

# SOLDERING PROCESS RECOMMENDATION GUIDE

AUGAT/ INTCON PRDT GP

49E D ■ 1095335 0001533 628 ■ AUIP ○

The majority of customers utilizing miniature or sub miniature switches in the industry today have a great concern about the switches capabilities during their soldering and cleaning cycles. This concern centers around the introduction of contaminates into the switch contact area which could cause the switch to experience various failure modes either immediately or during the life cycle of the switches usage. These failure modes can show in a number of manners. The following are just a few examples: high contact resistance, open contacts, low dielectric strength breakdown, and high actuation forces causing use related applications to malfunction. Since most fluxes become active with the introduction of the high temperatures used in all soldering techniques, the switch must either prevent these fluxes from entering into its contact area or allow cleaning techniques to carry flux particles out. It must be understood that switch contamination can occur during any procedure: from hand soldering to the new age Surface Mount systems using vapor phase, I.R., or Convection chambers for solder reflow.

We at Augat/Alcoswitch offer a wide range of switches to handle any soldering operations. However, certain soldering conditions will not apply to all switches. The following conditions and charts should help assist you in the soldering of our switches in your application. If you need additional information, feel free to contact the factory.

## SOLDERING TYPES

### A. Wave Soldering:

Top & Bottom board preheats: 200°F(93°C) for approximately 3 to 4 minutes.

Solder Temperature and Dwell Time: 500°F(260°C) for approximately 3 to 5 seconds.

### B. Hand Soldering

1. 500°F-600°F(260°C-316°C)utilizing a controlled 40 Watt iron for 3 to 5 seconds maximum.

2. 500°F(260°C) utilizing a controlled 30 Watt iron for 10 seconds maximum.

### C. Dip Soldering

Solder Temperature & Dwell Time: 500°F(260°C) for 10 seconds maximum.

### D.Surface Mount

#### 1. Convection IR

Zone 1 = 212°F(100°C) for 120 seconds maximum.

Zone 2 = 419°F(215°C) is reached in approximately 160 seconds after zone 1, and held at that temperature for approximately 10 seconds.

#### 2. Radiant IR

Zones 1 & 2 combined = 330°F(166°C) maximum with a total run of 210°C(99°C) seconds.

Zone 3 & 4 combined = 460°F(238°C) is reached in approximately 30 seconds after zones 1 & 2 and held at that temperature for approximately 10 seconds.

#### 3. Vapor Phase

Zone 1 = 140°F (60°C) for 15 seconds.

Zone 2 = 419°F(215°C) for 30 seconds.

## CLEANING TYPES

A. Solvent Wash (1.1.1 Trichlorethylene, T.M.S., T.M.C.)

B. Vapor Degreasing

C. Solvent Immersion

D. Aqueous Cleaning

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

**AUGAT**

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**SOLDERING PROCESS RECOMMENDATION GUIDE**

SWITCH SERIES	SOLDERING TYPE			SURFACE MOUNT PROCESS			CLEANING PROCESSES			
	Wave	Hand	Dip*	Convection I.R.	Radiant I.R.	Vapor Phase	Solvent Wash	Vapor Degrease	Solvent Immerse	Aqueous Clean
<b>ALCO</b> <sup>®</sup>										
AP, AT, AS SERIES	X	X	X				X			X
ALE,ATLE,ATE,APBE	X	X	X				X	X	X	X
ASE & F	X	X	X	X	X	X	X	X	X	X
COMMAND SERIES, PC	X	X								
COMMAND SERIES, LUGS		X								
CST/CSS SERIES	X	X	X				X	X	X	X
DIP ROT.: DR,RR &RA/C	X	X	X				X	X	X	X
DIP ROT.: DRS SERIES	X	X	X				X	X		X
DIPS:AD,AR,AA/C,ATT	X	X	X	X		X	X	X	X	X
DIPS:DP SERIES W/O TAPE		X	X				X			
DIPS:DP SERIES W/TAPE	X	X	X				X	X	X	X
DIPS:DTS WITH TAPE	X	X	X				X	X	X	X
DIPS:DTS,DYS W/O TAPE		X	X				X			
DIPS:S SERIES SIPS	X	X	X	X		X	X	X	X	X
DIPS:DPT WITH TAPE	X	X	X				X	X	X	X
DIPS:DPU WITHOUT TAPE		X	X							
DIPS:DSS101	X	X	X							
FSB1, FSB2		X	X							
FSM SERIES		X								
FT2D,FT1D	X	X	X				X	X	X	X
GEMINI: A SERIES	X	X	X				X			
GEMINI: AE SERIES	X	X	X				X	X	X	X
GREEN SERIES: ALL MT VERSIONS		X	X				X	X		
GREEN SERIES: ALL MT VERSIONS PC	X	X	X				X			
GREEN SERIES: MHV,MRV,MLD		X	X				X	X		
GREEN SERIES: MPA-6,MPG,MPN,MPE		X	X				X	X		
GREEN SERIES: MTE		X	X				X	X		
LVP/LHP SERIES	X	X	X							
MAS SERIES		X	X					X	X	
MHS SERIES	X	X	X				X	X	X	X
MKS SERIES	X	X	X				X	X	X	
MLP SERIES		X	X				X			
MM-9 SERIES		X	X							
MMS SERIES		X	X				X	X		
MPA-3 SERIES		X	X				X	X		
MPA-6 SERIES		X	X				X			
MPB SERIES		X	X				X	X		
MPN SERIES		X	X				X			
MPS SERIES		X	X				X	X		
MRBA SERIES		X	X				X	X		
MRC SERIES		X	X				X	X		
MRJ SERIES	X	X	X				X			
MRJE/MRJB SERIES	X	X	X				X	X	X	X
MRS SERIES	X	X	X				X	X		X

