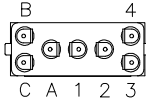


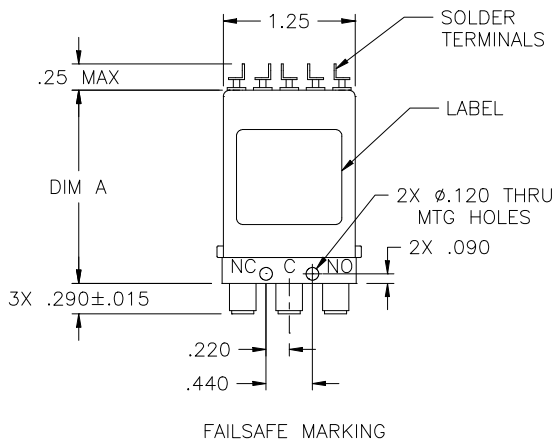
2S/2SE SERIES SPDT SWITCH DC-26.5 GHz ◆ SMA

TOP VIEW

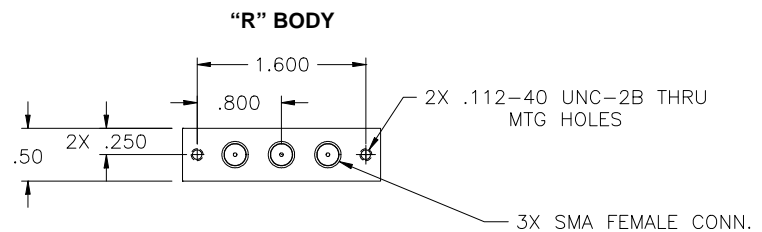
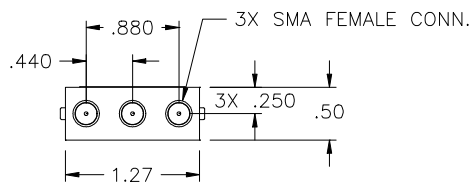


Actual markings will reflect terminal functions, not letter or number designation as shown above.

FRONT VIEW



BOTTOM VIEW



DC TERMINAL FUNCTION

PIN	FAILSAFE			LATCHING		
	A, C	B, D	E, EH, F, FH	G, H	J, JH, K, KH	T, U, V, W
1	N/A	N/A	N/A	N/A	+V SW	N/A
2	N/A	N/A	CRTN	C+/-	CRTN	C+/-
3	AV	AV -	L	AV 1-/+	L 1	PV 1-/+
4	AV	AV +	+ V SW	AV 2-/+	L 2	PV 2-/+

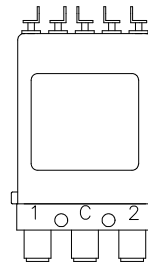
SCHEMATICS

Pages 51-56						
	S1, S2	S3	S4	S5	S6	S8, S9

INDICATORS

PIN	A	B	C
	COM	1 or NC	2 or NO

See Page 65 for Legend of Terms and tolerances
See Page 57 for Truth Table

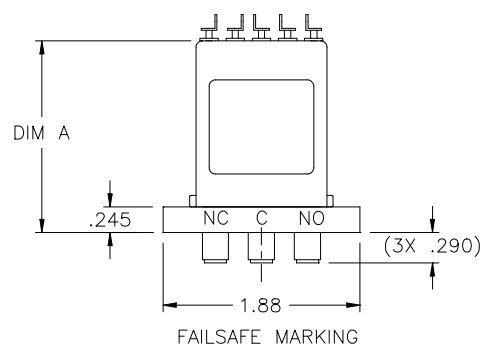


LATCHING MARKING

AVAILABLE OPTIONS*	OUTLINE DRAWING DIMENSION "A"
A, B, C	1.25
D	1.50
E, EH, F, FH	1.83
J, JH, K, KH	1.83
G, H, V, W	1.83
T, U	1.25

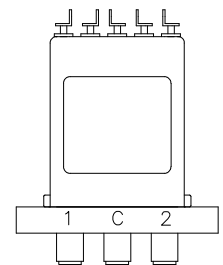
* Consult Factory for Dimension "A" when multi-pin connector is desired.

