Ceramic, Hermetic

SPDT RF Switch

50Ω 500-6000 MHz

Absorptive RF Switch with internal driver.
Single Supply Voltage, +3V to +5V

CSWA2-63DR+

CASE STYLE: DG1293

MIL screening available
Please consult Applications Dept.

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

Product Features

- Wide bandwidth, 500 to 6000 MHz
- High Isolation, 65 dB typ. at 1 GHz
- Low insertion loss, 1.0 dB typ.
- Internal CMOS driver
- Fast switching, Rise/fall time, 30 ns typ.
- Built rugged for tough environments
- Hermetically sealed
- Wide operating temperature, -55°C to 125°C

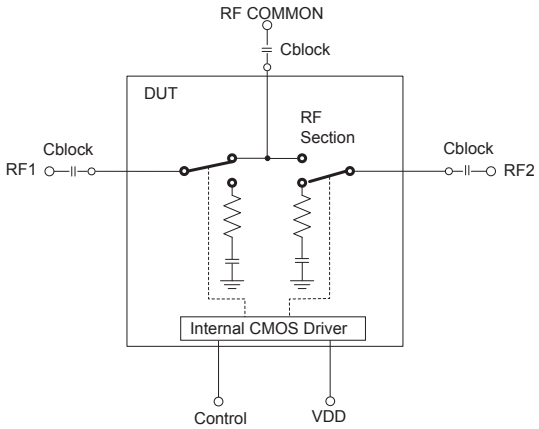
Typical Applications

- Automated switching networks
- Cellular
- PCN
- ISM, WCDMA, WiMAX
- Military

General Description

The CSWA2-63DR+ is a 50Ω high isolation, absorptive SPDT RF switch designed for wireless applications, covering a broad frequency range from 500 to 6000 MHz with low insertion loss. In non absorptive mode, the switch is usable down to 0.3 MHz. It may also be used in 75Ω systems over 0.3-3000 MHz. The CSWA2-63DR+ operates on a single supply voltage in the range of +3V to +5V. This unit includes an internal CMOS driver. The CSWA2-63DR+ switch comes in a low profile hermetic very small size package, 4mm x 4mm x 1.2mm. Expected MTBF is 373 years at 85°C case temperature. This switch is capable of meeting MIL requirements for gross leak, fine leak, thermal shock, vibration, acceleration, mechanical shock, and HTOL. The testing can be done if requested.

Schematic and Application Circuit



Cblock should be free of resonance over frequency of operation.

Frequency (MHz)	Cblock (Suggested value)
0.3-500	0.1μF
500-6000	47pF

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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RF Electrical Specifications[1], 500 - 6000 MHz, T_{AMB}=25°C, V_{DD}= +3V to +5V

Parameter		Min.	Typ.	Max.	Units
Frequency Range		500		6000	MHz
Insertion Loss	0.3 to 500 MHz		1.0		dB
	500 to 2000 MHz		1.0	1.3	
	2000 to 3000 MHz		1.1	1.4	
	3000 to 4000 MHz		1.2	1.5	
	4000 to 6000 MHz		1.5	1.8	
Isolation between Common port and RF1/RF2 Ports	0.3 to 500 MHz	—	60		dB
	500 to 2000 MHz	50	60		
	2000 to 3000 MHz	47	52		
	3000 to 4000 MHz	45	50		
	4000 to 6000 MHz	40	44		
Isolation between RF1 and RF2 ports	0.3 to 500 MHz	—	70		dB
	500 to 2000 MHz	52	60		
	2000 to 3000 MHz	47	52		
	3000 to 4000 MHz	44	50		
	4000 to 6000 MHz	36	44		
Return Loss (ON STATE)	0.3 to 500 MHz		20		dB
	100 to 2000 MHz		20		
	2000 to 3000 MHz		15		
	3000 to 4000 MHz		15		
	4000 to 6000 MHz		15		
Return Loss @ RF1/RF2 ports (OFF STATE)	500 to 2000 MHz		13		dB
	2000 to 3000 MHz		13		
	3000 to 4000 MHz		14		
	4000 to 6000 MHz		14		
Input IP3	V_{DD}=3V, 500 to 2000 MHz		47		dBm
	2000 to 6000 MHz		40		
	V_{DD}=5V, 500 to 2000 MHz		50		
	2000 to 6000 MHz		45		
Input 1dB Compression [2]	V_{DD}=3V, 500 to 2000 MHz		24		dBm
	2000 to 6000 MHz		24		
	V_{DD}=5V, 500 to 2000 MHz		30		
	2000 to 6000 MHz		27		

DC Electrical Specifications

Parameter	Min.	Typ.	Max.	Units
VDD, Supply Voltage	3		5	V
Supply Current (V_{DD} = 5V)[3]		50		µA
Control Voltage Low	0		0.5	V
Control Voltage High[4]	2.7[5]		V_{DD}	V
Control Current		5		µA

Notes:
1. Insertion loss values are deembedded from test board loss. Tested using Agilent's N5230A network analyzer with internal DC blocks, except for IP3 and compression.
2. Note absolute maximum rating for input and dissipated power. At 5V, over 2000-6000 MHz, 0.2 dB compression.
3. Increases with switching repetition rate. See graph.
4. CMOS interface latch-up condition may occur when logic high signal is applied prior to power supply.
5. 3.5V for V_{DD}=4 to 5V

Switching Specifications at V_{DD}=5V

Parameter	Min.	Typ.	Max.	Units
Rise/Fall Time (10 to 90% or 90 to 10% RF)		23		nSec
Switching Time (50% CTRL to 90/10% RF)		35		nSec
Video Feedthrough (Control 0-5V, Frequency 1 MHz)		25		mV_{P-P}

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-55°C to 125°C
Storage Temperature	-65°C to 150°C
V_{DD}, Supply Voltage	2.7 to 5.5V
Voltage Control	-0.2V Min. V_{DD} Max.
RF input power	1Watt
Dissipated Power at 25°C	370mW
ESD, HBM	Class 1A (250 to <500V) per JESD22-A114
ESD, MM	Class A (passes 50V) per JESD22-A115
ESD, CDM	Class III (500 to <1000V) per JESD22-C101

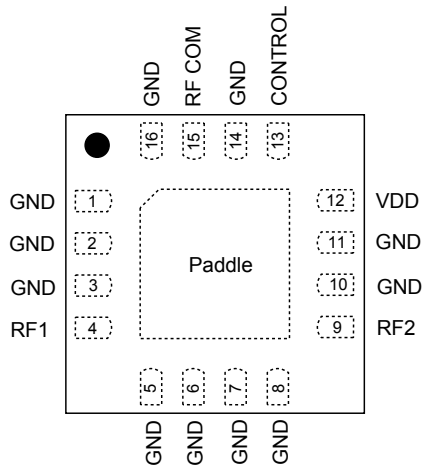
Truth Table (State of control voltage selects the desired switch state)

State of Control Voltage	Switch State - RF Common to	
	RF1	RF2
Low	ON	OFF
High	OFF	ON
ON- low insertion loss state OFF- Isolation State		

Pad Connections

Function	Pad Number	Description
RF COM	15	RF Common/ SUM Port
RF1	4	RF Out #1/In Port #1
RF2	9	RF Out #1/In Port #2
Control	13	CMOS Control IN
VDD	12	Supply Voltage
GND	1,2,3,5,6,7,8,10, 11,14,16, paddle	RF Ground

Pad Configuration (Top View)



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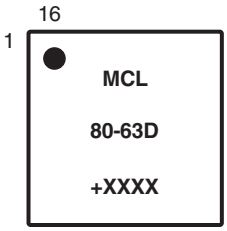
Product Marking



Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Performance data, graphs

Case Style: DG1293

Ceramic, finish: gold over nickel

Tape & Reel: F70

Standard quantities available on reel: 7” reels with 20, 50, 100, 200, 500, 1K devices.
13” reels with 2K devices.

