2	0.7
Release Force (min)	0.1	0.35	0.02	0.08	0.01	0.03	0.01	0.03	0.02	0.08	0.02	0.08



Operating Characteristics (Standard Force)

Measured from terminal.

Range – V4NT83.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	13.6	0.54	17.6	0.69	20.1	0.79	22.3	0.88	22.2	0.87	20.5	0.81
Operating position	12.6 ±0.4	0.50	14.9 ±1.3	0.59	15.7 ±2.0	0.62	16.6 ±2.6	0.65	19.9 ±1.3	0.78	17.6 ±1.5	0.69
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	1.4	5	0.5	1.8	0.35	1.26	0.3	1.1	0.5	1.8	0.5	1.8
Release Force (min)	0.28	1	0.07	0.25	0.06	0.2	0.04	0.14	0.07	0.25	0.07	0.25

Operating Characteristics (Low Force)

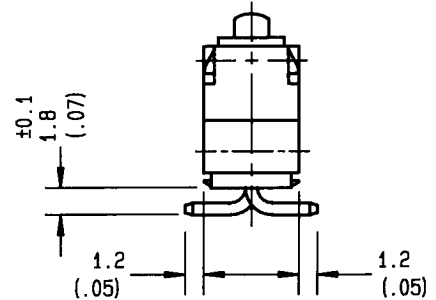
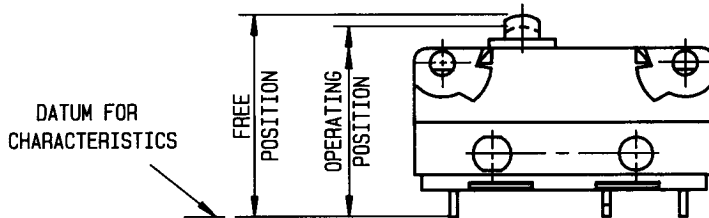
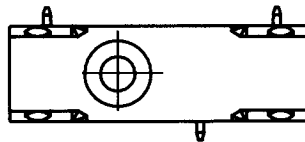
Measured from stand offs on base of switch.

Range – V4N2T8.

Including lever types.

	Plunger		Plain Lever Y1		Plain Lever Y2		Plain Lever Y3		Roller Lever		Cam Lever	
	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf	Metric mm & N	Imperial in & ozf
Free position (max)	12.6	0.50	16.6	0.65	19.1	0.75	21.3	0.84	21.2	0.83	19.5	0.77
Operating position	11.8 ±0.4	0.46	14.1 ±1.3	0.56	15.1 ±2.0	0.60	16.2 ±2.6	0.64	19.1 ±1.3	0.75	16.8 ±1.5	0.66
Movement Differential (max)	0.1	0.004	0.4	0.015	0.6	0.02	0.8	0.03	0.4	0.015	0.4	0.015
Overtravel (available)	Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case		Depress to Case	
Actuating Force (max)	0.5	1.8	0.2	0.7	0.15	0.54	0.1	0.36	0.2	0.7	0.2	0.7
Release Force (min)	0.1	0.35	0.02	0.08	0.01	0.03	0.01	0.03	0.02	0.08	0.02	0.08

SURFACE MOUNT



V4NT83

3rd ANGLE PROJECTION

Levers

Both Standard and Low Force models are offered with plain plunger, plain stainless steel lever, stainless steel lever with nylon roller or stainless steel lever with cam follower.

