

Coaxial Switch GaAs

NON-CATALOG

ZSWA-4-30DR+

50Ω SP4T, TTL Driver, Absorptive DC¹ to 3 GHz



CASE STYLE: CV665

Connectors	Model
SMA	ZSWA-4-30DR+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

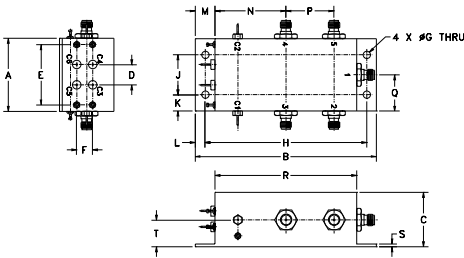
Operating Temperature	-30°C to 85°C
Storage Temperature	-55°C to 100°C
Input Power	see Table
Vcontrol	(V+) +0.4V

Permanent damage may occur if any of these limits are exceeded.

Coaxial/Pin Connections

RF IN	1
RF OUT 1	2
RF OUT 2	3
RF OUT 3	4
RF OUT 4	5
CONTROL 1	C5
CONTROL 2	C3
CONTROL 3	C4
CONTROL 4	C6
+5V (V+)	C2
-5V (V-)	C1

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
1.61	4.00	1.20	.45	1.33	.35	.161	3.560	.880	.36
40.89	101.60	30.48	11.43	33.78	8.89	4.09	90.42	22.35	9.14
L	M	N	P	Q	R	S	T	wt	
.22	.44	1.56	1.06	.80	3.12	.06	.59	grams	
5.59	11.18	39.62	26.92	20.32	79.25	1.52	14.99	150.0	

Features

- wideband, DC to 3 GHz
- low video leakage, 30 mVp-p typ.
- high isolation, 37 dB typ. @ 2 GHz
- integral TTL driver

Applications

- transmitter/receiver isolation
- automated switching networks
- cellular
- PCN

Electrical Specifications

FREQ. ¹ (GHz)	INSERTION LOSS (dB)						1dB COMPR. (dBm)			IN-OUT ISOLATION (dB)						
	DC-500 MHz		500-2000 MHz		2000-3000 MHz		DC-500 MHz	500-2000 MHz	2000-3000 MHz	DC-500 MHz		500-2000 MHz		2000-3000 MHz		
f _L	f _U	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Min.	Typ.	Min.
DC	3	1.0	1.8	1.5	3.0	2.0	3.9	23*	25	25	50	40	37	32	31	26

¹1dB compression gradually decreases to 10 dBm at 1 MHz

Additional Specifications

*TTL Control Voltage Low Threshold, V	0/V+		
High Threshold, V	0.8 max. 3.5 min.		
TTL Control Current, mA	0.2 max. 0.02 max.		
High V, mA	+5±0.5		
Low V, mA	-5±0.25		
Positive Supply V. (V+)	4 max		
Negative Supply V. (V-)	20 max.		
Positive Supply Current, mA	1.28 typ., ON 1.24 typ., OFF DC-2GHz		
Negative Supply Current, mA	25 typ.		
VSWR(:1)	45 typ.		
Rise/Fall time (10%-90%), ns	30 typ.		
Switching time, 50% of Control to 90% RF (Turn-on), ns	30X10 ⁶		
10% RF (Turn-off), ns			
**Video Leakage, mVp-p 0/+5V Control			
MTBF, hrs @ 85°C case			
Max. Input Power, dBm	DC-100 MHz	100-500 MHz	500-3000 MHz
Steady state control	+20	+24	+30
As Modulator	+8	+14	+20

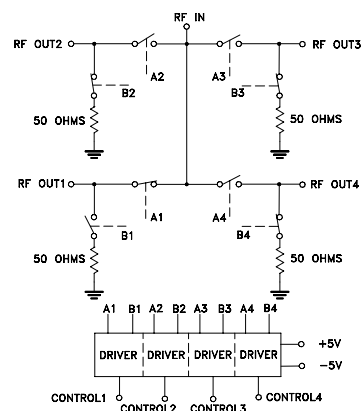
* Do not apply control voltage high prior to applying V+

** Video leakage or break through is defined as leakage of TTL switching signal to RF output ports.
1. All RF connections must be DC blocked or held at 0V DC.