Suggested Layout for PCB Design: PL-279

Evaluation Board: TB-461+

Environmental Ratings: ENV40

Typical Performance Data

RF FREQ (MHz)	INSERTION LOSS (dB)			
	VDD=+3V		VDD=+5V	
	RF COM-RF1	RF COM-RF2	RF COM-RF1	RF COM-RF2
0.3	0.95	0.96	0.97	1.00
1	0.93	0.96	0.94	0.97
5	0.88	0.94	0.90	0.96
10	0.87	0.93	0.89	0.95
20	0.87	0.94	0.89	0.95
30	0.87	0.95	0.89	0.96
40	0.87	0.95	0.89	0.96
50	0.87	0.95	0.89	0.96
60	0.87	0.95	0.89	0.97
70	0.87	0.95	0.89	0.97
80	0.88	0.95	0.90	0.97
90	0.88	0.94	0.90	0.96
100	0.88	0.95	0.90	0.97
200	0.88	0.96	0.90	0.97
300	0.88	0.97	0.90	0.98
400	0.88	0.97	0.90	0.99
500	0.88	0.98	0.90	0.99
600	0.87	0.98	0.90	1.00
700	0.88	0.98	0.90	1.00
800	0.88	0.99	0.90	1.00
900	0.89	1.00	0.91	1.01
1000	0.90	1.00	0.92	1.02
1100	0.91	1.01	0.93	1.03
1200	0.93	1.02	0.95	1.03
1300	0.94	1.03	0.96	1.04
1400	0.96	1.03	0.97	1.05
1500	0.97	1.04	0.99	1.06
1600	0.98	1.05	1.00	1.06
1700	0.98	1.05	1.00	1.07
1800	0.99	1.06	1.01	1.07
1900	0.98	1.06	1.00	1.08
2000	0.98	1.07	1.00	1.09
2100	0.97	1.07	0.99	1.09
2200	0.97	1.08	0.99	1.10
2300	0.97	1.09	0.99	1.10
2400	0.97	1.09	0.99	1.11
2500	0.97	1.10	1.00	1.12
2600	0.98	1.10	1.01	1.13
2700	0.99	1.11	1.02	1.13
2800	1.01	1.12	1.03	1.14
2900	1.02	1.12	1.05	1.14
3000	1.04	1.13	1.06	1.15
3250	1.04	1.13	1.06	1.16
3500	1.01	1.13	1.04	1.16
3750	1.01	1.14	1.03	1.16
4000	1.05	1.17	1.07	1.18
4250	1.12	1.21	1.13	1.22
4500	1.18	1.27	1.19	1.28
4750	1.22	1.33	1.23	1.34
5000	1.25	1.37	1.26	1.38
5250	1.26	1.37	1.27	1.39
5500	1.25	1.36	1.27	1.37
5750	1.26	1.34	1.27	1.34
6000	1.26	1.33	1.27	1.33

RF FREQ (MHz)	ISOLATION (dB)							
	VDD=+3V		VDD=+5V		VDD=+3V		VDD=+5V	
	RF COM-RF1	RF COM-RF2	RF COM-RF1	RF COM-RF2	RF1-RF2 State LOW*	RF1-RF2 State HIGH*	RF1-RF2 State LOW*	RF1-RF2 State HIGH*
0.3	103.28	93.64	96.64	101.06	96.74	84.91	95.19	86.81
1	113.23	103.22	95.85	98.18	100.00	99.52	102.25	106.48
5	79.17	87.42	81.83	86.90	89.17	80.37	89.30	81.04
10	72.73	82.78	74.13	83.33	83.63	72.75	87.79	75.91
20	69.52	81.06	71.13	83.55	82.05	70.41	82.93	72.36
30	65.23	84.57	66.32	86.30	84.63	66.14	85.39	67.68
40	62.49	82.08	63.59	83.46	82.41	63.50	83.24	64.91
50	61.03	79.81	61.97	81.07	80.41	61.95	82.23	63.10
60	60.01	78.50	60.89	79.51	79.60	60.94	80.74	62.01
70	59.32	76.89	60.11	78.12	77.93	60.28	79.39	61.24
80	58.86	75.69	59.57	76.51	76.47	59.72	78.09	60.65
90	58.71	75.84	59.18	75.85	76.68	59.64	75.89	60.10
100	58.82	75.41	59.49	76.50	76.30	59.65	78.02	60.53
200	60.05	71.74	60.28	72.37	73.13	60.41	74.08	60.85
300	61.81	70.83	61.97	70.93	72.04	61.63	72.91	61.94
400	62.99	69.63	63.15	69.87	71.04	62.43	71.66	62.78
500	63.73	68.70	63.79	68.71	69.93	62.91	70.58	63.33
600	63.91	67.51	64.00	67.78	68.94	63.45	69.23	63.72
700	63.82	66.63	63.88	66.81	68.05	63.90	68.16	64.09
800	63.45	65.80	63.52	65.82	66.98	64.18	67.27	64.29
900	62.80	64.79	62.89	64.97	66.03	64.26	66.18	64.58
1000	62.22	63.91	62.24	64.02	65.01	64.33	65.10	64.46
1100	61.54	63.07	61.60	63.23	64.12	64.27	64.13	64.35
1200	60.87	62.36	60.96	62.37	63.22	64.08	63.30	64.32
1300	60.22	61.64	60.36	61.78	62.44	64.00	62.54	64.03
1400	59.70	60.91	59.78	61.15	61.73	63.77	61.86	63.85
1500	59.07	60.16	59.14	60.41	60.88	63.34	60.97	63.39
1600	58.53	59.56	58.68	59.78	60.22	62.73	60.19	62.90
1700	58.09	59.00	58.24	59.14	59.44	62.10	59.46	62.34
1800	57.67	58.38	57.82	58.55	58.83	61.45	58.85	61.70
1900	57.30	57.85	57.45	58.13	58.12	60.84	58.27	61.08
2000	57.02	57.55	57.19	57.80	57.64	60.28	57.75	60.49
2100	56.64	57.06	56.85	57.20	56.98	59.53	57.07	59.71
2200	56.37	56.51	56.53	56.69	56.32	58.89	56.36	59.02
2300	55.97	55.98	56.15	56.17	55.49	58.10	55.65	58.27
2400	55.80	55.82	55.93	55.89	54.99	57.41	55.12	57.60
2500	55.57	55.34	55.73	55.48	54.40	56.80	54.50	56.93
2600	55.37	54.93	55.54	55.12	53.77	56.08	53.84	56.22
2700	55.21	54.62	55.39	54.74	53.22	55.43	53.29	55.54
2800	55.13	54.37	55.31	54.42	52.86	54.91	52.86	54.98
2900	54.75	53.45	54.93	53.58	52.15	54.28	51.96	54.22
3000	54.89	53.62	55.09	53.84	51.83	53.75	51.90	53.94
3250	54.81	53.08	54.91	53.11	50.33	52.24	50.35	52.39
3500	54.56	52.48	54.77	52.70	48.87	50.89	49.20	51.24
3750	54.28	51.71	54.57	51.97	47.64	49.76	47.94	50.09
4000	53.85	51.20	54.27	51.46	46.55	48.73	46.82	49.02
4250	53.24	50.67	53.57	50.98	45.70	47.84	45.91	48.19
4500	52.65	50.24	52.78	50.36	44.90	47.00	45.11	47.34
4750	52.42	49.89	52.15	49.33	43.98	46.37	44.25	46.76
5000	51.49	48.85	51.76	48.61	43.13	45.58	43.35	45.87
5250	50.20	48.29	50.25	48.01	42.22	44.39	42.78	44.93
5500	49.52	47.81	48.83	47.50	41.57	43.37	42.23	44.08
5750	48.22	46.88	47.91	46.33	40.79	42.47	41.39	43.09
6000	47.13	45.73	46.96	44.94	39.91	41.54	40.41	42.00

***Note:**

State of Control Voltage	RF Common to	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON

ON - Low insertion loss state
OFF - Isolation state

Typical Performance Data

RF FREQ (MHz)	VSWR (:1)							
	VDD=+3V				VDD=+5V			
	RF COM		RF1	RF2	RF COM		RF1	RF2
	State LOW*	State HIGH*	State LOW*	State HIGH*	State LOW*	State HIGH*	State LOW*	State HIGH*
0.3	1.19	1.20	1.20	1.20	1.19	1.21	1.20	1.21
1	1.18	1.20	1.19	1.20	1.19	1.20	1.19	1.20
5	1.17	1.19	1.17	1.19	1.18	1.19	1.17	1.19
10	1.17	1.17	1.17	1.17	1.18	1.18	1.17	1.18
20	1.17	1.17	1.17	1.16	1.18	1.17	1.17	1.17
30	1.17	1.16	1.17	1.16	1.18	1.16	1.18	1.16
40	1.17	1.15	1.17	1.15	1.18	1.16	1.18	1.16
50	1.17	1.15	1.17	1.15	1.18	1.16	1.18	1.16
60	1.17	1.15	1.17	1.15	1.18	1.16	1.18	1.16
70	1.18	1.15	1.17	1.15	1.18	1.16	1.18	1.16
80	1.18	1.15	1.17	1.15	1.18	1.16	1.18	1.16
90	1.18	1.15	1.17	1.16	1.18	1.16	1.18	1.16
100	1.18	1.15	1.17	1.15	1.18	1.16	1.18	1.16
200	1.17	1.15	1.18	1.16	1.18	1.16	1.18	1.16
300	1.17	1.15	1.18	1.16	1.17	1.16	1.18	1.16
400	1.16	1.15	1.18	1.16	1.16	1.16	1.18	1.17
500	1.16	1.15	1.17	1.16	1.16	1.16	1.18	1.17
600	1.16	1.16	1.17	1.17	1.16	1.16	1.18	1.17
700	1.16	1.16	1.17	1.17	1.16	1.16	1.18	1.18
800	1.17	1.16	1.17	1.18	1.18	1.16	1.17	1.18
900	1.19	1.16	1.16	1.18	1.19	1.16	1.17	1.18
1000	1.20	1.16	1.16	1.18	1.20	1.17	1.16	1.19
1100	1.22	1.17	1.15	1.18	1.22	1.17	1.16	1.19
1200	1.22	1.17	1.15	1.18	1.22	1.17	1.15	1.19
1300	1.23	1.18	1.14	1.18	1.23	1.17	1.14	1.18
1400	1.23	1.18	1.13	1.18	1.24	1.18	1.13	1.18
1500	1.23	1.18	1.12	1.17	1.23	1.18	1.13	1.18
1600	1.23	1.17	1.11	1.17	1.23	1.17	1.12	1.18
1700	1.23	1.17	1.11	1.17	1.23	1.17	1.11	1.18
1800	1.22	1.17	1.10	1.17	1.23	1.17	1.11	1.17
1900	1.22	1.16	1.11	1.17	1.23	1.16	1.12	1.18
2000	1.23	1.16	1.11	1.18	1.23	1.16	1.12	1.19
2100	1.23	1.15	1.12	1.19	1.23	1.16	1.13	1.20
2200	1.23	1.14	1.13	1.20	1.24	1.15	1.15	1.22
2300	1.23	1.14	1.15	1.22	1.24	1.15	1.16	1.24
2400	1.23	1.14	1.16	1.24	1.24	1.16	1.18	1.26
2500	1.24	1.15	1.18	1.27	1.25	1.16	1.20	1.28
2600	1.23	1.15	1.20	1.29	1.24	1.17	1.22	1.31
2700	1.23	1.16	1.22	1.31	1.24	1.17	1.24	1.33
2800	1.22	1.16	1.23	1.33	1.23	1.18	1.26	1.35
2900	1.21	1.17	1.25	1.34	1.22	1.19	1.27	1.37
3000	1.20	1.17	1.25	1.36	1.21	1.19	1.28	1.38
3250	1.17	1.17	1.26	1.36	1.18	1.19	1.29	1.39
3500	1.18	1.17	1.24	1.34	1.19	1.19	1.27	1.37
3750	1.24	1.21	1.20	1.29	1.25	1.23	1.23	1.33
4000	1.33	1.30	1.16	1.26	1.33	1.30	1.19	1.30
4250	1.41	1.42	1.18	1.28	1.41	1.42	1.20	1.30
4500	1.50	1.55	1.23	1.33	1.50	1.55	1.25	1.34
4750	1.60	1.65	1.29	1.38	1.60	1.66	1.30	1.39
5000	1.66	1.71	1.33	1.41	1.67	1.71	1.34	1.42
5250	1.67	1.70	1.34	1.40	1.68	1.71	1.35	1.40
5500	1.62	1.64	1.34	1.35	1.64	1.66	1.35	1.36
5750	1.55	1.56	1.30	1.29	1.56	1.58	1.33	1.31
6000	1.49	1.49	1.28	1.23	1.50	1.49	1.30	1.25