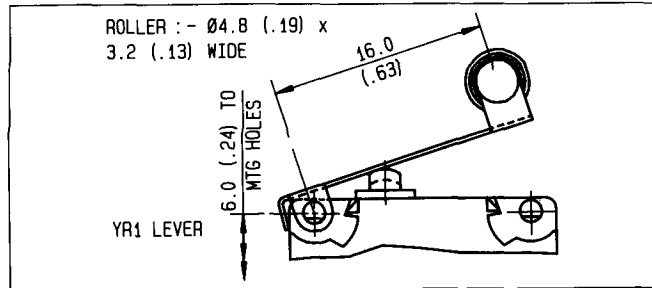
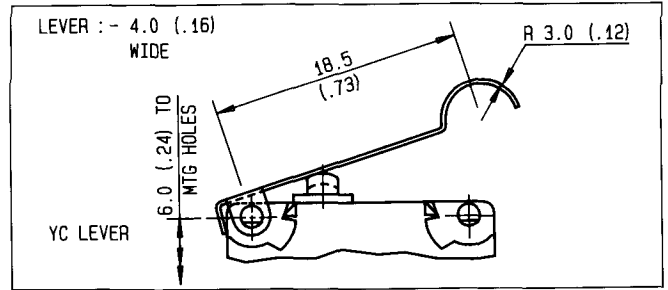
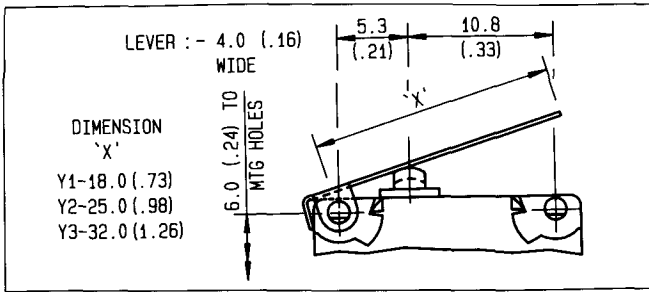
Lever actuated models include the following extensions to their ordering reference.