CONTROL LOGIC

Control Ports				RF outputs			
1	2	3	4	1	2	3	4
Low	High	High	High	On	Off	Off	Off
High	Low	High	High	Off	On	Off	Off
High	High	Low	High	Off	Off	On	Off
High	High	High	Low	Off	Off	Off	On

Electrical Schematic



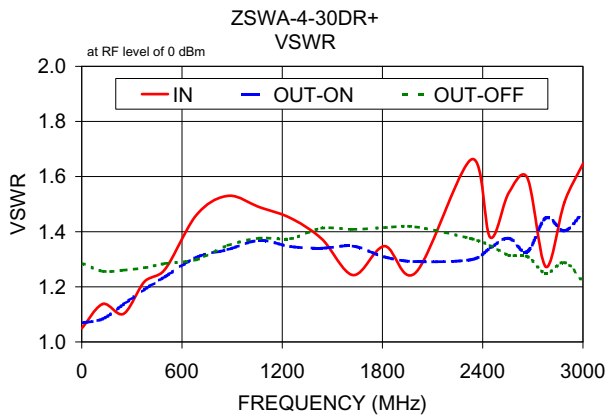
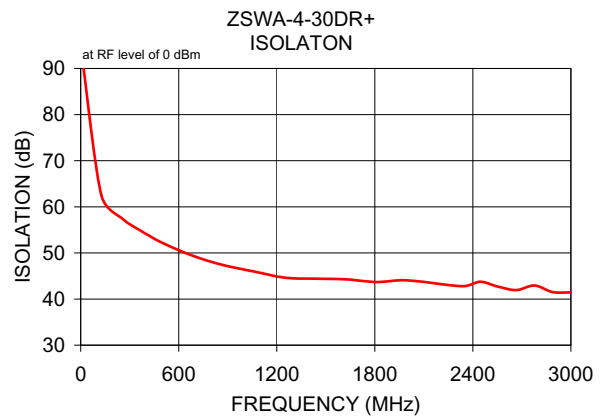
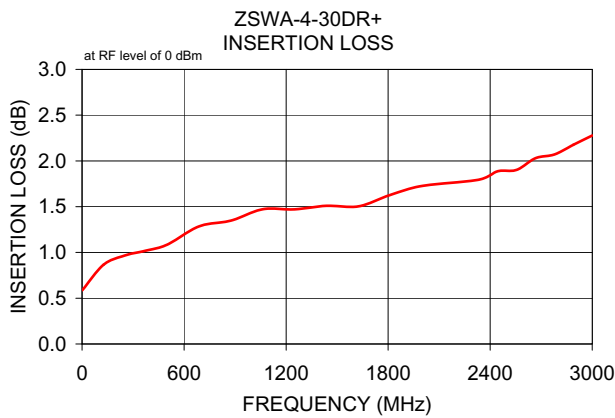
Notes

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Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) TTL Low @ 0V IN-OUT		OFF ISOLATION (dB) TTL High @ 5V IN-OUT		VSWR IN	VSWR OUT ON	VSWR OUT OFF
	\bar{x}	σ	\bar{x}	σ			
1.00	0.59	0.007	94.53	1.66	1.05	1.07	1.29
125.75	0.87	0.008	62.61	0.49	1.14	1.08	1.26
250.50	0.97	0.007	57.54	0.31	1.10	1.14	1.26
375.25	1.02	0.011	54.64	0.24	1.22	1.19	1.27
500.00	1.09	0.012	52.17	0.23	1.26	1.24	1.28
687.50	1.28	0.011	49.37	0.19	1.46	1.31	1.30
875.00	1.35	0.010	47.33	0.26	1.53	1.34	1.35
1062.50	1.47	0.013	45.96	0.26	1.49	1.37	1.38
1250.00	1.47	0.017	44.64	0.20	1.45	1.35	1.37
1437.50	1.51	0.021	44.41	0.25	1.37	1.34	1.41
1625.00	1.50	0.022	44.27	0.34	1.24	1.35	1.41
1812.50	1.63	0.036	43.69	0.29	1.35	1.31	1.41
2000.00	1.73	0.040	44.05	0.31	1.25	1.29	1.42
2333.33	1.80	0.042	42.78	0.29	1.66	1.30	1.37
2444.44	1.89	0.058	43.76	0.34	1.38	1.34	1.35
2555.56	1.90	0.055	42.68	0.34	1.54	1.38	1.31
2666.67	2.03	0.062	41.94	0.29	1.60	1.33	1.31
2777.78	2.07	0.069	42.93	0.42	1.27	1.45	1.25
2888.89	2.18	0.072	41.51	0.36	1.51	1.40	1.29
3000.00	2.28	0.078	41.43	0.38	1.65	1.47	1.22



