

NARROWBAND

SPDT SWITCH

HIGH ISOLATION REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

SERIES XN/XN-HA

GENERAL INFORMATION:

Series XN and XN-HA switches are medium power devices that operate over commonly used frequency ranges. Carefully selected diodes placed in either series, series-shunt, or shunt configurations produce excellent electrical performance from UHF through KU bands.

GENERAL SPECIFICATIONS:

- Frequency Coverage:** 0.02 to 18.0 GHz.
RF Impedance: 50 OHMS.
RF Power: +20 dBm operational.
 Consult factory for high power options.
- DC Requirements:** Switches without drivers require +60 mA max per path for the "off" condition and -60 mA max per path for the "on" condition.
 Switches with drivers require ±5 volt supplies at ±70 mA. Logic "1" turns J2 "on" and J3 "off". Logic "0" turns J3 "on" and J2 "off". Different supply voltages and logic available if specified when order is placed.
- Temperature Information:** Operating temperature from -55°C to +85°C.
- Switching Speed:** 10% to 90% or 90% to 10% of RF. There is an additional 30 nanosec of driver delay.
- Environment:** MIL-E-5400, MIL-STD-202, MIL-E-16400 MIL-STD-883 (Special request only).
- Connectors:** RF connectors are SMA. Other connectors available (when specified at time of order) include types N, TNC, and BNC.

NOTES:

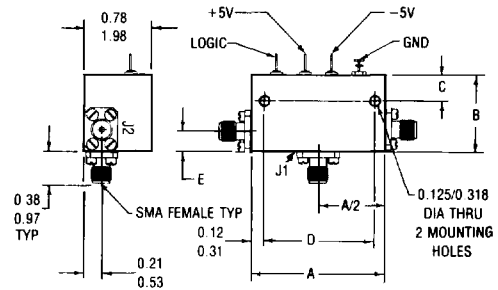
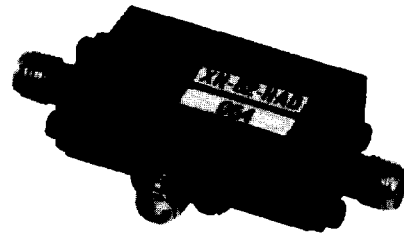
1. Drive connection is normally supplied as a solder feedthrough terminal. Separate inputs for each path are available on request. Other connectors available (when specified at time of order) include SMA and SMC.
2. If driver is required, add "D" to the model number when ordering, i.e. Model XN-11, with driver, becomes XN-11D.
3. When ordering, the complete model number should be given. The model number consists of the model number for a standard switch plus the dash number for any options, i.e. model XN-69D-1 is a SPDT switch with driver whose frequency range is 5.9 to 6.4 GHz and a switching speed of 100 nanosecs.
4. Any unit listed can be supplied with pins instead of RF connectors. (Consult factory.)
5. Switches are available with output connectors in line with input. Sizes may change and a special part number may be assigned. (Consult factory.)

MECHANICAL OUTLINES

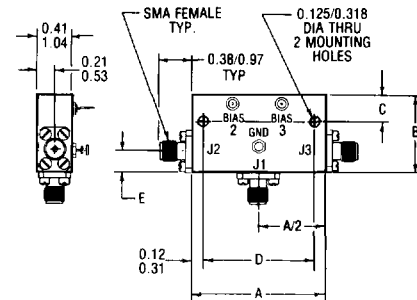
Outline	A Inches cm.	B Inches cm.	C Inches cm.	D Inches cm.	E Inches cm.
1	1.55	0.90	0.30	1.300	0.25
	3.56	2.29	0.76	3.327	0.64
2	1.30	0.75	0.20	1.050	0.25
	3.30	1.91	0.51	2.692	0.64
3	1.55	0.95	0.30	1.300	0.35
	3.56	2.41	0.76	3.327	0.89
4	2.00	1.00	0.35	1.750	0.30
	5.08	2.54	0.89	4.470	0.76
5	1.55	0.95	0.30	1.300	0.25
	3.94	2.41	0.76	3.327	0.64
6	1.55	1.20	0.50	1.300	0.25
	3.94	3.05	1.27	3.327	0.64
7	1.55	0.90	0.30	1.300	0.25
	3.94	2.29	0.76	3.327	0.64

Inches/Centimeters

xx ± 0.3 xxx ± .010/ xx ± .08 xxx ± .025



OUTLINE WITH DRIVER J1-INPUT



OUTLINE WITHOUT DRIVER J1-INPUT

TYPICAL MODEL NO.