Y1, Y2, Y3 = Plain levers

YR1 = Roller lever

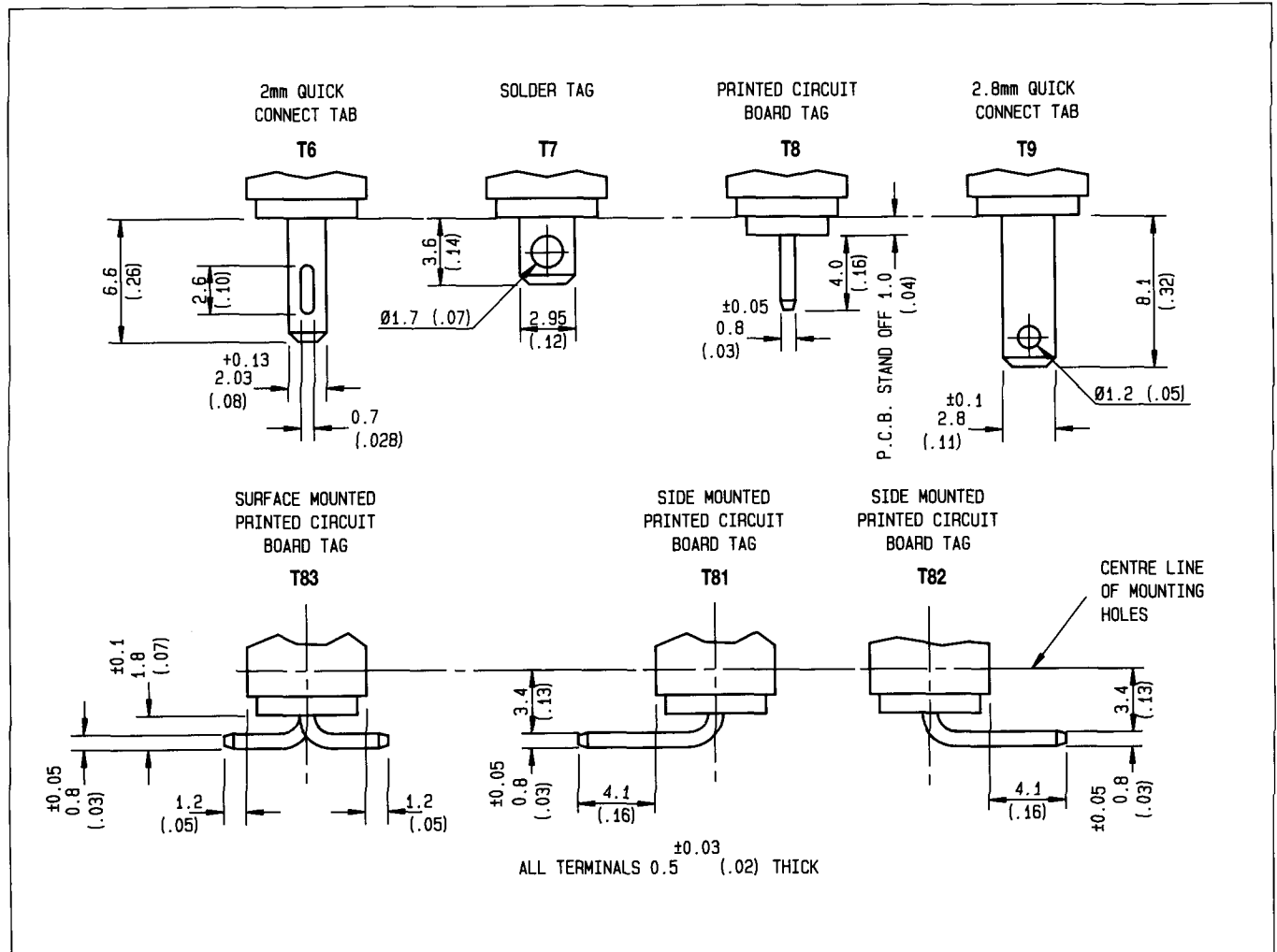
YC = Cam lever

Levers are normally fitted to the plunger end of the switch as shown. If required, they can also be assembled at the opposite end. Please consult Burgess.



Terminals

A choice of terminals is offered as indicated by the symbols **T6, T7, T8, T81, T82, T83** and **T9**.



'Clip On' Terminal Covers

A range of terminal covers suitable for use with **T7** and **T8** terminals are available for protecting switch terminations after wiring.

Single-pole units with cable cut-out suitable for three cables of maximum diameter 1.70mm.

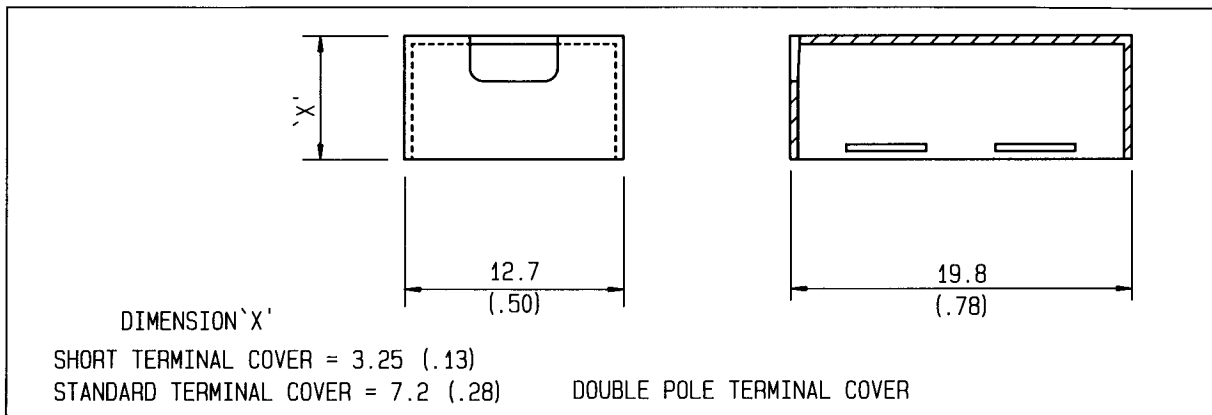
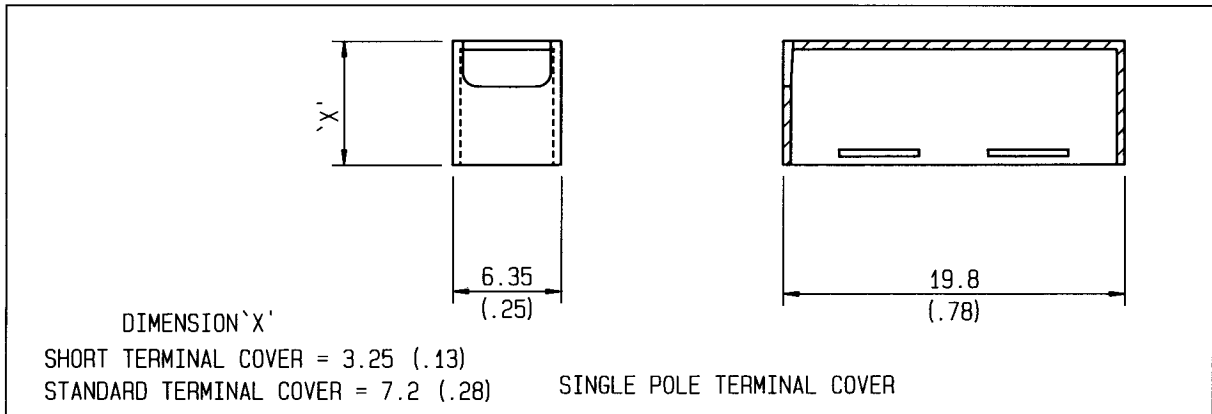
Standard length terminal covers **TC110**.