"R" BODY



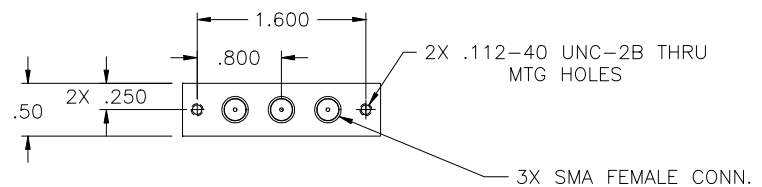
FAILSAFE MARKING

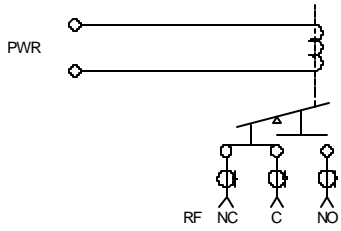
"R" BODY



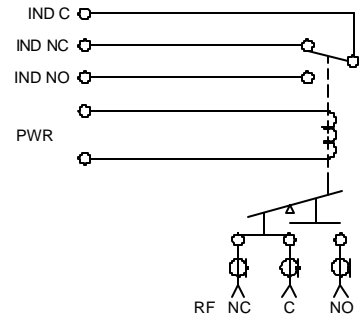
LATCHING MARKING

"R" BODY

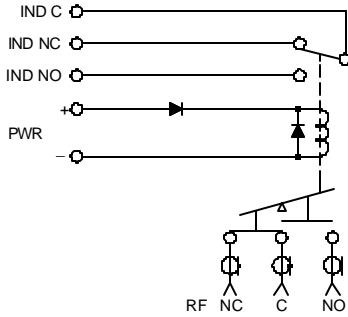




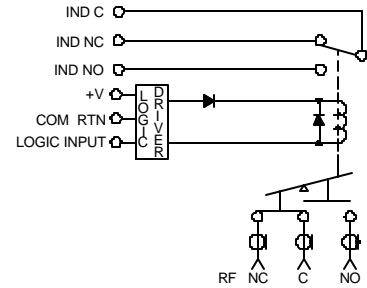
Schematic S1



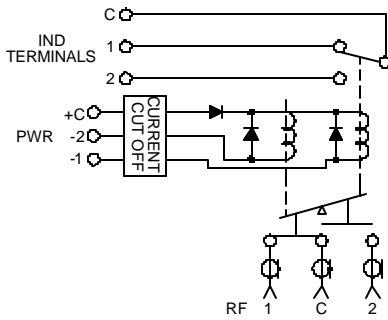
Schematic S2



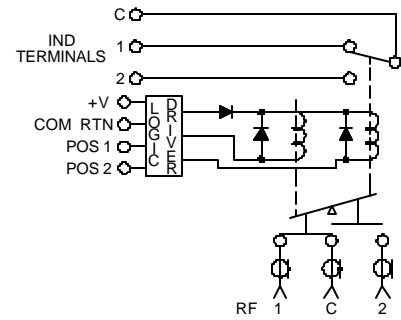
Schematic S3



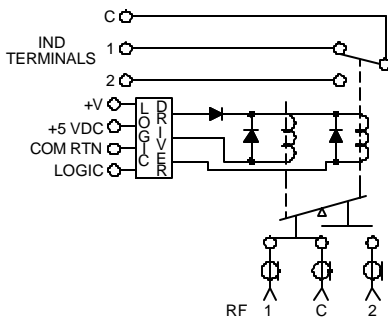
Schematic S4



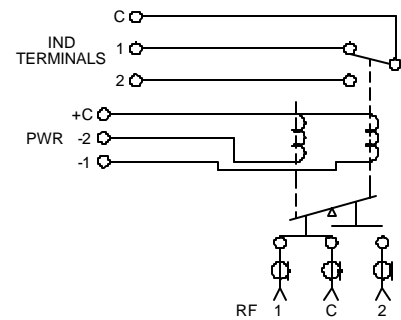
Schematic S5



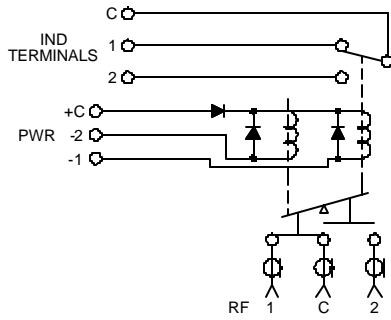
Schematic S6



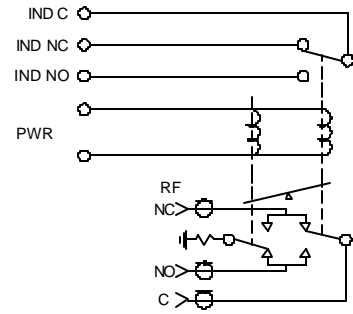
Schematic S7



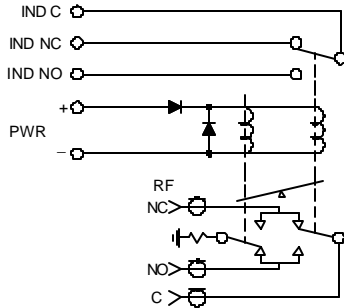
Schematic S8



