STANDARD PRODUCTS

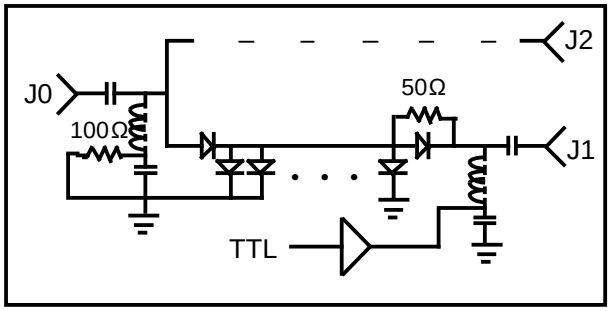
SP2T SWITCH

SERIES SN20-31x
Non-Reflective Series/Shunt
1 µsec. Switching Speed

DESCRIPTION

The SN20-31x series of non-reflective single-pole double-throw wide band (0.1-20.0gHz) PIN diode switches employ a series/shunt configuration in a microstrip transmission line circuit. They are compact in size, light weight, featured with field replaceable connectors, and offered in medium (-312), high (-313), and extra-high (-314) isolation models.

SCHEMATIC



ELECTRICAL SPECIFICATIONS

CHARACTERISTIC	WITH DRIVER		WITHOUT DRIVER	
	MAX.	TYP.	MAX.	TYP.
Switching Speed (1)	1.0 µs	0.5 µs	(2)	(2)
TransitionTime (3)	0.5 µs	0.1 µs	(2)	(2)
Power Handling (CW or peak)	+30 dBm	+33 dBm	+30 dBm	+33 dBm
Positive Supply	5V ± 2% @ 60 mA max		30 mA (Iso.)	15 mA
Negative Supply (4)	(5) @ 90 mA max		-50 mA (Loss)	-35 mA
Control Impedance	TTL (2 unit loads max)		N/A	
Control Logic (4)	(5)		see Supply Requirements	

R.F. PERFORMANCE

			FREQUENCY (GHz) (See Note 6)							
			V	U	L	S	C	X	P	K
MODEL	CHARACTERISTIC		0.1-0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-8.0	8.0-12.4	12.4-18.0	18.0-20.0
SN20-312	INSERTION LOSS (dB max)	TYP.	1.1	0.8	0.9	1.1	1.6	1.8	2.3	3.0
		MAX.	1.5	1.1	1.3	1.5	1.9	2.2	2.7	3.5
	ISOLATION (dB min)		65	60	60	60	55	50	50	45
SN20-313	INSERTION LOSS (dB max)	TYP.	1.3	0.9	1.1	1.3	1.8	2.2	2.5	3.2
		MAX.	1.8	1.3	1.5	1.7	2.2	2.6	2.9	3.7
	ISOLATION (dB min)		70	70	75	75	70	65	65	60
SN20-314	INSERTION LOSS (dB max)	TYP.	1.5	1.1	1.3	1.5	2.0	2.4	2.7	3.5
		MAX.	2.0	1.5	1.7	1.9	2.4	2.8	3.1	4.0
	ISOLATION (dB min)		75	80	85	85	80	80	80	75
ALL MODELS	VSWR {On/Off} (max)		1.5	1.5	1.5	1.5	1.5	1.75	2.0	2.3

(1) "Turn-On Time"/"Turn-Off Time" is the time between the 50% point of the control voltage and the 90% or the10% point of the detected RF, respectively. "Switching Speed" is defined as the slower of the two times (usually the Turn-On Time).
(2) Depends upon driver supplied by the user. See "Options" on back.
(3) "Rise Time"/"Fall Time" is the time required for the detected RF to transition between the10% and 90% points or the 90% and 10% points, respectively. "Transtion Time" is defined as the slower of the two times (usually the Rise Time).
(4) Setting more than one RF port at a time to the insertion loss state can cause excessive power dissipation in the common arm bias return network and may result in switch failure.
(5) See "Options" on back of page.
(6) Operating frequency range for narrower bandwidth unit(s) is specified by a two letter option code where the first letter designates the frequency band within which the lowest operating frequency is located and the second letter designates the frequency band within which the highest operating frequency is located. A frequency code is not required for the standard unit that covers 0.1 to 20.0 GHz ("VK").