RF FREQ (MHz)	VSWR (:1)			
	VDD=+3V		VDD=+5V	
	RF1	RF2	RF1	RF2
	State HIGH*	State LOW*	State HIGH*	State LOW*
500	1.65	1.67	1.67	1.69
600	1.59	1.62	1.61	1.64
700	1.55	1.58	1.57	1.60
800	1.52	1.56	1.54	1.58
900	1.51	1.55	1.53	1.57
1000	1.49	1.54	1.52	1.57
1100	1.49	1.54	1.51	1.57
1200	1.48	1.54	1.51	1.57
1300	1.48	1.55	1.51	1.57
1400	1.48	1.55	1.51	1.58
1500	1.48	1.56	1.51	1.59
1600	1.48	1.57	1.51	1.60
1700	1.49	1.58	1.52	1.61
1800	1.49	1.59	1.52	1.62
1900	1.50	1.60	1.53	1.63
2000	1.50	1.61	1.53	1.65
2100	1.51	1.63	1.54	1.66
2200	1.51	1.64	1.55	1.67
2300	1.52	1.65	1.55	1.68
2400	1.52	1.65	1.56	1.69
2500	1.53	1.66	1.56	1.70
2600	1.53	1.67	1.57	1.71
2700	1.54	1.68	1.57	1.71
2800	1.54	1.68	1.57	1.72
2900	1.54	1.68	1.58	1.72
3000	1.54	1.68	1.58	1.72
3250	1.54	1.68	1.58	1.72
3500	1.53	1.67	1.57	1.71
3750	1.51	1.64	1.55	1.68
4000	1.48	1.60	1.52	1.64
4250	1.45	1.54	1.49	1.59
4500	1.41	1.48	1.45	1.52
4750	1.37	1.42	1.41	1.46
5000	1.33	1.35	1.37	1.39
5250	1.30	1.29	1.33	1.32
5500	1.27	1.23	1.31	1.27
5750	1.24	1.19	1.28	1.23
6000	1.23	1.17	1.27	1.21

***Note:**

State of Control Voltage	RF Common to	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON
ON - Low insertion loss state OFF - Isolation state		

Typical Performance Data

RF FREQ (MHz)	INPUT IP3 (dBm)			
	VDD=+3V		VDD =+5V	
	RF COM-RF1	RF COM-RF2	RF COM-RF1	RF COM-RF2
500	48.31	48.44	51.09	52.07
550	47.68	47.89	50.11	51.10
600	47.90	48.19	50.34	51.35
650	48.50	48.80	51.18	52.39
700	49.00	49.44	51.06	52.09
750	48.30	48.59	50.48	51.59
800	46.96	47.26	49.21	50.01
850	46.26	46.60	48.80	49.28
900	46.38	46.65	49.09	49.57
950	46.22	46.57	49.39	50.23
1000	47.01	47.71	50.54	51.48
1250	45.16	45.75	48.62	49.35
1500	46.04	46.37	49.04	49.61
1750	45.22	45.78	48.69	49.15
2000	43.41	44.05	46.53	47.23
2250	43.00	43.88	46.43	47.21
2500	41.60	42.73	45.28	46.29
2750	42.22	42.86	45.72	46.54
3000	42.10	42.79	45.65	46.61
3250	40.72	41.34	44.19	45.24
3500	40.91	41.27	44.62	45.61
3750	41.21	40.94	45.35	45.62
4000	40.58	39.35	44.60	43.72
4250	40.61	40.00	44.58	44.15
4500	39.55	38.99	43.36	43.13
4750	38.62	38.58	42.49	42.76
5000	39.17	39.38	43.01	43.36
5250	38.69	38.86	43.10	43.11
5500	37.95	37.69	42.12	41.84
5750	37.84	37.60	41.68	41.62
6000	36.56	36.50	41.02	41.21

RF FREQ (MHz)	INPUT 1dB COMPRESSION (dBm)	
	VDD=+3V	VDD =+5V
	Pin	Pin
500	23.96	30.61
600	23.87	30.60
700	23.73	30.52
800	23.78	30.45
900	23.57	30.34
1000	23.41	30.20
1100	23.81	30.31
1200	23.76	30.33
1300	23.88	30.43
1400	24.03	30.43
1500	24.24	30.64
1600	24.23	30.67
1700	24.46	30.79
1800	24.35	30.60
1900	24.30	30.48
2000	24.29	30.62

DC Current vs Repetition Rate		
IDD (micro A)		
Typ.		
Rep Rate (MHz)	VDD=+3V	VDD=+5V
0.0005	0.75	6.38
1	62.50	93.75
2	121.25	176.00
3	175.25	252.50
4	233.50	334.00
5	282.50	409.25
6	319.00	462.00
7	386.50	559.50
8	432.75	614.75
9	491.00	729.50
10	540.50	776.75

RF FREQ (MHz)	COMPRESSION (dB) @ FIXED POWER FOR PIN=27dBm	
	VDD=+5V	
	RF COM-RF1	RF COM-RF2
2000	0.11	0.08
2200	0.06	0.03
2400	0.03	0.03
2600	0.04	0.02
2800	0.05	0.03
3000	0.04	0.03
3100	0.04	0.02
3200	0.04	0.03
3300	0.05	0.03
3400	0.07	0.04
3500	0.07	0.04
3600	0.06	-0.04
3625	0.04	0.03
3650	0.06	0.03
3675	0.06	0.03
3700	0.04	0.03
3725	0.05	0.03
3750	0.07	0.03
3775	0.05	0.03
3800	0.04	-0.03
3900	0.07	0.04
4000	0.09	0.06
4100	0.14	0.06
4200	0.09	0.05
4300	0.04	0.03
4400	0.04	0.04
4500	0.04	0.04
4600	0.09	0.06
4700	0.10	0.06
4800	0.06	0.04
4900	0.05	0.04
5000	0.14	0.10
5200	0.13	0.10
5400	0.11	0.08
5600	0.19	0.17
5800	0.24	0.24
6000	0.36	0.41