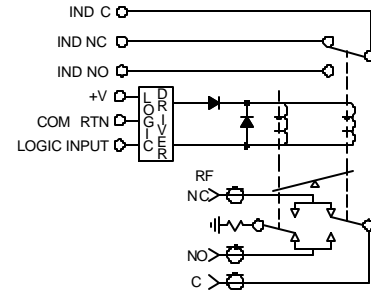
Schematic S9



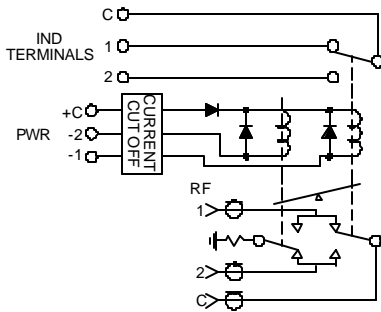
Schematic S10



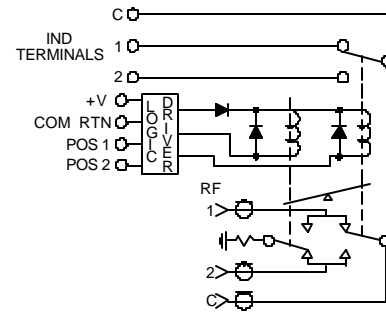
Schematic S11



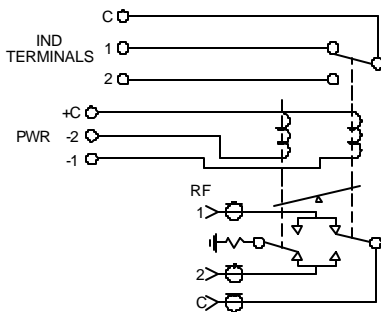
Schematic S12



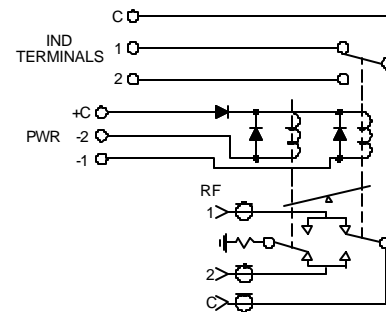
Schematic S13



Schematic S14



Schematic S15



Schematic S16

Logic and BCD Truth Tables

Single Line Logic Driver Truth Table for SPDT & Transfer Latching Switches	
Logic	Position Activated
0	2
1	1

Low Logic BCD Truth Table for SP3T to SP10T Switches				
BCD 8	BCD 4	BCD 2	BCD 1	Position Activated
1	1	1	1	1
1	1	1	0	2
1	1	0	1	3
1	1	0	0	4
1	0	1	1	5
1	0	1	0	6
1	0	0	1	7
1	0	0	0	8
0	1	1	1	9
0	1	1	0	10
0	0	0	0	None or FS
Open	Open	Open	Open	None or FS