XX
or
D - X
XN - XX-HA

Model Series Freq Code Driver Option Speed Option
(Note 2) (Note 3)

Hermetic Seal
and MIL STD 883
Screening Available

NARROWBAND

SPDT SWITCH

SERIES XN/XN-HA

HIGH ISOLATION REFLECTIVE AND ABSORPTIVE 0.02-18 GHz

ELECTRICAL PERFORMANCE

Power: 1 watt average, 10 watts peak, survival

STANDARD SWITCH							HIGH SPEED OPTION			
Isolation: 60 dB or 80 dB minimum Speed: 2 microsec. maximum							MODEL-1		MODEL-2	
Reflective Model No.	Absorptive Model No.	Frequency Range GHz	Isolation Min. dB	Insertion Loss Max. dB Ref. / Abs.	VSWR† Max.	Outline Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.	Speed Nanosec.	Insertion Loss Max. dB Ref. / Abs.
XN-11	XN-13-HA	0.02-0.07	60	0.35 / 0.45	1.45	1 / 4	500	0.40 / 0.50	N/A	N/A
XN-12	XN-14-HA	0.02-0.07	80	0.40 / 0.50	1.45	1 / 4	500	0.45 / 0.55	N/A	N/A
XN-14	XN-15-HA	0.2-0.25	60	0.45 / 0.55	1.45	1 / 4	500	0.50 / 0.60	N/A	N/A
XN-15	XN-17-HA	0.2-0.25	80	0.50 / 0.60	1.45	1 / 4	500	0.55 / 0.65	N/A	N/A
XN-17	XN-19-HA	0.4-0.45	60	0.45 / 0.55	1.45	1 / 6	200	0.50 / 0.60	N/A	N/A
XN-18	XN-20-HA	0.4-0.45	80	0.50 / 0.60	1.45	1 / 5	200	0.55 / 0.65	N/A	N/A
XN-21	XN-22-HA	0.7-0.8	60	0.55 / 0.65	1.45	2 / 5	100	0.60 / 0.70	20	0.65 / 0.75
XN-22	XN-24-HA	0.7-0.8	80	0.60 / 0.70	1.45	2 / 5	100	0.65 / 0.75	20	0.70 / 0.80
XN-24	XN-25-HA	0.95-1.22	60	0.65 / 0.75	1.45	2 / 5	100	0.70 / 0.80	20	0.75 / 0.85
XN-25	XN-26-HA	0.95-1.22	80	0.70 / 0.80	1.45	2 / 5	100	0.75 / 0.85	20	0.80 / 0.90
XN-27	XN-28-HA	1.02-1.10	60	0.65 / 0.75	1.45	2 / 5	100	0.70 / 0.80	20	0.75 / 0.85
XN-28	XN-30-HA	1.02-1.10	80	0.70 / 0.80	1.45	2 / 5	100	0.75 / 0.85	20	0.80 / 0.90
XN-31	XN-31-HA	1.2-1.4	60	0.65 / 0.75	1.45	2 / 5	100	0.70 / 0.80	20	0.75 / 0.85
XN-32	XN-33-HA	1.2-1.4	80	0.70 / 0.80	1.45	2 / 5	100	0.75 / 0.85	20	0.80 / 0.90
XN-34	XN-35-HA	1.5-1.6	60	0.70 / 0.80	1.45	2 / 5	100	0.75 / 0.85	20	0.80 / 0.90
XN-35	XN-37-HA	1.5-1.6	80	0.80 / 0.90	1.45	2 / 5	100	0.85 / 0.95	20	0.90 / 1.00
XN-37	XN-39-HA	1.7-2.4	60	0.80 / 0.90	1.45	2 / 5	100	0.85 / 0.95	20	0.90 / 1.00