Typical Performance Data

RF FREQ (MHz)	INSERTION LOSS (dB) @ VDD=+5V OVER TEMPERTURE					
	RF COM-RF1			RF COM-RF2		
	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C
0.3	0.89	0.99	1.12	0.90	1.06	1.28
1	0.82	0.94	1.07	0.84	1.01	1.20
5	0.77	0.89	1.05	0.83	0.98	1.17
10	0.75	0.88	1.04	0.83	0.97	1.14
20	0.75	0.88	1.04	0.85	0.97	1.12
30	0.75	0.88	1.04	0.84	0.96	1.12
40	0.75	0.88	1.04	0.85	0.97	1.12
50	0.75	0.88	1.04	0.86	0.98	1.13
60	0.75	0.88	1.04	0.87	0.98	1.13
70	0.75	0.88	1.04	0.87	0.98	1.14
80	0.74	0.88	1.04	0.87	0.98	1.14
90	0.74	0.88	1.04	0.87	0.99	1.14
100	0.74	0.88	1.04	0.87	0.99	1.14
200	0.74	0.88	1.05	0.86	0.99	1.14
300	0.72	0.88	1.06	0.85	0.98	1.15
400	0.71	0.88	1.07	0.83	0.98	1.16
500	0.71	0.88	1.07	0.82	0.98	1.16
600	0.70	0.88	1.07	0.82	0.98	1.17
700	0.69	0.88	1.08	0.80	0.97	1.17
800	0.69	0.88	1.09	0.80	0.98	1.18
900	0.69	0.89	1.10	0.80	0.99	1.19
1000	0.69	0.89	1.11	0.80	0.99	1.20
1100	0.70	0.91	1.13	0.81	1.00	1.22
1200	0.71	0.92	1.14	0.81	1.01	1.24
1300	0.71	0.93	1.16	0.82	1.02	1.25
1400	0.72	0.94	1.17	0.82	1.03	1.26
1500	0.71	0.95	1.18	0.82	1.04	1.27
1600	0.71	0.95	1.18	0.82	1.05	1.29
1700	0.71	0.96	1.19	0.82	1.06	1.30
1800	0.72	0.96	1.20	0.83	1.06	1.31
1900	0.71	0.96	1.21	0.82	1.06	1.32
2000	0.71	0.96	1.21	0.81	1.06	1.32
2100	0.70	0.96	1.21	0.81	1.06	1.32
2200	0.70	0.96	1.21	0.80	1.06	1.32
2300	0.69	0.96	1.22	0.80	1.06	1.32
2400	0.69	0.96	1.22	0.80	1.06	1.33
2500	0.69	0.96	1.22	0.80	1.06	1.34
2600	0.69	0.97	1.24	0.81	1.08	1.35
2700	0.70	0.98	1.25	0.82	1.10	1.37
2800	0.70	0.98	1.26	0.83	1.11	1.39
2900	0.71	1.00	1.28	0.84	1.12	1.40
3000	0.72	1.01	1.29	0.85	1.13	1.42
3250	0.71	1.01	1.31	0.84	1.13	1.43
3500	0.68	0.99	1.30	0.81	1.11	1.42
3750	0.67	0.99	1.31	0.80	1.10	1.42
4000	0.68	1.02	1.34	0.82	1.14	1.46
4250	0.74	1.08	1.40	0.88	1.20	1.52
4500	0.80	1.14	1.47	0.95	1.27	1.60
4750	0.83	1.19	1.53	0.99	1.32	1.65
5000	0.83	1.21	1.57	0.99	1.33	1.69
5250	0.82	1.21	1.60	0.98	1.34	1.72
5500	0.81	1.21	1.63	0.95	1.33	1.74
5750	0.83	1.23	1.65	0.96	1.33	1.76
6000	0.81	1.24	1.67	0.91	1.33	1.76

RF FREQ (MHz)	ISOLATION (dB) @ VDD=+5V OVER TEMPERTURE											
	RF COM-RF1			RF COM-RF2			RF1-RF2 State LOW*			RF1-RF2 State HIGH*		
	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C
0.3	114.58	103.24	109.08	91.98	94.71	96.46	92.44	85.71	92.70	88.38	82.51	84.99
1	112.53	99.44	92.55	97.40	99.53	94.85	101.27	97.14	98.18	99.06	104.32	91.86
5	80.75	80.86	81.87	86.35	87.84	87.65	80.66	80.99	83.16	86.43	87.41	88.37
10	76.31	75.90	75.89	85.30	84.87	90.57	76.57	76.84	76.96	85.61	90.90	85.91
20	66.49	67.28	67.74	73.27	76.05	78.36	67.09	68.04	68.99	73.24	76.27	78.92
30	67.50	66.64	66.26	74.99	79.13	83.09	68.67	68.14	68.17	74.96	78.59	81.17
40	66.54	64.89	64.28	79.18	86.24	86.24	67.97	66.57	66.29	78.27	81.96	84.90
50	63.94	62.72	62.69	85.33	85.77	82.63	65.34	64.39	64.50	81.44	84.63	83.64
60	62.25	61.47	61.69	86.80	82.89	80.30	63.58	63.12	63.47	83.09	83.61	81.89
70	61.04	60.57	61.02	84.02	80.55	78.46	62.42	62.08	62.75	82.63	81.07	80.59
80	60.20	59.95	60.63	80.80	78.70	77.11	61.56	61.49	62.34	81.68	80.87	79.40
90	59.77	59.72	60.41	79.07	77.29	76.51	60.99	61.11	62.18	79.78	79.02	78.36
100	59.31	59.42	60.36	77.82	75.92	75.62	60.44	60.71	61.92	78.70	78.07	77.66
200	59.56	60.44	61.92	72.92	72.70	72.81	60.25	61.24	62.90	74.49	74.71	75.13
300	60.94	61.95	63.62	71.03	71.19	71.68	61.05	62.22	64.00	73.06	73.07	73.88
400	62.11	63.27	64.53	69.65	69.79	70.66	61.64	62.88	64.81	71.41	72.04	72.77
500	62.94	63.88	64.85	68.68	68.95	69.73	62.21	63.51	65.21	70.24	70.77	71.92
600	63.27	64.01	64.80	67.49	67.75	68.67	62.55	63.76	65.53	69.07	69.64	70.75
700	63.41	63.90	64.54	66.44	66.87	67.46	62.80	63.91	65.67	67.92	68.53	69.59
800	63.03	63.51	63.91	65.42	65.91	66.56	62.85	64.04	65.75	66.72	67.52	68.46
900	62.71	63.04	63.29	64.53	64.86	65.64	63.01	64.43	65.85	65.54	66.38	67.37
1000	62.10	62.32	62.55	63.58	63.95	64.73	62.87	64.11	65.81	64.73	65.38	66.55
1100	61.35	61.50	61.90	62.77	63.11	63.81	62.91	63.94	65.67	63.95	64.50	65.49
1200	60.71	61.00	61.30	61.80	62.40	63.01	62.62	63.71	65.17	62.90	63.58	64.69
1300	60.09	60.31	60.66	60.85	61.51	62.35	62.33	63.42	65.08	62.09	62.72	64.07
1400	59.42	59.70	60.20	60.31	60.78	61.59	62.13	63.09	64.67	61.38	61.95	63.19
1500	58.79	59.06	59.56	59.38	59.96	60.76	61.60	62.54	63.97	60.18	61.03	62.07
1600	58.07	58.43	58.96	58.63	59.29	60.35	60.94	61.99	63.33	58.77	59.99	60.82
1700	57.63	58.13	58.61	57.85	58.65	59.56	60.86	61.78	63.05	58.30	59.18	60.50
1800	57.02	57.70	58.09	57.95	58.60	59.74	59.98	61.19	61.84	58.19	58.92	60.22
1900	57.05	57.56	58.13	58.35	58.73	59.11	59.71	60.49	61.64	58.33	58.71	59.73
2000	56.35	57.07	57.39	57.10	58.12	58.46	58.69	59.70	60.48	57.79	58.53	59.59
2100	56.25	56.82	57.46	56.35	57.43	57.65	58.78	59.11	60.43	56.37	57.43	58.41
2200	56.07	56.61	57.23	57.37	57.86	58.63	57.72	58.20	59.14	55.85	56.51	57.32
2300	55.68	56.31	57.01	56.48	57.02	58.05	56.96	57.70	58.40	55.46	55.90	56.89
2400	55.32	55.92	56.63	55.90	56.51	57.61	56.44	57.03	57.85	54.91	55.53	56.47
2500	55.24	55.69	56.97	55.05	56.10	56.59	55.98	56.46	57.15	54.05	54.88	54.88
2600	54.85	55.74	56.46	54.67	55.44	56.20	55.29	55.90	56.53	53.89	54.04	54.97
2700	54.90	55.55	56.53	54.17	55.02	55.75	55.11	55.55	56.24	52.87	53.61	54.34
2800	54.84	55.47	56.76	54.29	54.79	55.14	54.44	54.97	56.01	52.01	53.08	53.47
2900	54.49	55.55	56.13	54.03	55.34	55.07	53.84	54.25	54.81	52.53	52.28	53.45
3000	54.03	55.30	55.79	53.30	54.68	54.83	53.25	53.71	54.26	51.72	51.75	52.87
3250	53.49	55.06	55.35	52.70	54.01	55.22	51.74	52.22	52.17	50.17	50.34	50.74
3500	53.25	54.53	56.00	51.60	53.05	53.54	50.57	51.13	51.65	48.45	49.25	49.02
3750	52.79	53.70	54.41	50.92	52.40	53.34	49.53	50.06	50.28	46.60	48.20	48.13
4000	52.41	53.89	54.69	51.69	51.39	51.66	48.98	49.60	49.90	46.94	47.61	48.02
4250	52.42	54.19	53.50	50.41	51.64	50.87	48.84	49.51	49.11	47.41	47.48	47.13
4500	54.19	53.65	56.77	51.93	51.28	52.12	49.12	48.67	50.16	46.30	46.20	46.77
4750	50.93	51.46	51.05	51.01	50.15	50.11	47.26	46.91	46.85	45.22	44.92	45.00
5000	49.30	50.55	51.03	48.47	48.48	48.25	45.86	45.97	46.32	43.43	43.78	44.06
5250	49.53	49.47	49.40	46.56	47.42	46.86	45.84	45.17	45.33	42.93	42.98	42.83
5500	47.21	47.87	48.06	45.55	46.65	46.78	43.67	43.87	43.32	41.21	41.85	41.85
5750	46.11	46.79	46.34	45.57	45.46	45.85	43.52	42.87	42.25	41.49	41.17	40.82
6000	44.91	45.51	47.31	44.45	44.92	44.64	41.93	41.64	42.35	40.40	40.13	40.59