Short length terminal covers **TC112**.

Note:— When using short length terminal covers the switch terminals will have to be bent sideways prior to fitting.

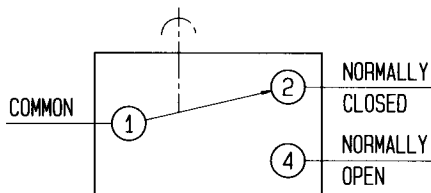
Double pole terminal covers are also available for clipping onto two V4N switches. These are particularly useful where cross connection between switches is required.

For further information on the full range of terminal covers, please consult Burgess.



Recommended Maximum Electrical Ratings (Fine silver contacts only)

Diagram of connections



V4N Standard force switches

Current in amperes

Voltage	Resistive load	Tungsten lamps	Inductive load
AC			
125	5	0.5	5
250	5	0.5	5
DC			
Up to 30	5	2	3
50	1	0.4	1
75	0.75	0.3	0.25
125	0.5	0.2	0.03
250	0.25	0.1	0.03

V4N2 Low force switches

Current in amperes

Voltage	Resistive load	Inductive load
AC		
125	2	1
250	2	1
DC		
Up to 30	2	2
50	0.5	0.5
75	0.25	0.25
125	0.2	0.03
250	0.15	0.02

For definitions and explanations, refer to Burgess General Information Sheet DS 100.

Auxiliary Actuators

The following auxiliary lever actuators are available for use with any single-pole, plunger actuated V4N or V4N2 type switches or with any two such switches. They are supplied complete with frame, insulating sheet and two 8BA screws, washers and nuts which may be used for the dual purpose of mounting the actuator to the switch(es) and for mounting the assembly to the application. Note that ordering references cover actuators only; switches should be ordered separately.