High Logic BCD Truth Table for SP3T to SP10T Switches				
BCD 8	BCD 4	BCD 2	BCD 1	Position Activated
0	0	0	0	1
0	0	0	1	2
0	0	1	0	3
0	0	1	1	4
0	1	0	0	5
0	1	0	1	6
0	1	1	0	7
0	1	1	1	8
1	0	0	0	9
1	0	0	1	10
1	1	1	1	None or FS
Open	Open	Open	Open	None or FS

Low Logic Driver Truth Table for SPDT & Transfer Latching Switches		
Logic 2	Logic 1	Position Activated
1	0	1
0	1	2

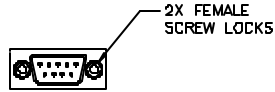
High Logic Driver Truth Table for SPDT & Transfer Latching Switches		
Logic 2	Logic 1	Position Activated
0	1	1
1	0	2

Low Logic Driver Truth Table for SPDT & Transfer Failsafe Switches	
Logic	Position Activated
0	Normally Open
1	Normally Closed

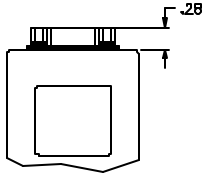
High Logic Driver Truth Table for SPDT & Transfer Failsafe Switches	
Logic	Position Activated
1	Normally Open
0	Normally Closed

Low Logic Driver Truth Table for SP3T to SP10T Switches										
Logic										Position Activated
10	9	8	7	6	5	4	3	2	1	
1	1	1	1	1	1	1	1	1	0	1
1	1	1	1	1	1	1	1	0	1	2
1	1	1	1	1	1	1	0	1	1	3
1	1	1	1	1	1	0	1	1	1	4
1	1	1	1	1	0	1	1	1	1	5
1	1	1	1	0	1	1	1	1	1	6
1	1	1	0	1	1	1	1	1	1	7
1	1	0	1	1	1	1	1	1	1	8
1	0	1	1	1	1	1	1	1	1	9
0	1	1	1	1	1	1	1	1	1	10
1	1	1	1	1	1	1	1	1	1	None or FS
Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	None or FS

High Logic Driver Truth Table for SP3T to SP10T Switches										
Logic										Position Activated
10	9	8	7	6	5	4	3	2	1	
0	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	1	0	2
0	0	0	0	0	0	0	1	0	0	3
0	0	0	0	0	0	1	0	0	0	4
0	0	0	0	1	0	0	0	0	0	5
0	0	0	0	0	0	0	0	0	0	6
0	0	0	1	0	0	0	0	0	0	7
0	0	1	0	0	0	0	0	0	0	8
0	1	0	0	0	0	0	0	0	0	9
1	0	0	0	0	0	0	0	0	0	10
0	0	0	0	0	0	0	0	0	0	None or FS
Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	None or FS



SUB MINIATURE D-SHELL 9P

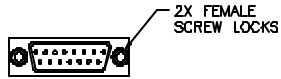


PIN	FAILSAFE				LATCHING			NORMALLY OPEN / LATCHING	
	SPDT TRANSFER	SPDT TRANSFER (Logic Input)	SP3T - SP6T w/o INDICATORS	SP3T - SP6T w/o INDICATORS (Logic Input)	SPDT 2R Series (Logic Input)	SPDT TRANSFER	SPDT TRANSFER (Logic Input)	SP3T - SP6T w/o INDICATORS	SP3T - SP6T w/o INDICATORS (Logic Input)
1	V SW; +V SW	+V SW	V SW; +V SW; -V SW	+V SW	+V SW	C+/-	+V SW	V SW; +V SW; -V SW	+V SW
2	V SW; -V SW	N/A	N/A	C RTN	+5 Vdc	Position 1 -/+	N/A	Position 1	C RTN
3	Ind COM	C RTN	Position 2	N/A or B C D 1	C RTN	Position 2 -/+	C RTN	Position 2	Logic or B C D 1
4	Ind NC	Logic Input	Position 3	Logic or B C D 2	Logic	Ind COM	Logic Input	Position 3	Logic or B C D 2
5	Ind NC	Ind COM	Position 4	Logic 3 or B C D 4	Ind COM	Ind Position 1	Ind COM	Position 4	Logic 3 or B C D 4
6	N/A	Ind NC	Position 5	Logic 4 or B C D 8	Ind Position 1	Ind Position 2	Ind Position 1	Position 5	Logic 4 or B C D 8
7	N/A	Ind NO	Position 6	Logic 5	Ind Position 2	N/A	Ind Position 2	Position 6	Logic 5
8	N/A	N/A	N/A	Logic 6	N/A	N/A	N/A	N/A	Logic 6
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