***Note:**

State of Control Voltage	RF Common to RF1	RF Common to RF2
LOW	ON	OFF
HIGH	OFF	ON

ON - Low insertion loss state
OFF - Isolation state

Typical Performance Data

RF FREQ (MHz)	VSWR (:1) @ VDD=+5V OVER TEMPERTURE											
	RF COM						RF1			RF2		
	State LOW*			State HIGH*			State LOW*			State HIGH*		
	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C
0.3	1.16	1.19	1.22	1.16	1.20	1.25	1.17	1.20	1.22	1.17	1.21	1.26
1	1.16	1.19	1.22	1.16	1.20	1.25	1.16	1.18	1.22	1.16	1.20	1.25
5	1.15	1.18	1.22	1.16	1.20	1.24	1.14	1.17	1.21	1.16	1.19	1.23
10	1.14	1.18	1.22	1.15	1.18	1.22	1.14	1.17	1.21	1.15	1.18	1.22
20	1.15	1.18	1.22	1.14	1.17	1.21	1.14	1.17	1.21	1.13	1.17	1.21
30	1.15	1.18	1.22	1.14	1.17	1.21	1.14	1.17	1.22	1.13	1.16	1.21
40	1.15	1.18	1.22	1.14	1.17	1.21	1.14	1.17	1.21	1.13	1.16	1.20
50	1.14	1.18	1.22	1.13	1.16	1.21	1.14	1.17	1.21	1.13	1.16	1.20
60	1.14	1.18	1.22	1.13	1.16	1.21	1.14	1.17	1.21	1.12	1.16	1.20
70	1.15	1.18	1.22	1.13	1.16	1.21	1.14	1.18	1.21	1.12	1.16	1.20
80	1.15	1.18	1.22	1.13	1.16	1.21	1.14	1.18	1.21	1.12	1.16	1.20
90	1.15	1.18	1.22	1.13	1.16	1.21	1.14	1.18	1.21	1.12	1.16	1.20
100	1.15	1.18	1.22	1.13	1.16	1.21	1.14	1.17	1.21	1.12	1.16	1.20
200	1.15	1.18	1.22	1.12	1.16	1.21	1.15	1.17	1.21	1.12	1.16	1.20
300	1.14	1.18	1.22	1.11	1.15	1.20	1.15	1.18	1.22	1.13	1.16	1.20
400	1.14	1.17	1.22	1.11	1.15	1.19	1.14	1.17	1.21	1.13	1.16	1.21
500	1.14	1.17	1.22	1.11	1.15	1.19	1.13	1.16	1.20	1.12	1.16	1.20
600	1.13	1.17	1.22	1.11	1.15	1.20	1.13	1.16	1.20	1.12	1.16	1.20
700	1.14	1.17	1.22	1.11	1.15	1.20	1.13	1.16	1.20	1.13	1.16	1.21
800	1.15	1.18	1.23	1.12	1.16	1.21	1.13	1.15	1.19	1.13	1.17	1.22
900	1.15	1.19	1.24	1.12	1.16	1.21	1.13	1.16	1.20	1.14	1.17	1.22
1000	1.16	1.20	1.24	1.13	1.17	1.22	1.13	1.16	1.20	1.15	1.18	1.23
1100	1.18	1.22	1.26	1.14	1.18	1.22	1.12	1.15	1.19	1.15	1.18	1.23
1200	1.19	1.22	1.26	1.15	1.19	1.22	1.12	1.15	1.20	1.15	1.19	1.24
1300	1.20	1.23	1.26	1.15	1.19	1.22	1.12	1.15	1.20	1.15	1.19	1.24
1400	1.21	1.24	1.27	1.16	1.19	1.22	1.10	1.13	1.19	1.14	1.19	1.24
1500	1.21	1.24	1.27	1.15	1.18	1.21	1.09	1.13	1.18	1.14	1.18	1.25
1600	1.21	1.24	1.26	1.14	1.18	1.20	1.09	1.13	1.19	1.14	1.18	1.25
1700	1.21	1.24	1.26	1.14	1.17	1.20	1.08	1.12	1.18	1.13	1.17	1.23
1800	1.21	1.24	1.26	1.13	1.17	1.19	1.07	1.11	1.17	1.12	1.17	1.23
1900	1.21	1.24	1.26	1.13	1.16	1.18	1.07	1.11	1.17	1.12	1.17	1.24
2000	1.21	1.24	1.26	1.13	1.16	1.18	1.08	1.11	1.17	1.12	1.17	1.25
2100	1.21	1.25	1.27	1.13	1.16	1.19	1.09	1.11	1.17	1.13	1.18	1.24
2200	1.21	1.24	1.26	1.12	1.16	1.19	1.10	1.13	1.18	1.15	1.19	1.25
2300	1.22	1.24	1.27	1.13	1.16	1.19	1.12	1.15	1.19	1.17	1.21	1.27
2400	1.22	1.25	1.28	1.14	1.16	1.19	1.14	1.16	1.20	1.19	1.24	1.29
2500	1.22	1.24	1.27	1.14	1.17	1.20	1.15	1.17	1.20	1.22	1.26	1.30
2600	1.23	1.24	1.27	1.16	1.18	1.20	1.18	1.20	1.22	1.25	1.28	1.31
2700	1.24	1.25	1.27	1.19	1.19	1.21	1.21	1.23	1.25	1.29	1.32	1.35
2800	1.22	1.23	1.25	1.19	1.19	1.20	1.24	1.24	1.25	1.33	1.35	1.37
2900	1.21	1.21	1.24	1.20	1.20	1.21	1.25	1.27	1.27	1.34	1.36	1.36
3000	1.21	1.22	1.25	1.21	1.20	1.21	1.27	1.29	1.28	1.37	1.38	1.38
3250	1.19	1.19	1.23	1.20	1.19	1.20	1.28	1.29	1.28	1.38	1.39	1.38
3500	1.18	1.19	1.24	1.18	1.19	1.22	1.26	1.26	1.25	1.36	1.36	1.37
3750	1.21	1.24	1.28	1.22	1.24	1.28	1.21	1.20	1.21	1.30	1.30	1.32
4000	1.30	1.33	1.36	1.31	1.33	1.36	1.16	1.16	1.17	1.29	1.28	1.29
4250	1.42	1.43	1.44	1.43	1.44	1.45	1.22	1.19	1.18	1.33	1.29	1.27
4500	1.53	1.53	1.53	1.57	1.57	1.56	1.31	1.25	1.21	1.41	1.35	1.29
4750	1.62	1.63	1.64	1.67	1.68	1.67	1.38	1.32	1.26	1.49	1.42	1.33
5000	1.64	1.67	1.67	1.70	1.72	1.71	1.40	1.37	1.30	1.50	1.43	1.35
5250	1.64	1.66	1.67	1.68	1.71	1.71	1.39	1.36	1.30	1.46	1.41	1.35
5500	1.60	1.63	1.64	1.60	1.64	1.67	1.36	1.32	1.28	1.37	1.35	1.31
5750	1.52	1.56	1.57	1.51	1.56	1.60	1.31	1.30	1.27	1.30	1.29	1.28
6000	1.46	1.50	1.51	1.42	1.47	1.51	1.27	1.28	1.26	1.21	1.21	1.22