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# MPS SERIES

Snap-Action • Pushbutton • Silver Contacts Standard

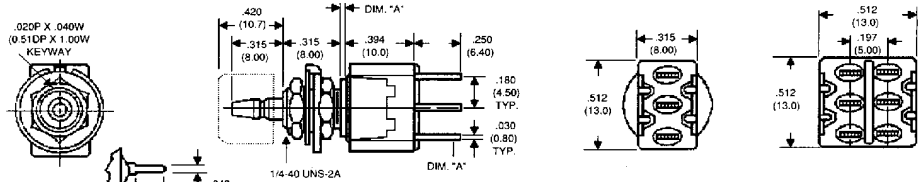
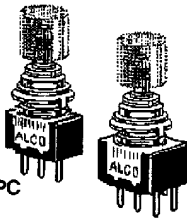
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## SPECIFICATIONS

<b>Contacts:</b> .....	silver	<b>Actuator Material:</b> .....	nylon
<b>Contact Rating:</b> .....	3 A at 115 VAC or 28 VDC	<b>Actuation Force:</b> .....	single pole - 7 to 14 oz. (200 to 400 grams) double pole - 14 to 25 oz. (400 to 700 grams)
<b>Initial Contact Resistance:</b> .....	20 milliohms max.	<b>Plunger/Actuator Travel:</b> .....	momentary .047 (1.2mm) push on/off .098 (2.5 mm)
<b>Contact Timing:</b> .....	non-shorting	<b>Terminal Seal:</b> .....	epoxy
<b>Insulation Resistance:</b> .....	1000 megohms at 500 VDC min.	<b>Process Seal:</b> .....	N/A
<b>Dielectric Strength:</b> .....	1000 volts RMS at sea level	<b>Terminals:</b> .....	silver
<b>Life Expectancy:</b> .....	50,000 actuations	<b>High Torque Bushing Shoulder:</b> .....	N/A
<b>Operating Temperature:</b> .....	-15°C to +70°C (+5°F to +158°F)	<b>Solder Heat Resistance:</b> .....	see page 10
<b>Storage Temperature:</b> .....	-15°C to +70°C (+5°F to +158°F)		
<b>Case Material:</b> .....	thermoset		

### SPDT/DPDT

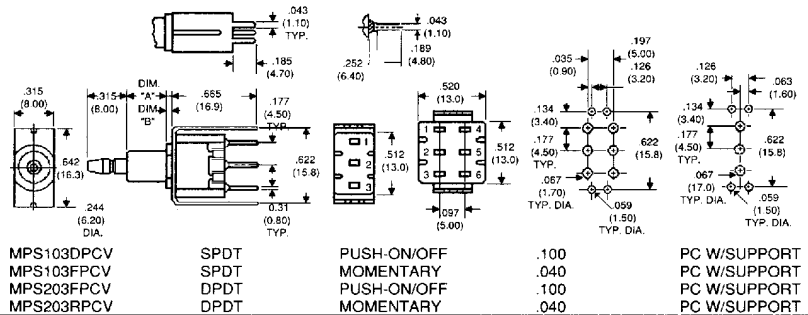
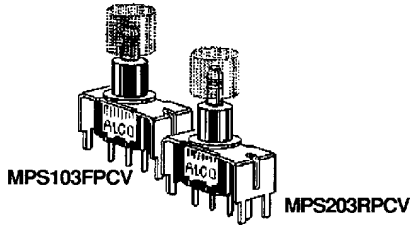
Caps not supplied, order separately.  
(See Cap Model C22 or C23 on page D32)



MODEL	TYPE	ACTION	DIM. "A"	TERMINALS
MPS103DPC	SPDT	PUSH-ON/OFF	.100	PC TERMINALS
MPS103FPC	SPDT	MOMENTARY	.040	PC TERMINALS
MPS203NPC	DPDT	PUSH-ON/OFF	.100	PC TERMINALS
MPS203RPC	DPDT	MOMENTARY	.040	PC TERMINALS