XN-38	XN-40-HA	1.7-2.4	80	0.85 / 0.95	1.45	2 / 5	100	0.90 / 1.00	20	0.95 / 1.10
XN-41	XN-42-HA	2.2-2.3	60	0.80 / 0.90	1.45	2 / 5	100	0.85 / 0.95	20	0.90 / 1.00
XN-42	XN-44-HA	2.2-2.3	80	0.85 / 0.95	1.45	2 / 5	100	0.90 / 1.00	20	0.95 / 1.10
XN-44	XN-45-HA	2.9-3.1	60	0.80 / 0.90	1.45	3 / 6	100	0.85 / 0.95	20	0.90 / 1.00
XN-45	XN-46-HA	2.9-3.1	80	0.85 / 0.95	1.45	3 / 6	100	0.90 / 1.00	20	0.95 / 1.10
XN-47	XN-48-HA	3.1-3.5	60	0.80 / 0.90	1.45	3 / 6	100	0.85 / 0.95	20	0.90 / 1.00
XN-48	XN-50-HA	3.1-3.5	80	0.85 / 0.95	1.45	3 / 6	100	0.90 / 1.00	20	0.95 / 1.10
XN-51	XN-51-HA	3.3-3.7	60	0.80 / 0.90	1.45	3 / 6	100	0.85 / 0.95	20	0.90 / 1.00
XN-52	XN-53-HA	3.3-3.7	80	0.85 / 0.95	1.45	3 / 6	100	0.90 / 1.00	20	0.95 / 1.10
XN-54	XN-55-HA	3.7-4.2	60	0.80 / 0.90	1.45	3 / 6	100	0.85 / 0.95	20	0.90 / 1.00
XN-55	XN-57-HA	3.7-4.2	80	0.85 / 0.95	1.45	3 / 6	100	0.90 / 1.00	20	0.95 / 1.10
XN-57	XN-59-HA	4.2-4.4	60	0.90 / 1.00	1.45	3 / 6	100	0.95 / 1.10	20	1.00 / 1.20
XN-58	XN-60-HA	4.2-4.4	80	0.95 / 1.10	1.45	3 / 6	100	1.00 / 1.20	20	1.05 / 1.30
XN-62	XN-62-HA	4.4-5.0	60	1.00 / 1.10	1.45	3 / 6	100	1.05 / 1.20	20	1.10 / 1.30
XN-62	XN-64-HA	4.4-5.0	80	1.05 / 1.15	1.45	3 / 6	100	1.10 / 1.25	20	1.15 / 1.40
XN-64	XN-66-HA	5.0-5.25	60	1.05 / 1.15	1.45	3 / 6	100	1.10 / 1.25	20	1.15 / 1.40
XN-65	XN-67-HA	5.0-5.25	80	1.10 / 1.20	1.45	3 / 6	100	1.15 / 1.30	20	1.20 / 1.40
XN-67	XN-68-HA	5.4-5.9	60	1.10 / 1.20	1.45	3 / 6	100	1.15 / 1.30	20	1.20 / 1.40
XN-68	XN-70-HA	5.4-5.9	80	1.20 / 1.30	1.45	3 / 6	100	1.25 / 1.40	20	1.30 / 1.50
XN-69	XN-71-HA	5.9-6.4	60	1.20 / 1.30	1.45	3 / 6	100	1.25 / 1.40	20	1.30 / 1.50
XN-71	XN-73-HA	5.9-6.4	80	1.30 / 1.40	1.45	3 / 6	100	1.35 / 1.50	20	1.40 / 1.60
XN-72	XN-75-HA	6.7-7.4	60	1.25 / 1.35	1.45	3 / 6	100	1.30 / 1.50	20	1.35 / 1.60
XN-73	XN-77-HA	6.7-7.4	80	1.35 / 1.45	1.45	3 / 6	100	1.40 / 1.60	20	1.45 / 1.70
XN-75	XN-78-HA	7.1-7.7	60	1.30 / 1.40	1.45	3 / 6	100	1.35 / 1.50	20	1.40 / 1.60
XN-76	XN-79-HA	7.1-7.7	80	1.40 / 1.50	1.45	3 / 6	100	1.45 / 1.60	20	1.50 / 1.70