RF FREQ (MHz)	VSWR (:1) @ VDD=+5V OVER TEMPERTURE					
	RF1			RF2		
	State HIGH*			State LOW*		
	-55°C	+25°C	+125°C	-55°C	+25°C	+125°C
500	1.59	1.67	1.86	1.62	1.70	1.89
600	1.51	1.62	1.82	1.55	1.64	1.84
700	1.46	1.57	1.80	1.50	1.60	1.83
800	1.43	1.55	1.78	1.47	1.59	1.83
900	1.41	1.54	1.78	1.46	1.58	1.82
1000	1.39	1.52	1.77	1.45	1.57	1.82
1100	1.38	1.51	1.76	1.44	1.57	1.83
1200	1.37	1.51	1.77	1.44	1.57	1.84
1300	1.37	1.51	1.78	1.43	1.57	1.84
1400	1.37	1.51	1.77	1.44	1.58	1.85
1500	1.36	1.51	1.77	1.44	1.59	1.87
1600	1.36	1.52	1.78	1.45	1.60	1.88
1700	1.37	1.52	1.79	1.45	1.60	1.88
1800	1.37	1.52	1.79	1.46	1.61	1.89
1900	1.37	1.53	1.80	1.47	1.63	1.92
2000	1.38	1.53	1.81	1.48	1.64	1.93
2100	1.38	1.53	1.79	1.48	1.64	1.92
2200	1.39	1.55	1.81	1.50	1.66	1.93
2300	1.40	1.56	1.82	1.51	1.68	1.95
2400	1.40	1.55	1.80	1.52	1.68	1.96
2500	1.40	1.55	1.80	1.53	1.69	1.95
2600	1.41	1.57	1.82	1.54	1.70	1.96
2700	1.42	1.57	1.82	1.55	1.71	1.98
2800	1.42	1.56	1.80	1.56	1.71	1.97
2900	1.43	1.59	1.82	1.55	1.71	1.95
3000	1.43	1.58	1.80	1.56	1.71	1.95
3250	1.43	1.58	1.80	1.57	1.71	1.93
3500	1.44	1.57	1.77	1.57	1.71	1.93
3750	1.43	1.54	1.74	1.56	1.67	1.86
4000	1.39	1.51	1.70	1.55	1.65	1.81
4250	1.37	1.48	1.67	1.50	1.59	1.74
4500	1.37	1.45	1.64	1.46	1.53	1.66
4750	1.33	1.41	1.57	1.41	1.47	1.59
5000	1.30	1.39	1.53	1.35	1.39	1.52
5250	1.27	1.34	1.50	1.29	1.33	1.45
5500	1.25	1.31	1.44	1.23	1.27	1.39
5750	1.24	1.29	1.42	1.19	1.22	1.35
6000	1.21	1.27	1.41	1.14	1.21	1.35

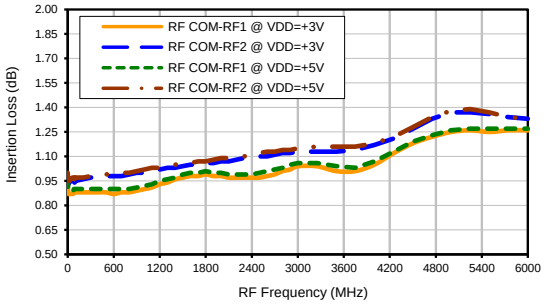
***Note:**

State of Control Voltage	RF Common to	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON

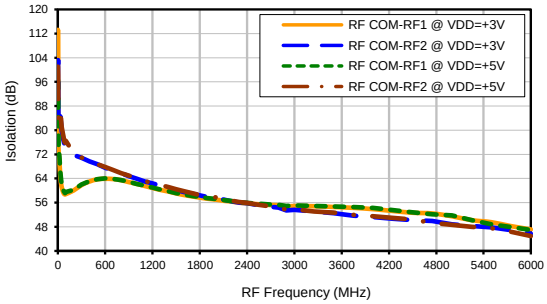
ON - Low insertion loss state
OFF - Isolation state

Typical Performance Curves

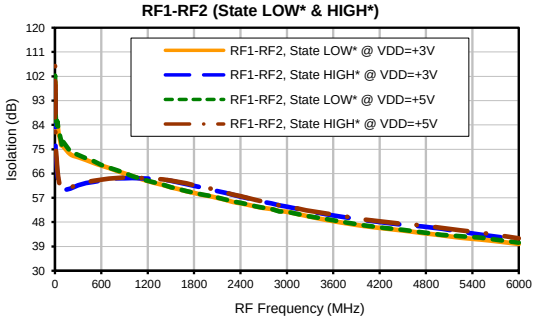
INSERTION LOSS
RF COM-RF1 & RF COM-RF2



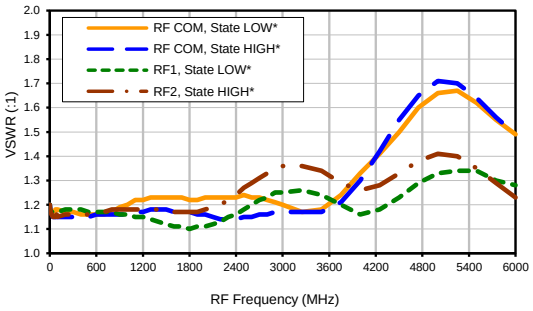
ISOLATION
RF COM-RF1 & RF COM-RF2



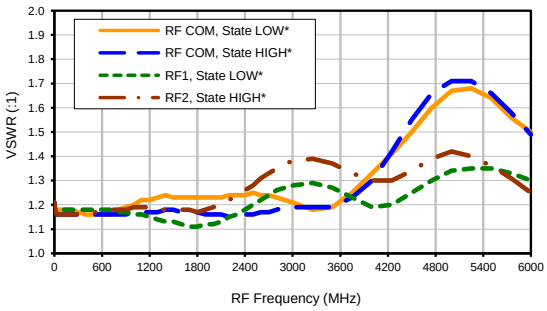
ISOLATION
RF1-RF2 (State LOW* & HIGH*)



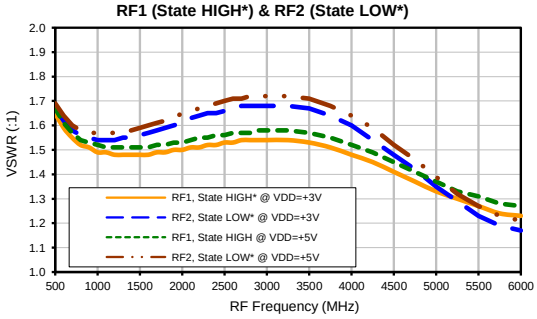
VSWR @ VDD=+3V



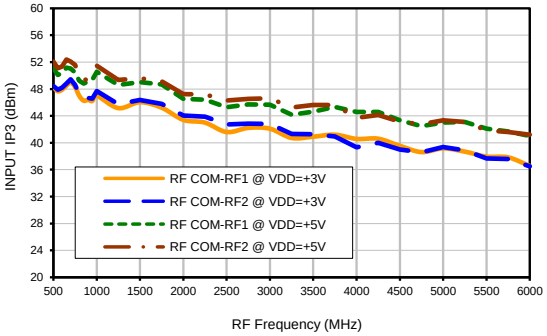
VSWR @ VDD=+5V



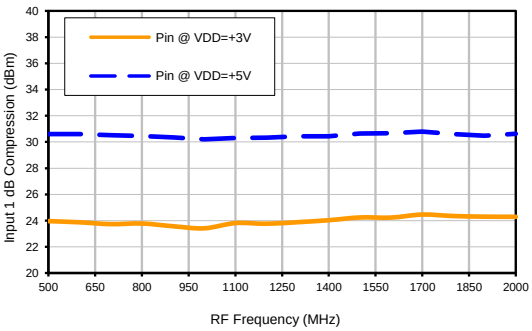
VSWR
RF1 (State HIGH*) & RF2 (State LOW*)



INPUT IP3



INPUT 1dB COMPRESSION

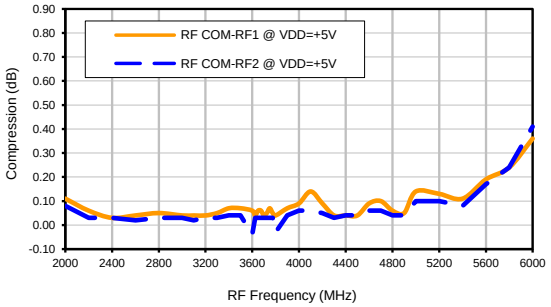


***Note:**

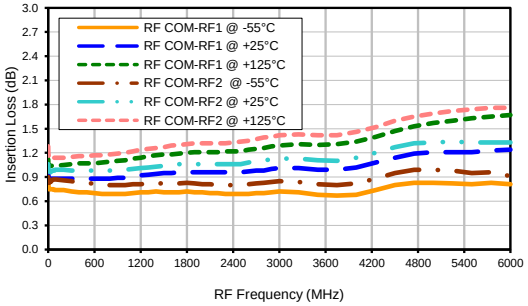
State of Control Voltage	RF Common to	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON
ON - Low insertion loss state OFF - Isolation state		

Typical Performance Curves

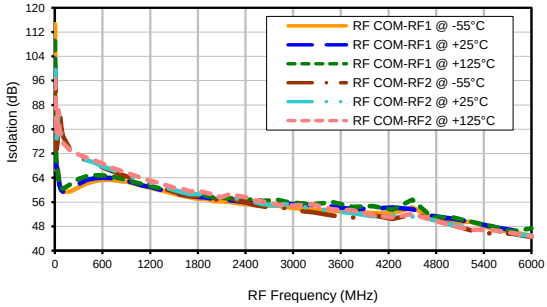
COMPRESSION @ Fixed power (Pin=27 dBm)



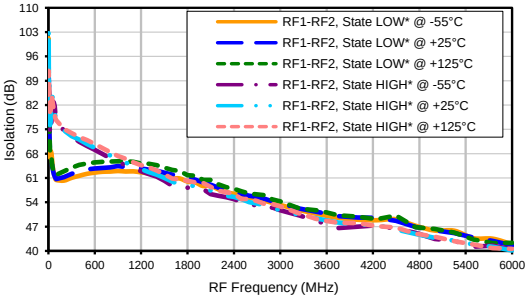
Insertion Loss @ VDD=+5V over Temperature
RF COM-RF1 & RF COM-RF2