### SPDT/DPDT

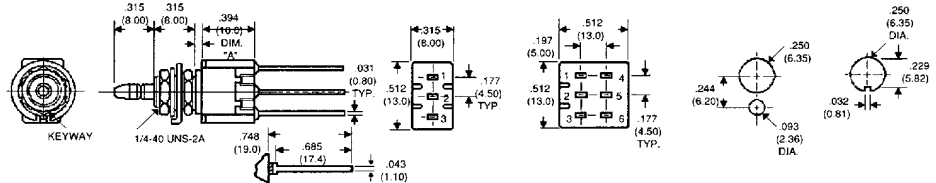
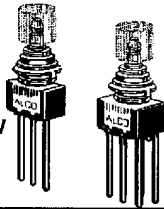
Caps not supplied, order separately.  
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MODEL	TYPE	ACTION	DIM. "A"	TERMINALS
MPS103DPCV	SPDT	PUSH-ON/OFF	.100	PC W/SUPPORT
MPS103FPCV	SPDT	MOMENTARY	.040	PC W/SUPPORT
MPS203FPCV	DPDT	PUSH-ON/OFF	.100	PC W/SUPPORT
MPS203RPCV	DPDT	MOMENTARY	.040	PC W/SUPPORT

### SPDT/DPDT

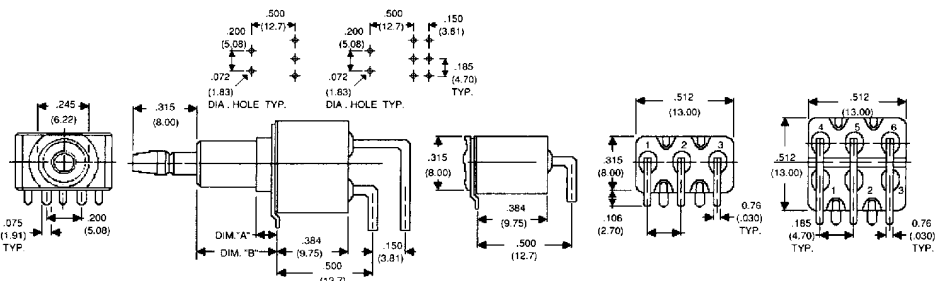
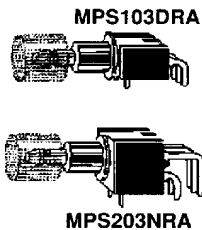
Caps not supplied, order separately.  
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MODEL	TYPE	ACTION	DIM. "A"	TERMINALS
MPS103DWW	SPDT	PUSH-ON/OFF	.100	EXTENDED PC
MPS103FWW	SPDT	MOMENTARY	.040	EXTENDED PC
MPS203NWW	DPDT	PUSH-ON/OFF	.100	EXTENDED PC
MPS203RWW	DPDT	MOMENTARY	.040	EXTENDED PC

### SPDT/DPDT

Caps not supplied, order separately.  
(See Cap Model C22 or C23 on page D32)



MODEL	TYPE	ACTION	DIM. "A"	TERMINALS
MPS103DRA	SPDT	PUSH-ON/OFF	.100	RIGHT ANGLE PC
MPS103FRA	SPDT	MOMENTARY	.040	RIGHT ANGLE PC
MPS203NRA	DPDT	PUSH-ON/OFF	.100	RIGHT ANGLE PC
MPS203RRA	DPDT	MOMENTARY	.040	RIGHT ANGLE PC

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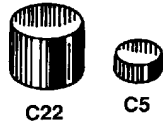
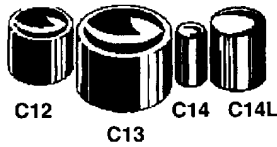
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**ACCESSORIES**

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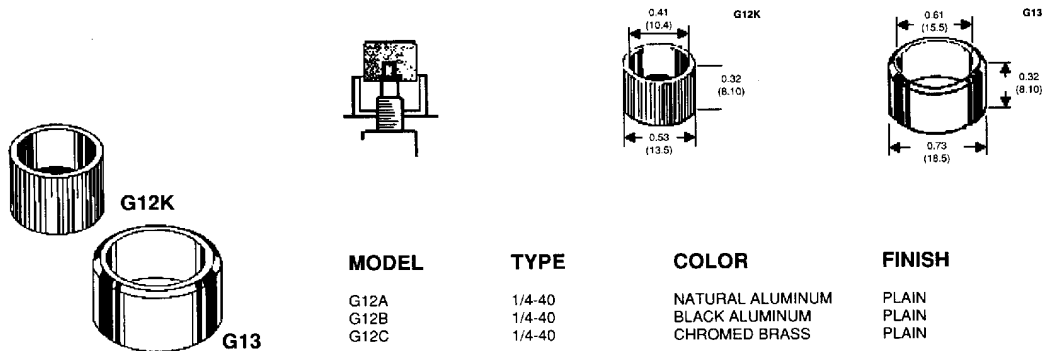
**CAPS**