XN-77	XN-80-HA	8.5-9.6	60	1.40 / 1.50	1.45	2 / 7	100	1.50 / 1.60	20	1.60 / 1.70
XN-79	XN-81-HA	8.5-9.6	80	1.50 / 1.60	1.45	2 / 6	100	1.60 / 1.70	20	1.70 / 1.80
XN-81	XN-82-HA	9.0-9.2	60	1.40 / 1.50	1.45	2 / 7	100	1.50 / 1.60	20	1.60 / 1.70
XN-82	XN-83-HA	9.0-9.2	80	1.50 / 1.60	1.45	2 / 6	100	1.60 / 1.70	20	1.70 / 1.80
XN-83	XN-84-HA	9.3-9.7	60	1.40 / 1.50	1.45	2 / 7	100	1.50 / 1.60	20	1.60 / 1.70
XN-84	XN-85-HA	9.3-9.7	80	1.50 / 1.60	1.45	2 / 6	100	1.60 / 1.70	20	1.70 / 1.80
XN-86	XN-86-HA	9.8-10.4	60	1.40 / 1.50	1.45	2 / 7	100	1.50 / 1.60	20	1.60 / 1.70
XN-87	XN-87-HA	9.8-10.4	80	1.50 / 1.60	1.45	2 / 6	100	1.60 / 1.70	20	1.70 / 1.80
XN-88	XN-88-HA	10.0-10.5	60	1.45 / 1.55	1.45	2 / 7	100	1.55 / 1.70	20	1.70 / 1.80
XN-89	XN-89-HA	10.0-10.5	80	1.55 / 1.65	1.45	2 / 6	100	1.65 / 1.80	20	1.75 / 1.90
XN-90	XN-90-HA	12.0-12.4	60	1.50 / 1.60	1.45	2 / 6	100	1.60 / 1.70	20	1.70 / 1.80
XN-91	XN-91-HA	12.0-12.4	80	1.60 / 1.70	1.45	2 / 6	100	1.70 / 1.80	20	1.80 / 1.90
XN-92	XN-92-HA	13.1-13.5	60	1.60 / 1.70	1.55	2 / 7	100	1.70 / 1.80	20	1.80 / 1.90
XN-93	XN-93-HA	13.1-13.5	80	1.70 / 1.80	1.55	2 / 7	100	1.80 / 1.90	20	1.90 / 2.00
XN-94	XN-94-HA	14.5-15.5	60	1.60 / 1.70	1.55	2 / 7	100	1.70 / 1.80	20	1.80 / 1.90
XN-95	XN-95-HA	14.5-15.5	80	1.70 / 1.80	1.55	2 / 7	100	1.80 / 1.90	20	1.90 / 2.00
XN-96	XN-96-HA	15.0-17.0	60	1.50 / 1.60	1.55	2 / 7	100	1.60 / 1.70	20	1.70 / 1.80
XN-97	XN-97-HA	15.0-17.0	80	1.70 / 1.80	1.55	2 / 7	100	1.80 / 1.90	20	1.90 / 2.00
XN-98	XN-98-HA	16.0-18.0	60	1.70 / 1.80	1.55	2 / 7	100	1.80 / 1.90	20	2.00 / 2.00
XN-99	XN-99-HA	16.0-18.0	80	1.90 / 2.00	1.55	2 / 7	100	2.00 / 2.10	20	2.20 / 2.25

If improvement of any of the electrical specifications listed above is required, consult factory.

† Reflective Switch: VSWR measured in the 'ON' input and 'ON' Output Position.

Absorptive Switch: VSWR measured in the 'ON' input and 'ON' Output and 'OFF' Output Position.

Insertion Loss measured with input power less than 100 mW.