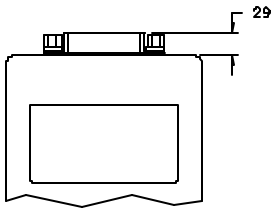
SPDT Series: 2S, 2SE, 2R, 2RE, 2T, 2N, 2NH, 2B, 2BE, 2C, 2CE

Transfer Series: TA, TAE, TD, TDE, TS, TSE, TT, TN, TNH

SP3T - SP6T Series: SS, SSE, ST, SN, SNH, IT, ITE



SUB MINIATURE D-SHELL 15P



PIN	FAILSAFE		NORMALLY OPEN/LATCHING	
	SP3T - SP6T w/ INDICATORS	SP3T - SP6T w/ INDICATORS (Logic Input)	SP3T - SP6T w/ INDICATORS	SP3T - SP6T w/ INDICATORS (Logic Input)
1	V SW; +V SW; -V SW	+V SW	V SW; +V SW; -V SW	+V SW
2	N/A	C RTN	Position 1	C RTN
3	Position 2	N/A or B C D 1	Position 2	Logic or B C D 1
4	Position 3	Logic or B C D 2	Position 3	Logic or B C D 2
5	Position 4	Logic 3 or B C D 4	Position 4	Logic 3 or B C D 4
6	Position 5	Logic 4 or B C D 8	Position 5	Logic 4 or B C D 8
7	Position 6	Logic 5	Position 6	Logic 5
8	Ind COM	Logic 6	Ind COM	Logic 6
9	Ind FS	Ind COM	Ind Position 1	Ind COM
10	Ind Position 2	Ind FS	Ind Position 2	Ind Position 1
11	Ind Position 3	Ind Position 2	Ind Position 3	Ind Position 2
12	Ind Position 4	Ind Position 3	Ind Position 4	Ind Position 3
13	Ind Position 5	Ind Position 4	Ind Position 5	Ind Position 4
14	Ind Position 6	Ind Position 5	Ind Position 6	Ind Position 5
15	N/A	Ind Position 6	N/A	Ind Position 6

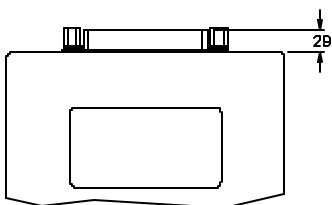
SP3T - SP6T Series: IT, ITE, SN, SNH, ST

PIN	FAILSAFE		NORMALLY OPEN/LATCHING	
	SP7T - SP10T w/o INDICATORS	SP7T - SP10T w/o INDICATORS (Logic Input)	SP7T - SP10T w/o INDICATORS	SP7T - SP10T w/o INDICATORS (Logic Input)
1	V SW; +V SW; -V SW	+V SW	V SW; +V SW; -V SW	+V SW
2	N/A	C RTN	Position 1	C RTN
3	Position 2	N/A or B C D 1	Position 2	Logic or B C D 1
4	Position 3	Logic or B C D 2	Position 3	Logic or B C D 2
5	Position 4	Logic 3 or B C D 4	Position 4	Logic 3 or B C D 4
6	Position 5	Logic 4 or B C D 8	Position 5	Logic 4 or B C D 8
7	Position 6	Logic 5	Position 6	Logic 5
8	Position 7	Logic 6	Position 7	Logic 6
9	Position 8	Logic 7	Position 8	Logic 7
10	Position 9	Logic 8	Position 9	Logic 8
11	Position 10	Logic 9	Position 10	Logic 9
12	N/A	Logic 10	N/A	Logic 10
13	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A

