Stocked Electro-Mechanical Switches

DC-3 GHz

Commercial Use
RF Mechanical Switches

- High Performance
- Optimized for Cellular and PCS Requirements
- Used in Cell Site Systems, Production ATE and Field Test Equipment
- SP2T, Multithrow and Transfer Models Available from Stock

Specifications

SP2T, SMA (F) and Type N (F), DC to 3 GHz

MODEL	FEATURES	ACTUATING CURRENT (mA @28Vdc & 25°C)	FREQUENCY RANGE (GHz)	INSERTION LOSS (dB max.)	VSWR (max.)	ISOLATION (dB min.)	TEMPERATURE RANGE (C)
MS-SMA-020	SMA (F) / FAILSAFE / 2 MILLION OPERATIONS	160	DC-3	0.2	1.2	80	-10° to +60°
MS-SMA-020-12	SMA (F) / FAILSAFE / 2 MILLION OPERATIONS	275	DC-3	0.2	1.2	80	-10° to +60°
MS-SMA-020L	SMA (F) / LATCHING / 2 MILLION OPERATIONS	200	DC-3	0.2	1.2	80	-10° to +60°
MS-N-023	TYPE N (F) / FAILSAFE / 1 MILLION OPERATIONS	180	DC-3	0.2	1.2	80	-10° to +60°

DP2T (Transfer), SMA (F), DC to 3 GHz

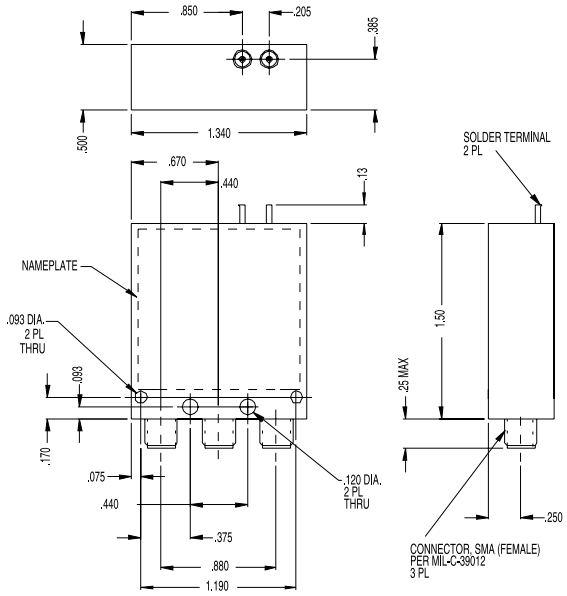
MODEL	FEATURES	ACTUATING CURRENT (mA @28Vdc & 25°C)	FREQUENCY RANGE (GHz)	INSERTION LOSS (dB max.)	VSWR (max.)	ISOLATION (dB min.)	TEMPERATURE RANGE (C)
MS-SMA-223	FAILSAFE / 1 MILLION OPERATIONS	280	DC-3	0.2	1.2	80	-10° to +60°
MS-SMA-223L	LATCHING / 1 MILLION OPERATIONS	375	DC-3	0.2	1.2	80	-10° to +60°

SP3T and SP6T, SMA (F), DC to 3 GHz

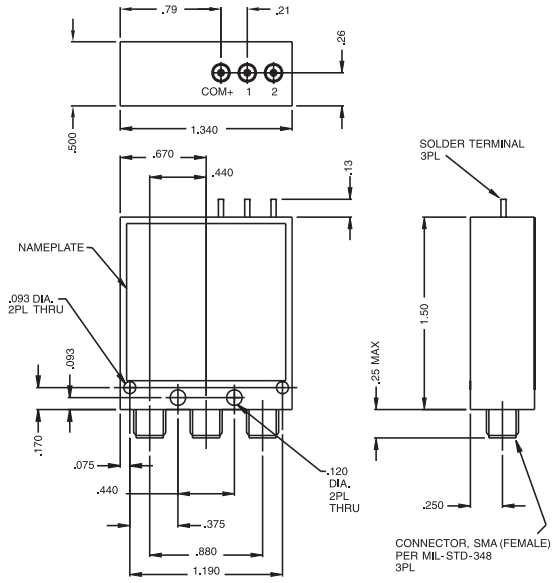
MODEL	FEATURES	ACTUATING CURRENT (mA @28Vdc & 25°C)	FREQUENCY RANGE (GHz)	INSERTION LOSS (dB max.)	VSWR (max.)	ISOLATION (dB min.)	TEMPERATURE RANGE (C)
MS-SMA-033	FAILSAFE / 1 MILLION OPERATIONS	140	DC-3	0.2	1.2	80	-10° to +60°
MS-SMA-063	FAILSAFE / 1 MILLION OPERATIONS	140	DC-3	0.2	1.2	80	-10° to +60°