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Switch SP4T , 50Ω

ZSWA-4-30DR+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS TTL Low @ 0V (dB) IN-OUT , "ON"	ISOLATION TTL High @ 5V (dB) IN-OUT , "OFF"	VSWR		
			IN	(:1) OUT , "ON"	OUT , "OFF"
1	0.59	94.53	1.05	1.07	1.29
126	0.87	62.61	1.14	1.08	1.26
251	0.97	57.54	1.10	1.14	1.26
375	1.02	54.64	1.22	1.19	1.27
500	1.09	52.17	1.26	1.24	1.28
688	1.28	49.37	1.46	1.31	1.30
875	1.35	47.33	1.53	1.34	1.35
1063	1.47	45.96	1.49	1.37	1.38
1250	1.47	44.64	1.45	1.35	1.37
1438	1.51	44.41	1.37	1.34	1.41
1625	1.50	44.27	1.24	1.35	1.41
1813	1.63	43.69	1.35	1.31	1.41
2000	1.73	44.05	1.25	1.29	1.42
2333	1.80	42.78	1.66	1.30	1.37
2444	1.89	43.76	1.38	1.34	1.35
2556	1.90	42.68	1.54	1.38	1.31
2667	2.03	41.94	1.60	1.33	1.31
2778	2.07	42.93	1.27	1.45	1.25
2889	2.18	41.51	1.51	1.40	1.29
3000	2.28	41.43	1.65	1.47	1.22