SP7T - SP10T Series: ES, HS, HN, HT



SUB MINIATURE D-SHELL 25P



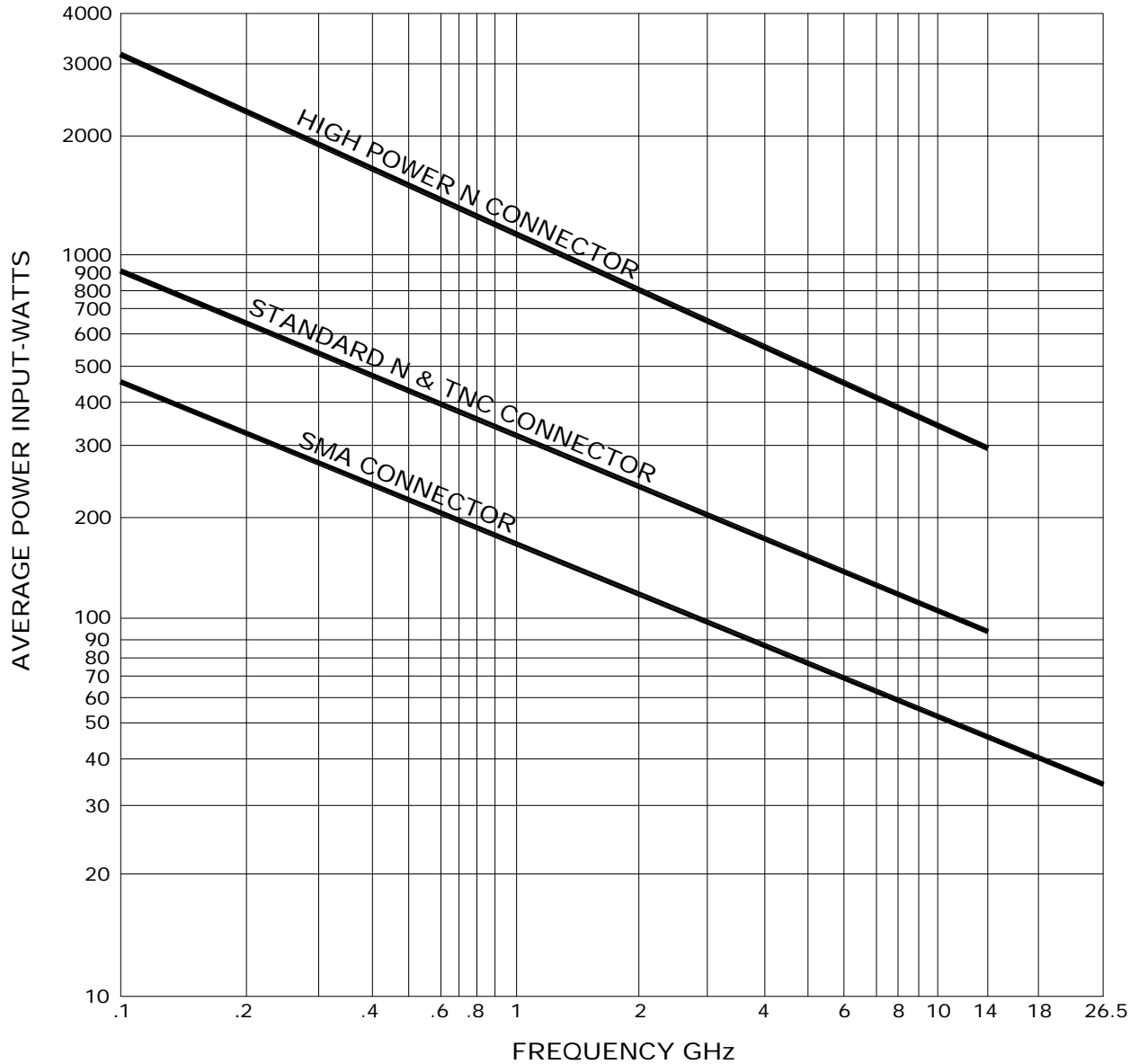
PIN	FAILSAFE		NORMALLY OPEN	
	SP7T - SP10T w/ INDICATORS	SP7T - SP10T w/ INDICATORS (Logic Input)	SP7T - SP10T w/ INDICATORS	SP7T - SP10T w/ INDICATORS (Logic Input)
1	V SW; +V SW; -V SW	+V SW	V SW; +V SW; -V SW	+V SW
2	N/A	C RTN	Position 1	C RTN
3	Position 2	N/A or B C D 1	Position 2	Logic or B C D 1
4	Position 3	Logic or B C D 2	Position 3	Logic or B C D 2
5	Position 4	Logic 3 or B C D 4	Position 4	Logic 3 or B C D 4
6	Position 5	Logic 4 or B C D 8	Position 5	Logic 4 or B C D 8
7	Position 6	Logic 5	Position 6	Logic 5
8	Position 7	Logic 6	Position 7	Logic 6
9	Position 8	Logic 7	Position 8	Logic 7
10	Position 9	Logic 8	Position 9	Logic 8
11	Position 10	Logic 9	Position 10	Logic 9
12	Ind COM	Logic 10	Ind COM	Logic 10
13	Ind FS	Ind COM	Ind Position 1	Ind COM