Low-friction pivoted levers:-

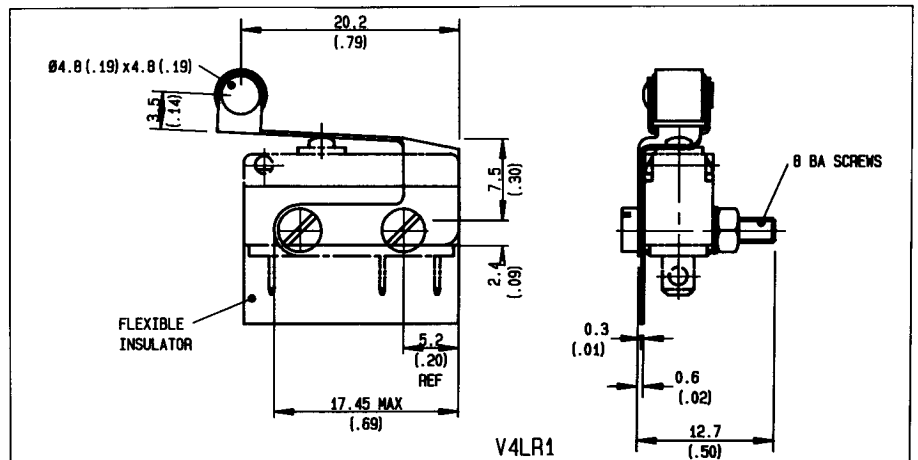
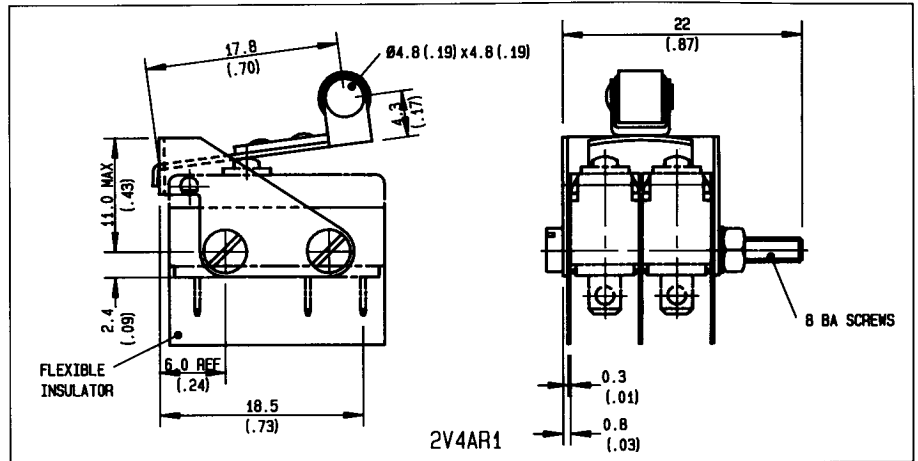
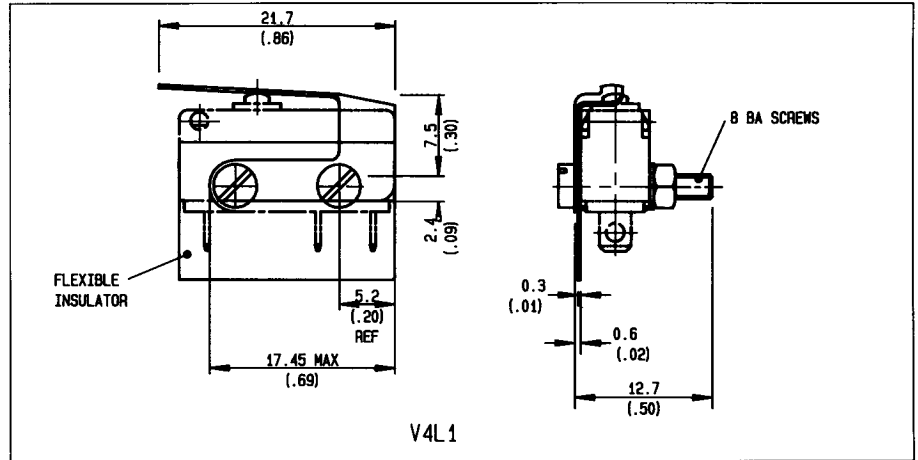
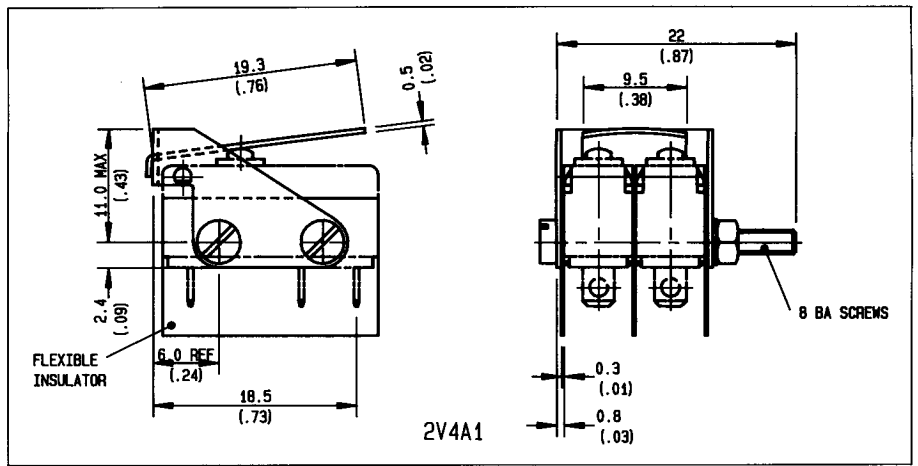
Plain, to actuate two switches **2V4A1**

Roller-lever, to actuate two switches **2V4AR1**

Flexible leaf actuators:-

Plain **V4L1**

with roller **V4LR1**



Installation and Service Recommendations

Mounting

All Standard versions have mounting holes suitable for M2 or #2 unified thread screws. Mounting holes do not give access to switch interior. Versions with moulded mounting pegs of 2.25mm or 3.2mm diameter are also available. Consult Burgess.

Switches should be mounted on a flat surface. The insertion of an insulating sheet (see below) or non-conducting spacers between switch and accessible metal is advocated. For maximum security, mounting screws should be coated with an epoxy resin before fixing.