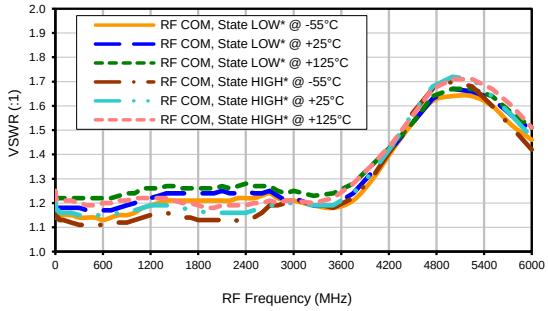
ISOLATION @ VDD=+5V over Temperature
RF COM-RF1 & RF COM-RF2



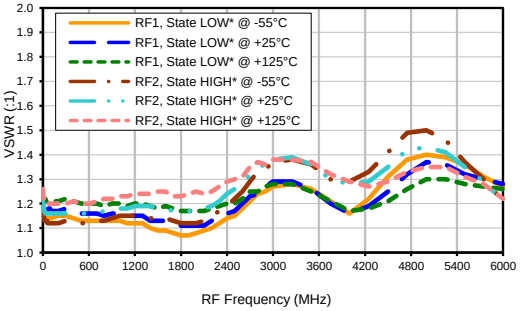
ISOLATION @ VDD=+5V over Temperature
RF1-RF2 (State LOW* & HIGH*)



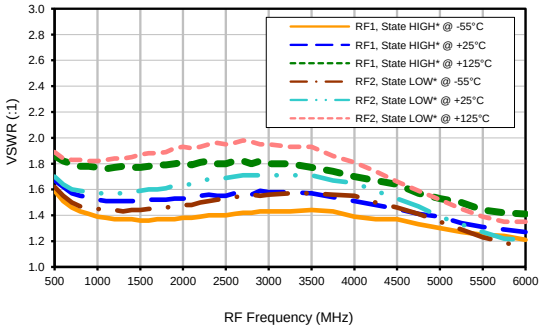
VSWR @ VDD=+5V over Temperature
RF COM (State LOW* & HIGH*)



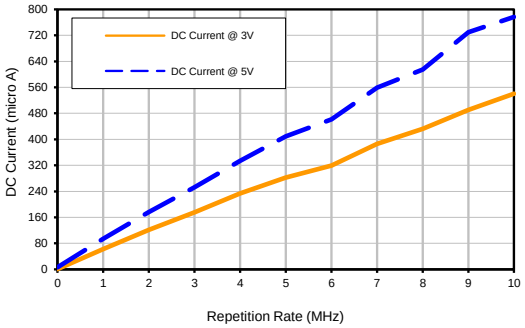
VSWR @ VDD=+5V over Temperature
RF1(State LOW*) & RF2 (State HIGH*)



VSWR @ VDD=+5V over Temperature
RF1 (State HIGH*) & RF2 (State LOW*)



DC CURRENT vs REPETITION RATE

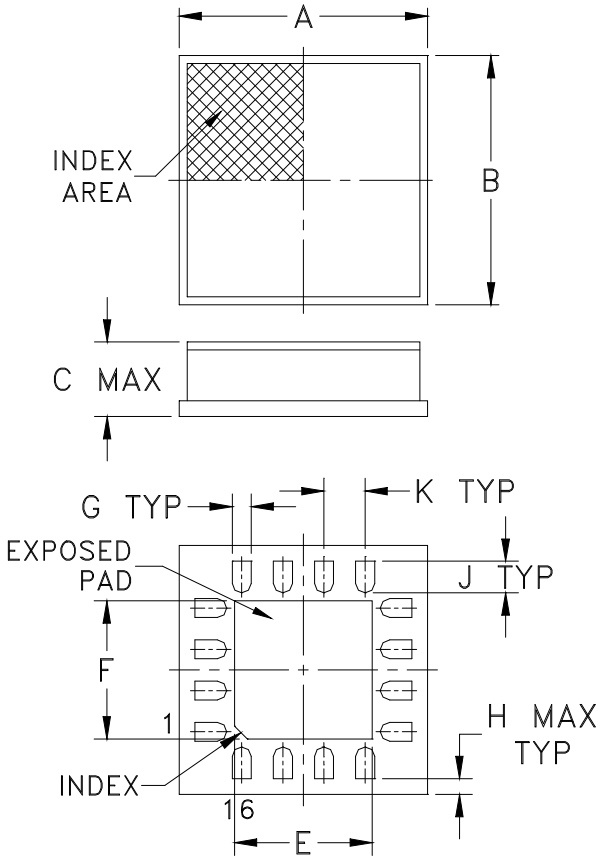


***Note:**

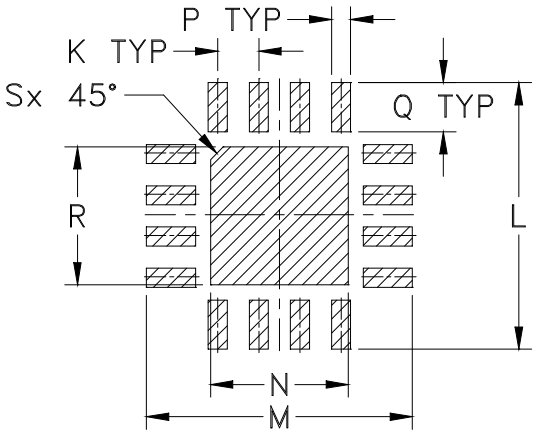
State of Control Voltage	RF Common to	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON
ON - Low insertion loss state OFF - Isolation state		

DG1293

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K
DG1293	.157 (4.00)	.157 (4.00)	.047 (1.20)	- -	.087 (2.20)	.087 (2.20)	.012 (0.30)	0.010 (0.25)	.020 (0.50)	.026 (0.65)

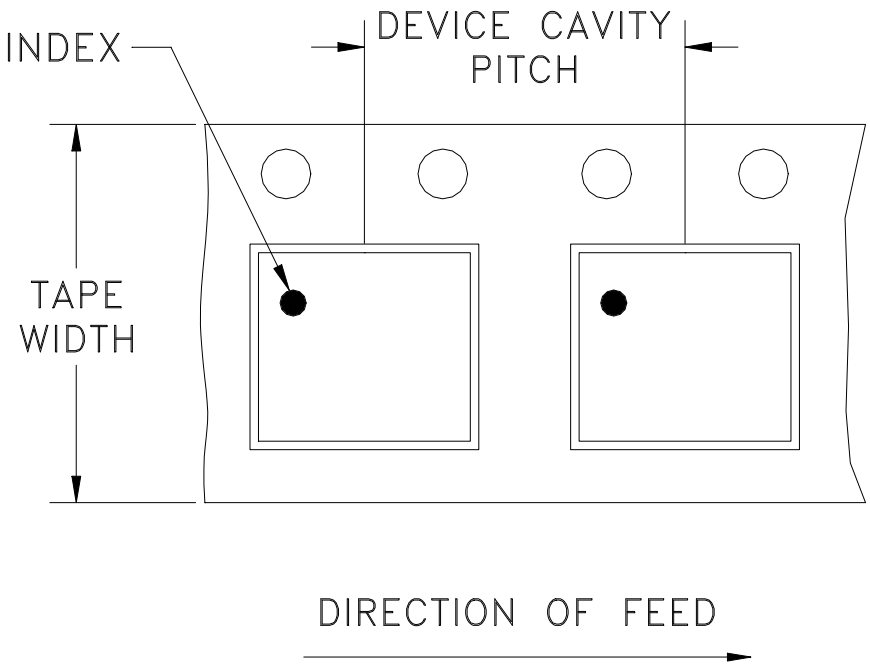
CASE #	L	M	N	P	Q	R	S	WT. GRAM
DG1293	.169 (4.30)	.169 (4.30)	.087 (2.20)	.012 (0.30)	.031 (0.80)	.087 (2.20)	.008 (0.20)	.04

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:
1. Case material: Ceramic.
2. Termination finish: Nickel-Palladium-Gold plating.