SP7T - SP10T Series: ES, HS, HN, HT

PIN	FAILSAFE		NORMALLY OPEN	
	SP7T - SP10T w/ INDICATORS	SP7T - SP10T w/ INDICATORS (Logic Input)	SP7T - SP10T w/ INDICATORS	SP7T - SP10T w/ INDICATORS (Logic Input)
14	Ind Position 2	Ind Position FS	Ind Position 2	Ind Position 1
15	Ind Position 3	Ind Position 2	Ind Position 3	Ind Position 2
16	Ind Position 4	Ind Position 3	Ind Position 4	Ind Position 3
17	Ind Position 5	Ind Position 4	Ind Position 5	Ind Position 4
18	Ind Position 6	Ind Position 5	Ind Position 6	Ind Position 5
19	Ind Position 7	Ind Position 6	Ind Position 7	Ind Position 6
20	Ind Position 8	Ind Position 7	Ind Position 8	Ind Position 7
21	Ind Position 9	Ind Position 8	Ind Position 9	Ind Position 8
22	Ind Position 10	Ind Position 9	Ind Position 10	Ind Position 9
23	N/A	Ind Position 10	N/A	Ind Position 10
24	N/A	N/A	N/A	N/A
25	N/A	N/A	N/A	N/A

CW POWER CAPACITY VS. FREQUENCY GRAPH

This graph is based on the following conditions: ambient temperature 40°C, sea level, VSWR 1:1 and cold switching.



VSWR	Derating Factor	VSWR	Derating Factor
1.5 : 1	0.96	3.5 : 1	0.70
2.0 : 1	0.88	4.0 : 1	0.64
2.5 : 1	0.84	4.5 : 1	0.60
3.0 : 1	0.75	5.0 : 1	0.56

Consult Factory for derating factor when application does not meet the foregoing referenced conditions.

TESTING & GENERAL SPECIFICATIONS

TESTING

ISOLATION: Testing to published specifications or customer's specifications, if requested.

INSERTION LOSS: Testing to customer's specifications, if requested.

VSWR: Testing to published specifications or customer's specifications, if requested.

BURN-IN CYCLING: Performed on a 100% basis. This test actuates each switch position for a minimum of 5,000 cycles. This test is designed to eliminate high wear in the early life stage of the switch.

MONITORED CYCLING: Performed on a 100% basis. To ensure repeatability each switch position is resistance monitored for a minimum of 1,000 operations. Any reading greater than 100 milli-ohms constitutes a failure to DBP Microwave internal standards. MIL-DTL-3928 allows RF contact resistance of 240 milli-ohms, but we believe our stricter standard yields more reliable switches.

FINAL TESTING: Performed on a 100% basis.

1. Verify pull-in voltage. In-house criteria for pull-in voltage is 75% of the specified switch voltage.
Note: This is a one-time measurement of a unit that has been properly stabilized at 25°C. Pull-in voltage can be a rather uncertain number due to critical temperature considerations. The self-heating of the coil(s) can change pull-in measurement results significantly in a very short time.
2. Verify orientation and dimensions per applicable specifications.
3. Functional testing of all switch functions.