Notes

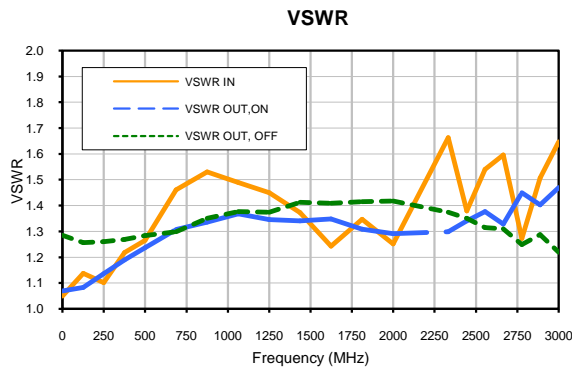
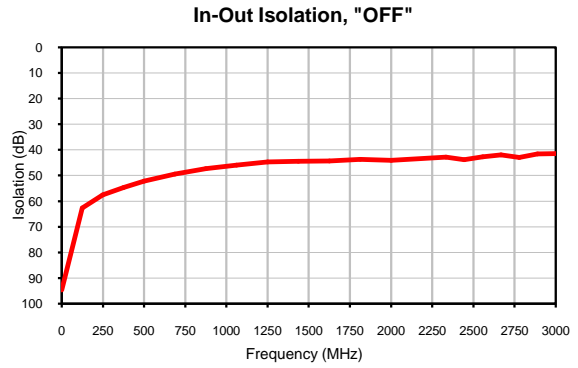
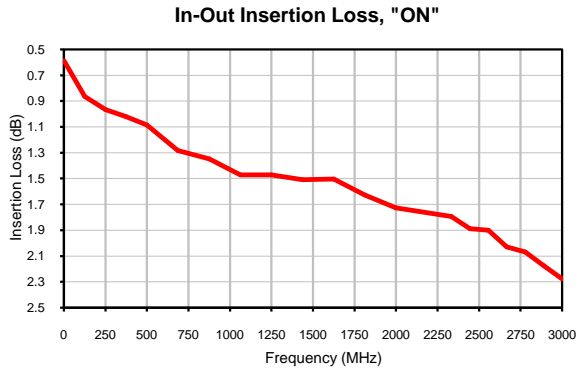
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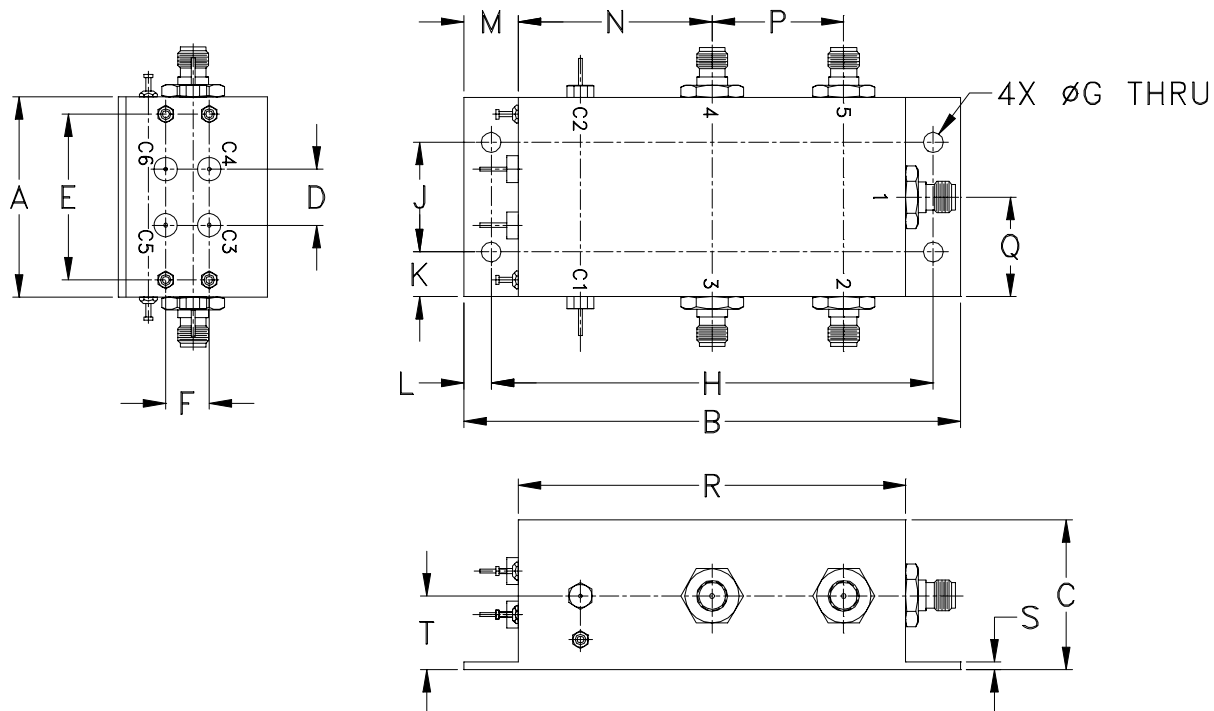
Typical Performance Curves



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Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
CV665	1.61 (40.89)	4.00 (101.6)	1.20 (30.48)	.45 (11.43)	1.33 (33.78)	.35 (8.89)	.161 (4.09)	3.560 (90.42)	.880 (22.35)	.36 (9.14)	.22 (5.59)	.44 (11.18)	1.56 (39.62)

CASE#	P	Q	R	S	T	WT. GRAMS
CV665	1.06 (26.92)	.80 (20.32)	3.12 (79.25)	.06 (1.52)	.59 (14.99)	150.0

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-30° to 85°C Ambient Environment	Individual Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I