ENVIRONMENTAL RATINGS

Temperature:	Operating.....55°C to +85°C Non-operating.....65°C to +125°C
Humidity:	MIL-STD-202C, Method 103B, Cond. B (96 hrs. at 95%)
Vibration:	MIL-STD-202C, Method 204A, Cond. B (0.06" double amplitude or 15G, whichever is less)
Altitude:	MIL-STD-202C, Method 105C, Cond. B (50,000ft)
Temp Cycling:	MIL-STD-202C, Method 105C, Cond. D, 5 cycles
Shock:	MIL-STD-202C, Method 213, Cond. B (750G, 6ms)

OPTIONS

LOGIC:

OPTION CODE	LOGIC TYPE	CONTROL STATUS	PORT STATUS
L4	TOGGLE	0	J2=LOSS
		1	J1=LOSS
L3	INVERTING TOGGLE	0	J1=LOSS
		1	J2=LOSS
L2 (4)	NON INVERTING	0	ISO.
		1	LOSS
(STD) (4)	**INVERTING**	**0**	**LOSS**
		1	**ISO.**

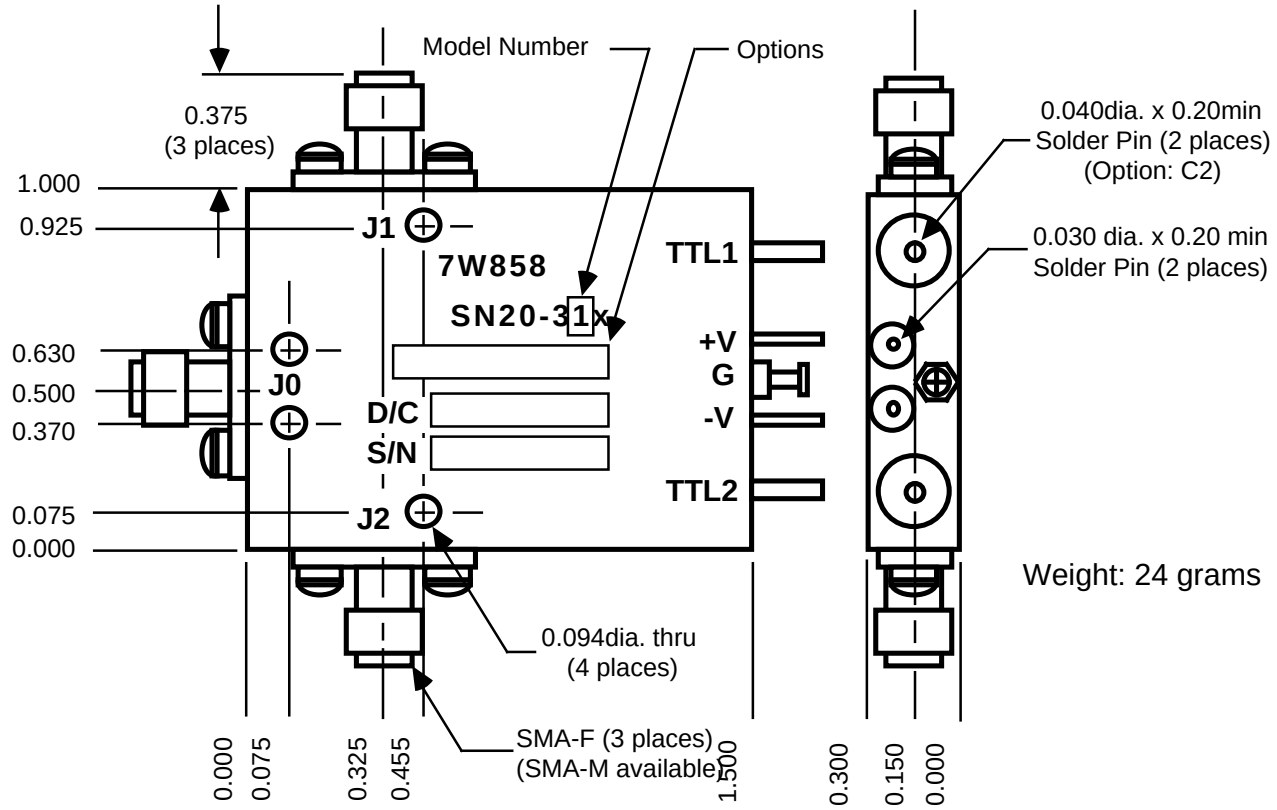
CONTROL CONNECTOR:
(STD).....Solder Pin
C2.....SMC-M

DRIVER:
(STD).....With Driver
D2.....Without driver

FREQUENCY:
(STD).....0.1 to 20.0 GHz
Two Letter Code. See note 6 for details.

NEGATIVE SUPPLY
(STD).....-12V
N2.....-15V

OUTLINE



Weight: 24 grams

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