INSULATION RESISTANCE: Performed on a 100% basis. Tests the insulation resistance between the chassis and all switch terminals. Resistance greater than 2 Giga-ohms at 50 Vdc is required.

SPECIAL TESTING: Is available upon request. Please contact factory.

GENERAL SPECIFICATIONS

FINISH: Electroless Nickel Per MIL-C-26074. Contact Factory if different finish is required.

RF CONTACTS: Beryllium Copper, Gold plated per MIL-G-45204 over a Nickel undercoating.

STORAGE TEMPERATURE: -55°C to +100°C.

TOLERANCES: Unless otherwise specified. Dimensions are in inches.

XX: +/- 0.03
XXX: +/- 0.005
ANG: +/- 1°

INTERNAL TERMINATION RF POWER: 3WCW @ +85°C

INTERNAL TERMINATION VSWR: 1.80 VSWR max. typical.

REPEATABILITY: 0.1 dB max. between positions.

AUXILIARY CONTACTS: (Indicators) rated at 250mA, 100 Vdc, 5W max. (switching). Must use a series current limiting resistor.

TORQUE: Apply no more than 8 inch pounds of torque to install mating connectors.

PULL-IN VOLTAGE: 75% of rated voltage at 25°C ambient room temperature.

SUPPLY VOLTAGE: +/- 10% nominal.

MAGNETIC SENSITIVITY: SPDT switches - electromechanical switches can be sensitive to ferrous materials and external magnetic fields. Allow mounting no closer than 1/8" for neighboring ferrous materials.

ACTUATION: DBP Microwave switches are RF devices, the impedance match is lost if more than one position is actuated simultaneously. Simultaneous actuation of more than one position is not recommended and under certain circumstances may damage the switch. Please consult factory.

DC TERMINAL FUNCTION LEGEND

N/A	Not Applicable
AV	Actuation Voltage
C	Actuation Voltage Common
C+/-	Actuation Voltage Common with specified polarity
+V SW	Positive Switch Actuation Voltage
C RTN	Common Return for Actuation & Logic Voltage Supplies
L	Logic Input (1= 3.5 - 5.5 Vdc; 0= 0 - 0.8 Vdc)
PV	Pulse Voltage with specified polarity for latching operation (20 msec min.)
COM	Indicator Common
F/S	Failsafe Position (when applicable)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.



DBP MICROWAVE
23301 Wilmington Ave.
Carson, CA 90745

Ph: 310-513-7200
Fx: 310-522-8994

RESULTS-ORIENTED CUSTOMER SERVICE

DBP Microwave is a compelling vendor choice if your company is driven by development and delivery deadlines, *including prior shipment notification.*

Our friendly professionals who answer the phones are actively involved in the day to day operation and work closely with the Field Sales Representatives to follow through on the best way to meet your requirements. We take pride in our reputation for prompt responses and doing our best to help our customers reduce costs through APOs, Corporate APOs, and special pricing packages.

WARRANTY

DBP Microwave's switches are warranted against defects in material or workmanship for one full year (12 months) from date of shipment. DBP Microwave's obligation is limited to repair or replacement of defective parts. We assume no liability for defects resulting from improper use, operation beyond ratings or unauthorized repairs. Cosmetic conditions are not covered by this warranty. DBP Microwave is not responsible for consequential damages. Warranty returns require advance authorization. Please see "RETURNS." No other warranties are expressed or implied. Extended warranties are available at additional cost.

RETURNS

To return a product for warranty or non-warranty service please be sure to obtain prior authorization. DBP Microwave will issue a Return Material Authorization Number which must appear on the paperwork accompanying the return as well as the outside of the shipping container. Please ship any return products prepaid to DBP Microwave unless prior arrangements have been made. DBP Microwave does not accept COD freight charges for returned items.

OUR COMMITMENT TO YOU

DBP Microwave wants to assist you in selecting *The Right Switch for the Right Application.* Please feel free to contact us to discuss any environmental or other application concerns you may have. For the best overall switch value in terms of quality, price and support, DBP Microwave's engineering and customer support teams are standing ready to assist you with cost-effective solutions.

SALES REPRESENTATION

Worldwide Representation is available. Please check our website to locate your local Sales Representative.

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