MODEL	DESCRIPTION	USE GUARD	COLOR
C5(*)	SMALL PLASTIC CAP FOR MPA3 SERIES	-	(0),(2),(5),(9)
C8(*)	LARGE PLASTIC CAP FOR MPG3 SERIES	-	(0),(2),(5),(9)
C9(*)	SPARE COLOR CAP FOR MPG SERIES	-	(0),(2),(4),(6),(9),(12)
C12(*)	SMALL PLASTIC CAP	G12	(0),(2),(5)
C13(*)	LARGE PLASTIC CAP	G13	(0),(2),(5)
C14(*)	SMALL METAL CAP	-	CHROME ONLY
C14L(*)	LARGE METAL CAP	-	CHROME ONLY
C22(*)	.39" DIA. CAP	G12	(0),(2),(3),(4),(5),(6),(9)
C23(*)	.59" DIA. CAP	G13	(0),(2),(3),(4),(5),(6),(9)
C33(*)	SQUARE BUTTON FOR MPSR	-	(0),(2),(6),(9)

(\*) SPECIFY COLOR BY ADDING SUFFIX NUMBER: (0)BLACK,(2)RED,(3)ORANGE,(4)YELLOW,(5)GREEN, (6)BLUE, (9)WHITE,(12)PINK.

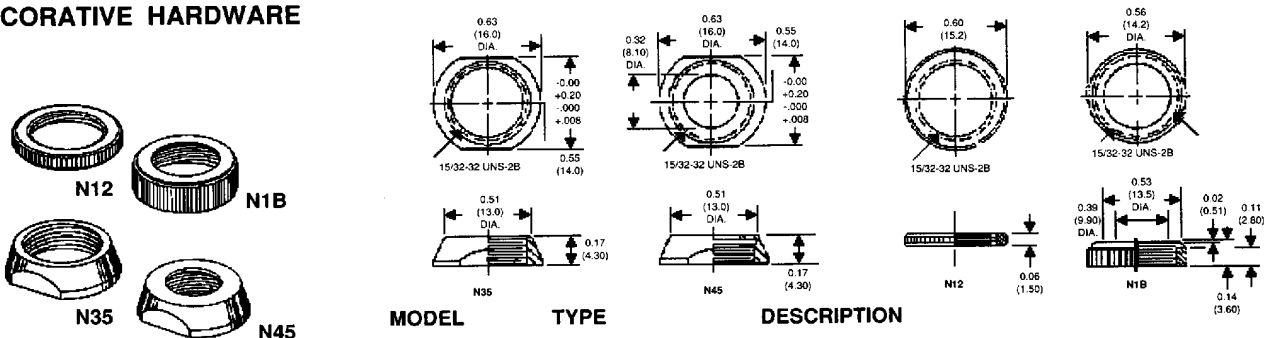
**GUARDS**



MODEL	TYPE	COLOR	FINISH	USE CAP
G12A	1/4-40	NATURAL ALUMINUM	PLAIN	C12 C22
G12B	1/4-40	BLACK ALUMINUM	PLAIN	C12 C22
G12C	1/4-40	CHROMED BRASS	PLAIN	C12 C22
G12KA	1/4-40	NATURAL ALUMINUM	KNURLED	C12 C22
G12KB	1/4-40	BLACK ALUMINUM	KNURLED	C12 C22
G12KC	1/4-40	CHROMED BRASS	KNURLED	C12 C22
G13A	1/4-40	NATURAL ALUMINUM	PLAIN	C13 C23
G13B	1/4-40	BLACK ALUMINUM	PLAIN	C13 C23
G13C	1/4-40	CHROMED BRASS	PLAIN	C13 C23
G13KA	1/4-40	NATURAL ALUMINUM	KNURLED	C13 C23
G13KB	1/4-40	BLACK ALUMINUM	KNURLED	C13 C23
G13KC	1/4-40	CHROMED BRASS	KNURLED	C13 C23

MODEL	TYPE	COLOR	FINISH	USE CAP
G15	15/32"	NATURAL ALUMINUM	PLAIN	

**DECORATIVE HARDWARE**



MODEL	TYPE	DESCRIPTION
N12	15/32"	KNURLED NUT
N1B	15/32"	"PERFECT FIT" KNURLED NUT
N35	15/32"	DECORATIVE NUT (SUPPLIED ON SWITCH)
N45	15/32"	"PERFECT FIT" DECORATIVE NUT

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