Outline Drawings

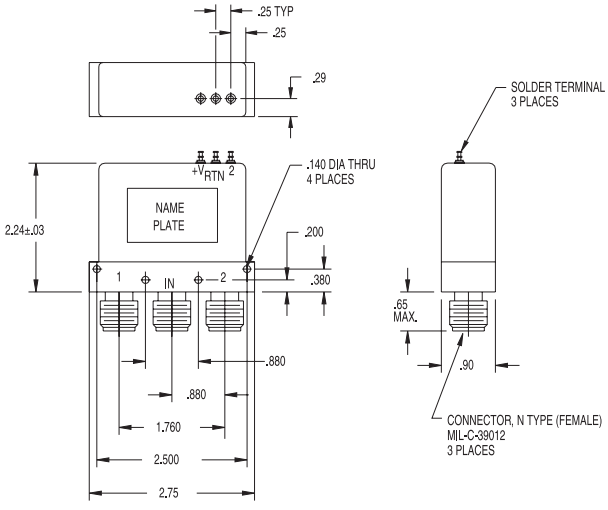
Dimensions in inches, unless otherwise specified.



MS-SMA-020 and MS-SMA-020-12



MS-SMA-020L

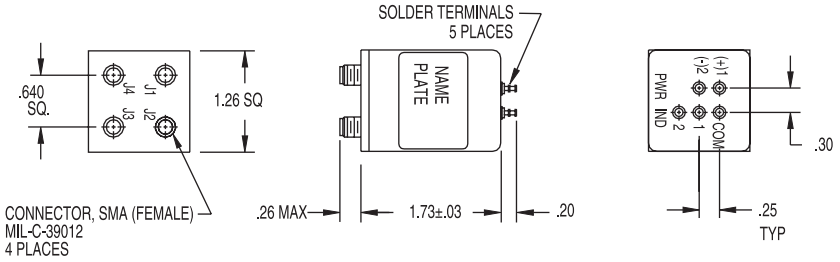


MS-N-023

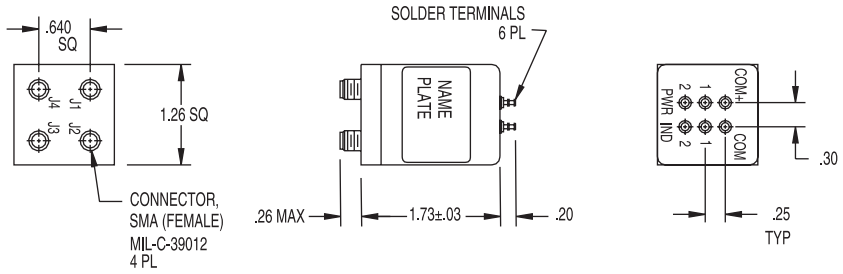
Stocked Electro-Mechanical Switches

Outline Drawings

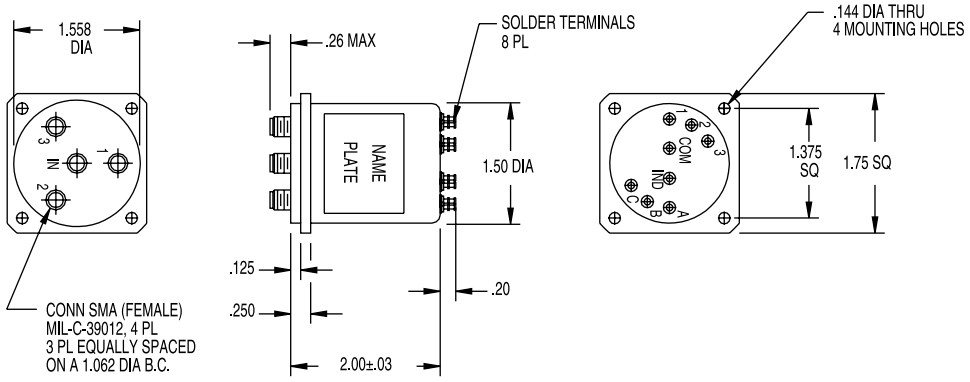
Dimensions in inches, unless otherwise specified.



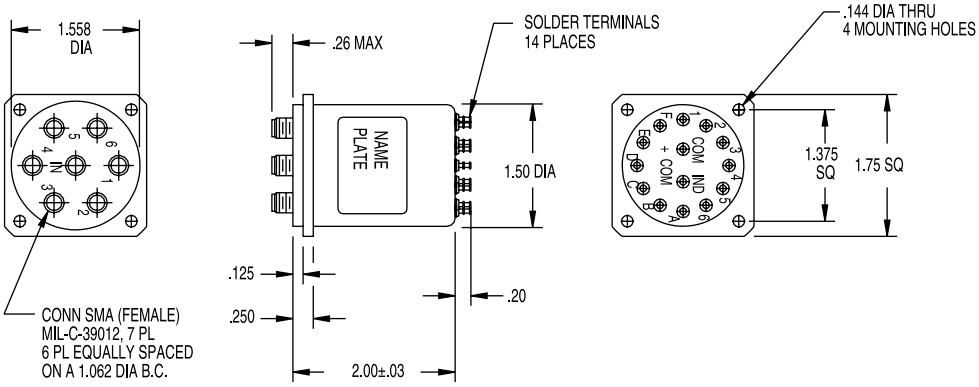
MS-SMA-223



MS-SMA-223L



MS-SMA-033



MS-SMA-063

Stocked Electro-Mechanical Switches

Glossary

All switches are bi-directional. Inputs and Outputs are interchangeable.

