

SWITCHES GAAs

SPDT DC to 4.6 GHz



KSW
*KSWA

MODEL NO.	FREQ. GHz	ABSORPTIVE	REFLECTIVE	INSERTION LOSS, dB								1dB COMP. dBm			IN-OUT ISOLATION, dB				CAPD DATA	CASE STYLE	Connection	PRICE \$		
				FREQUENCY BAND								FREQUENCY BAND			FREQUENCY BAND									
				A		B		C ₁		C ₂		A	B	C	A	B		C						
KSW-2-46	DC-4.6	●	●	0.9	1.1	1.0	1.3	1.3	1.8	2.0	2.8	10	17	27	60	50	50	40	40	28	(see YONI on our website)	XX112	eh	36.95
* KSWA-2-46	DC-4.6	●	●	0.8	1.1	0.9	1.3	1.5	2.6	1.5	2.6	10	17	27	60	45	50	40	30	25		XX112	eh	58.95

A = DC to 200MHz

B = 200MHz to 1000MHz

C = 1000MHz to 4600MHz

C₁ = 1000MHz to 3000MHz

C₂ = 3000MHz to 4600MHz

additional specifications

Model Series	KSW	KSWA	MSW	MSWA	MSWT
Control Voltage	-8/0 for compression spec, -8 to -5/0 for all other specs				
Control Current, mA	2.5 typ. at -8V				
VSWR (:1)	1.3 typ.		DC-1GHz 1.2 typ.	1-2GHz 1.4 typ. 1.45	DC-1GHz .1-.5GHz .5-1GHz 1-2GHz 1.2 1.25 1.4 1.4 1.65 1.8 1.9 1.7
Rise/ Fall time (10% - 90%), ns	2 typ.		2 typ.	3 typ.	2 typ.
Switching time, 50% of Control to 90% RF (Turn-on), ns			4 typ.	5.5 typ.	4 typ.
10% RF (Turn-off), ns			4 typ.	3 typ.	4 typ.
**Video Leakage, mVp-p 0/-5V Control	30 typ.		15 typ.	8 typ.	15 typ.
Temperature, °C operating	-55 to 100		-40 to 85		
storage	-55 to 150		-55 to 100		
MTBF, hrs @100°C case	7X10 ⁶	11X10 ⁶			

NOTES:

- * KSWA model is hermetically sealed.
- ** Video leakage or break through is defined as leakage of TTL switching signal to RF output ports.
- A. Environmental specifications and re-flow soldering information available in General Information Section.
- B. Units are non-hermetic unless otherwise noted. For details on case dimensions & finishes see "Case Styles & Outline Drawings".
- C. Prices and Specifications subject to change without notice.
- 1. Absolute maximum power, voltage and current ratings for KSW, KSWA models:
 - 1a. RF power input, +30 dBm except below 500 MHz +27 dBm;
 - 1b. Control voltage -10 V maximum.
- 2. Absolute maximum power, voltage & current ratings: MSW, MSWA MSWT models:
 - 2a. RF power input, (25°C)

	DC-100	100-500	500-2000	MHz
MSW-2-20: Steady state 0/-8V control,	+23	+27	+31	dBm
As modulator	+11	+17	+21	dBm
MSWA-2-20: Steady state 0/-8V control,	+24	+27	+33	dBm
As modulator	+12	+17	+23	dBm
MSWT-4-20: Steady state 0/-8V control	+24	+27	+33	dBm
modulator application	+12	+17	+23	dBm
 - 2b. Control current, 500µA (Occurs at -9V to -12V typical)
- 3. For reflective switches, KSW, MSW, RSW models, OFF state of RF output is low impedance.

NSN GUIDE

MCL NO.
KSW-2-46
KSWA-2-46

NSN
5985-01-393-7219
5985-01-369-4224

Surface Mount

SPDT DC to 2 GHz

MSW
MSWA
MSWT



MODEL NO.	FREQ. GHz $f_L - f_U$	ABSORPTIVE	REFLECTIVE	INSERTION LOSS, dB								1dB COMP, dBm				IN-OUT ISOLATION, dB								CAPD DATA	CASE STYLE Note B	Connection	PRICE \$ Qty. (10)												
				FREQUENCY BAND A				FREQUENCY BAND B				FREQUENCY BAND C				FREQUENCY BAND D				FREQUENCY BAND A								FREQUENCY BAND B				FREQUENCY BAND C				FREQUENCY BAND D			
				Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.					Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.
MSW-2-20	DC-2.0	●	●	0.30	0.6	0.4	0.7	0.50	1.0	0.75	1.3	22	23	24	25	55	50	43	36	34	28	24	20	(see YONI on our website)	XX211	es	2.45												
MSWA-2-20	DC-2.0			0.65	0.9	0.9	1.2	0.95	1.3	1.20	1.5	20	24	27	29	60	50	45	37	40	32	30	25	XX211	es	2.45													