Tape & Reel Packaging TR-F68

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
12	8	7	Small quantity standard	20
				50
				100
				200
				500
		7	Standard	1000
		13	Standard	2000
				3000
				4000

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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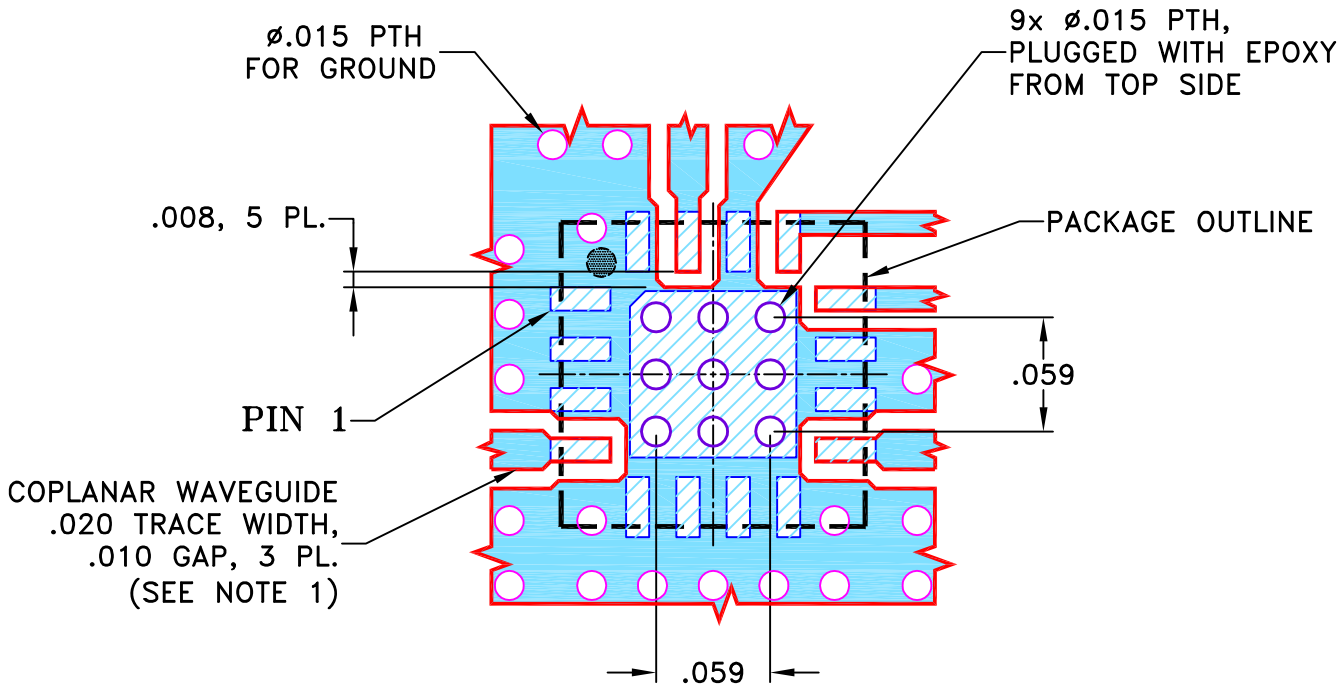
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M113105	NEW RELEASE	08/23/07	PW	RD
A	M114290	TB-461+ WAS TB-460+ IN TITLE	10/31/07	AV	WP
B	M155180	REDESIGNED (NEW PIN CONNECT.)	03/01/16	ITG	BT

SUGGESTED MOUNTING CONFIGURATION FOR DG1293 CASE STYLE, "16SW01" PIN CONNECTION



NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.010" ± 0.001". COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	PW	08/16/07
TOLERANCES ON:	CHECKED	AV	08/22/07
2 PL DECIMALS ±	APPROVED	RD	08/23/07
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

ASHEETA1.DWG REV:A DATE:01/12/95

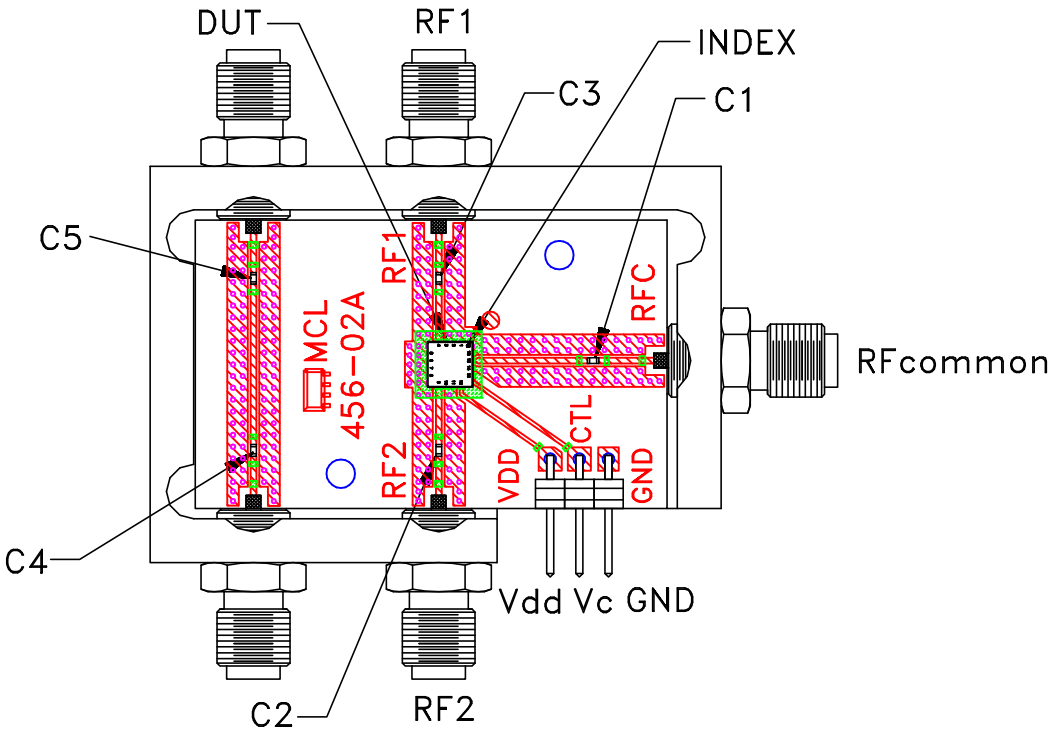
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, 16SW01, DG1293, CSWA2, TB-461+

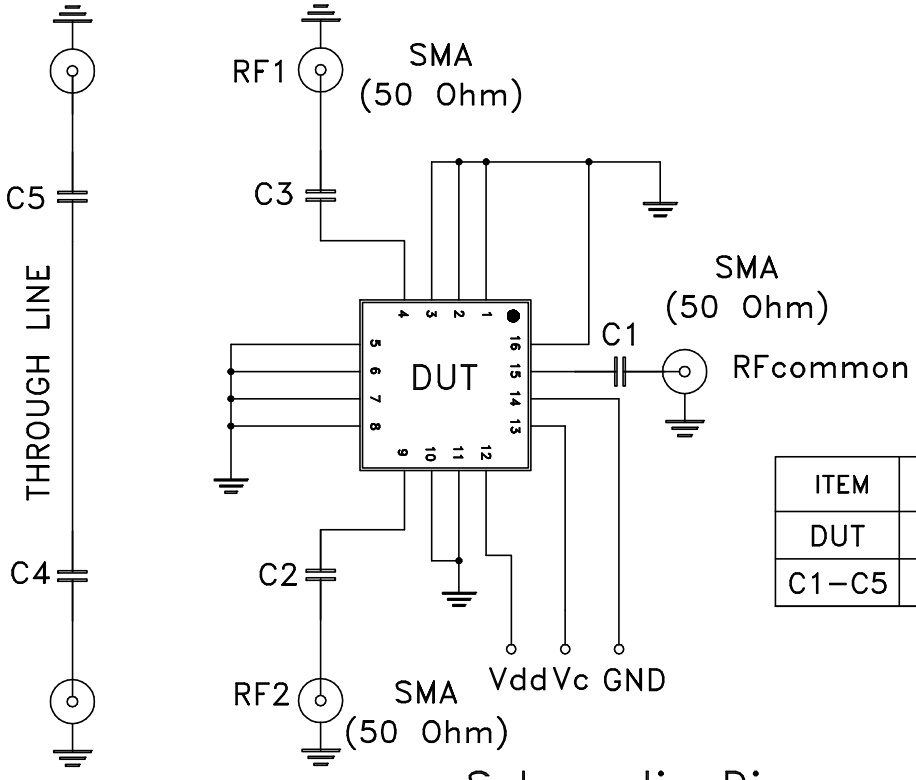
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-279	B

FILE:	SCALE:	SHEET:
98PL279	10:1	1 OF 1

Evaluation Board and Circuit



TB-461+



Schematic Diagram

ITEM	DESCRIPTION	SIZE
DUT	CSWA2-63DR+	4X4 MM
C1-C5	CAP, 47 pF	0402

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.010 inch.

Mini-Circuits®

Mini-Circuits

Environmental Specifications ENV40

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	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-65° to 150° C Ambient Environment	Individual Model Data Sheet
Temperature Cycling	-65° to 150°C, 500 cycles	JESD22-A104, condition C
Autoclave	121°C, 100% RH, 30 PSIA, 96 hours, unbiased	JESD22-A102
High Temp Storage	150°C 1008 hours	JESD22-A103
Solderability	Per Reference Spec	JESD22-B102
Resistance to Solvent	Per Reference Spec	MIL-STD-202F Method 215J
Fine and Gross Leak Test	Per Reference Spec	MIL-STD-202F, Method 112 Test, Conditions C, D
Constant Acceleration	Y1 plane only, 5 Kg	MIL-STD-883, Method 2001, Condition A, except Y1 plane only
Mechanical Shock	0.5 ms, 5 shock pulses, Y1 direction only, 1.5 Kg	MIL-STD-883, Method 2002, Condition B, except Y1 direction only, 1.5 Kg
Vibration (Variable Frequency)	50g peak	MIL-STD-883, Method 2007, Condition B