SP2T – A single pole, double throw switch has one input port and two selectable output ports.

Multiposition Switch – A multiposition switch has one input port and more than two selectable output ports. Unlike some switches, Narda models can be switched directly to any one of the available output positions without sequencing through intervening positions.

Transfer Switch – A transfer switch has two independent paths that operate simultaneously in one of two selected positions.

Failsafe – The switch moves to the closed position when the actuating voltage is applied and always returns to a predetermined position when the voltage is removed.

Latching – Also called Pulse Latching, the switch remains in a preselected position whenever the actuating voltage is removed or interrupted and holds that preselected position until a voltage is applied to another position. This configuration must be pulse controlled with a pulse width of 20 ms to 100 ms duration. Standard polarity is common positive.

Normally Open – All output ports of the switch are disconnected from the input port until a voltage is applied to a selected position.

Terminated Units – Each unused or open output RF port is internally terminated in a 50-ohm resistive load (1W CW max.).

TTL – Selected position of the switch is controlled by a TTL Logic High. The switch requires only nominal +28 Vdc (additional 5 Vdc is not required).

TTL Logic Voltage Level:
Low 0 to 0.8 Vdc
High 2.5 to 5.0 Vdc
TTL Logic Input Current:
Low 0 mA
High 1.6 mA max. @ 3.85 Vdc

TTL Units – Transistor-Transistor-Logic circuitry enables the status of the switch to be controlled by the level of TTL logic input.

Suppression Diodes – Fast recovery silicon rectifiers (diodes) connected in parallel with the coils of the switch to suppress any transient voltage that may be generated by the coils.

Indicator Circuitry – A set of internally mounted contacts that allows external monitoring of switch RF status. Some switch series include a steering diode drive due to the electronic indicator.

Solder Terminal – A turret terminal is standard on all switches.

Self De-energizing Circuitry – With this option, a set of internally mounted contacts or electronically generated pulses disconnects the driver voltage as soon as RF contact has been made. This option is only available with latching type switches. Suppression diodes must be specified with this option.

Common Specifications

RF Impedance..... 50 ohms nominal

Actuating Voltage..... 28 Vdc ± 2 V

Switching Time..... 15 ms (max.)

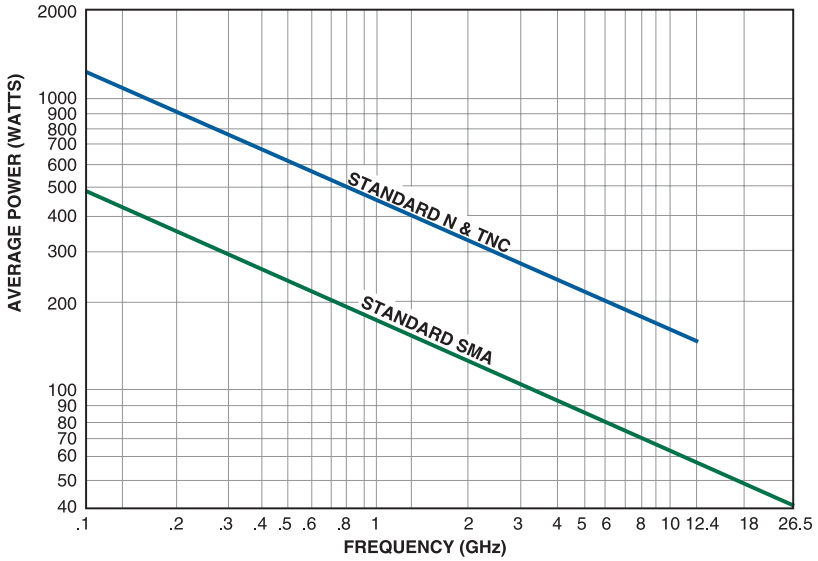
Switching Sequence..... Break Before Make

Operating Ambient Temp..... -35°C to +70°C

Operating Life.....1 million cycles/position

Designed to meet MIL-S-3928

Power Handling Capability



Power Handling Capability of Narda Switches vs. Frequency for Common RF Connectors
(for 25°C ambient temperature, matched 50ohm systems, sea level and cold switching)

For VSWR above 1.1, Derate Power Handling Capability as shown:

VSWR	Derating Factor
1.5	.94
2.0	.88
2.5	.83
3.0	.78
3.5	.73
4.0	.70