Insulating sheets

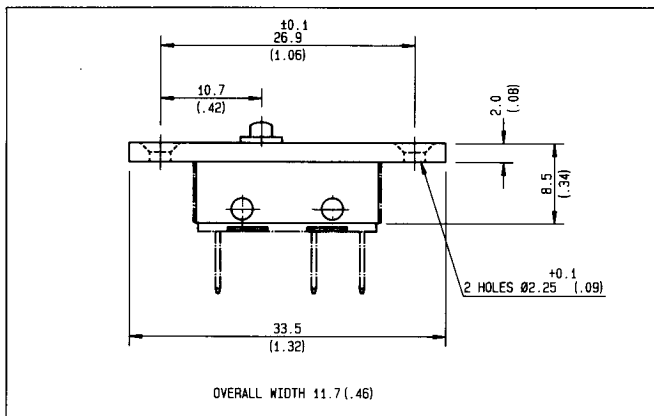
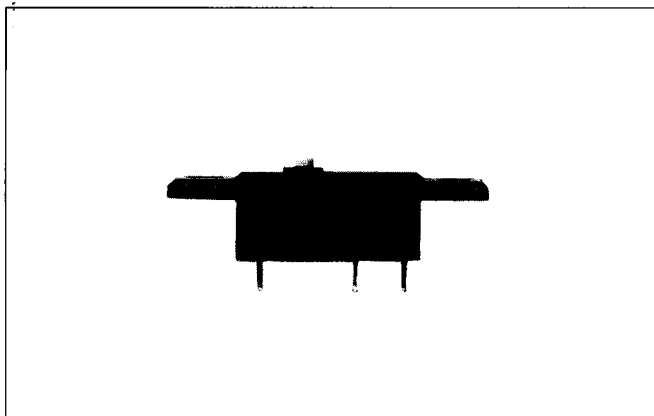
Flexible sheets, shaped and punched to suit all V4N series switches, are available in minimum quantities of 100.

Ordering reference – **NO4619**.

Lug mounting

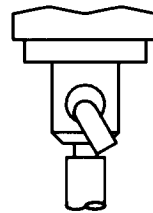
As an alternative to side-mounting, all V4N switches described on preceding pages may be lug mounted, using a moulded frame with two 2.25mm diameter holes. The switch sits securely in the frame without screws or rivets.

Order reference – **MF3**.



Soldering recommendations

All V4N series switch terminals are sealed against flux ingress but care should be taken to avoid overheating of the base moulding. For optimum mechanical strength the conductor should be wrapped round the tip of the terminal as shown taking care to avoid loose strands of wire. The soldering iron bit should be applied to the end of the terminal while simultaneously applying solder. Remove the iron as soon as the solder has wetted the conductor and terminal end.



A soldering iron bit temperature of 370°C applied for a maximum of 2-3 seconds should be adequate.

Service

Mechanical life is in excess of 10 million operations. Keep switches reasonably clean, especially around the actuator. Check periodically for mounting security and for wear on your actuating medium. Follow the recommendations contained in Installation and Service Booklet MS 101 supplied with the switches.

Environment data

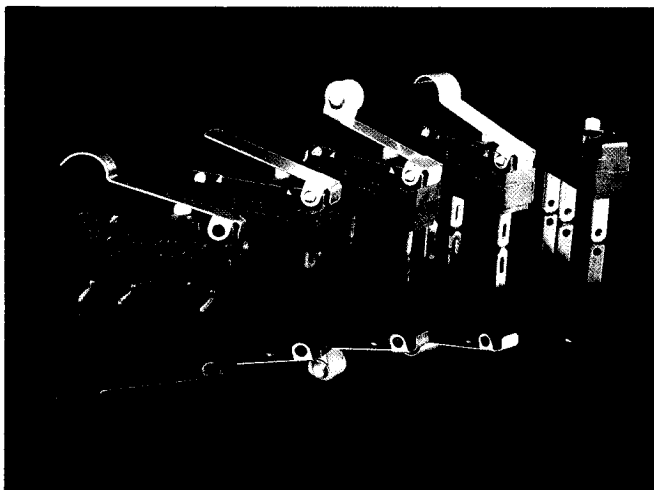
All terminals are gold-flashed for protection during storage, where terminals are exposed they should be protected when the switch is installed if they are accessible to the operator. Use Burgess warning labels supplied with each consignment to emphasise the danger of exposed live terminals. The switch mechanism is protected to IEC Code IP40.

Temperature

All switches may be used continuously between the temperatures -10° and +85°C. Quoted temperatures assume stable operation. They do not imply the ability to withstand excessive cycling within the range. High temperature models can be supplied. Consult Burgess.

Approvals

Please consult Burgess.



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