TRANSFER DC to 2 GHz Low Video Leakage

Model	FREQ. GHz	path	INSERTION LOSS, dB								ISOLATION, dB								CAPD DATA	CASE STYLE	Connection	PRICE \$				
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D								
MSWT-4-20	DC-2.0	Tx-J1/J2	0.9	1.2	1.1	1.5	1.25	1.8	1.45	2.2	18	25	28	29	51	44	34	27	26	21	19	15	(see YONI on our website)	XX211	eu	3.45
		J1/J2-Rx Tx-Rx	1.1	1.4	1.3	1.7	1.5	2.0	1.6	2.2	16	18	20	22	53	41	36	34	27	24	21	17				

A=DC to 100MHz B=100MHz to 500MHz C=500MHz to 1000MHz D=1000MHz to 2000MHz

control logic

Model	Control Ports				RF outputs	
	1	2	3	4	1	2
KSW, KSWA	-v	0	—	—	On	Off
MSW, MSWA	0	-v	—	—	Off	On
MSWT					"On" Path (other paths are "OFF")	
	0	-v	-v	-v	Tx-J2	
	-v	0	-v	-v	Tx-J1	
	-v	-v	0	-v	Rx-J1	
	-v	-v	-v	0	Rx-J2	
	0	-v	0	-v	Tx-J2 & Rx-J1	
-v	0	-v	0	Tx-J1 & Rx-J2		

pin connections

see case style outline drawings

PORT	eh	ek	es	et	PORT	eu
RF IN	2	1	2	1	Tx	2
RF OUT 1	5	5	8	6	Rx	6
RF OUT 2	8	—	5	3	J1	4
+5V	—	—	—	—	J2	8
CONTROL 1	3	2	3	5	CONTROL 1	1
CONTROL 2	1	3	1	4	CONTROL 2	3
GND EXT.	4,6,7	4,6,7,8	4,6,7	2,7,8	CONTROL 3	5
					CONTROL 4	7

Application Note for Model MSWT-4-20 Transmit-Receive Switch:

The functional schematic diagram for a diversity application of the switch is shown in Figure 1, with the required external components including 4 independent drivers at the control ports. When operation as a transfer switch is desired only 2 drivers are needed, one connected to the V1 and V3 ports together, and the other connected to the V2 and V4 ports. In either case, two DC return paths are needed for the control voltages, represented by the ground symbols in the diagram. These returns must be via oppositely situated RF ports (Tx and Rx or J1 and J2), and can be furnished incidentally by the user's RF terminating devices themselves. However, if those devices are AC-coupled (that is, they contain DC blocking capacitors), then the shunt resistors shown in the diagram are needed. The resistors should be installed either at the Tx and Rx ports (connection shown as solid), or at J1 and J2 (shown dotted), with equal effect. If one external RF device has a DC return to ground, for example, then only one resistor is needed; it must be installed at the opposite RF port of the switch. The resistance of each of the external DC returns should be 20K ohms or less, for proper ON/OFF FETs.

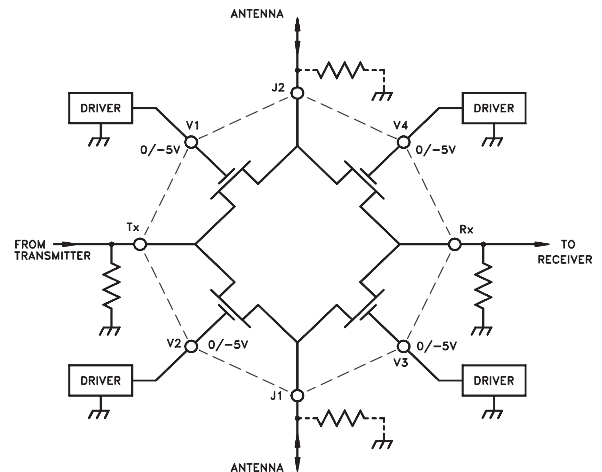


Figure 1. FUNCTIONAL SCHEMATIC DIAGRAM (Transmit-Receive application)

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