

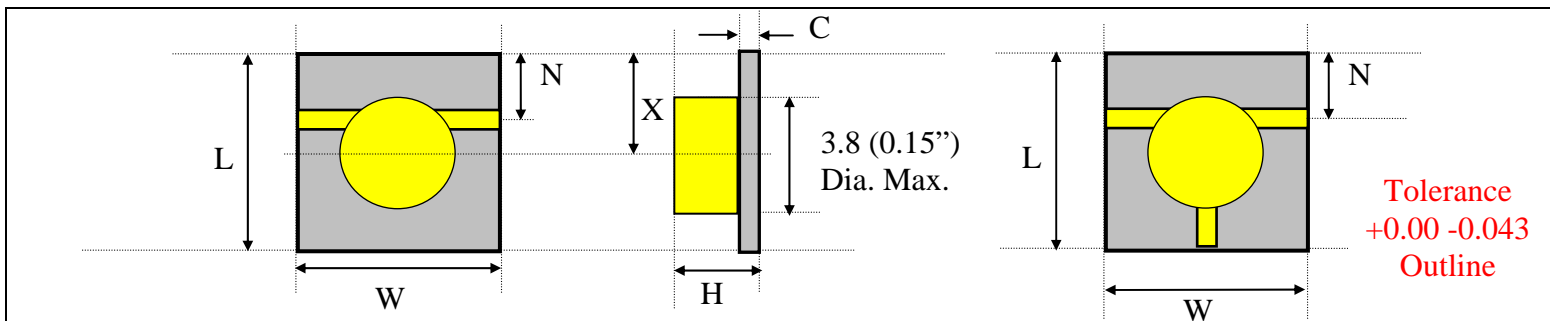
## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands RADI/C-FLOW-FHIGH-MSS-XW-L/R-NM/M

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*



**All thin film isolator circuits are gold on copper, suitable for soldering.**

(Very easy with regular solder, (silver solder preferred), or gold thermo-compression bonding.

Specifications over full operating temperature (-30 to +70 °C), storage temperature (-45 to +85°C)

PM: Phase Matching

Units: mm (inch). Not to scale.

I	C	RADI/C:- (GHz)- MSS	W mm	L mm	H mm max	N mm	X mm	C mm	In. loss dB	Isol dB	VSW R	Pwr W	Pwr W	NM/M	Notes
✓	✓	Tolerance	±.03	±.03	±.03	±.03	±.03	±.01				fwd	Rev		✓
✓	✓	2.1-2.4	20	12	5	2.54		1	0.5	20	1.3	2	0.2	M only	
✓	✓	2.1-2.4	20	17.5	17	5	2.54		0.5	20	1.3	2	0.2	M only	
✓	✓	2.2-2.3	20	12	5	2.54		1	0.5	20	1.3	2	0.2	M only	
✓	✓	2.3-2.7	17.5	17	5	2.54		1	0.5	20	1.3	2	0.2	M only	
✓	✓	2.4-2.6	17.5	17	5	5.5		1	0.6	17	1.35	2	0.2	M only	
✓		3.05-3.5	15	17	5	1.0	3.5	2	0.6	18	1.35	2	0.2	M only	0.5 / 20 / 13 @ RT b SO 8252 (mssc)
✓		3.1-3.4	15	16	5	3.5		1	0.6	18	1.5	2.5	0.6	M only	b
✓	✓	3.3-3.6	15	16	5	3.5		1	0.6	18	1.5	2.5	0.6	M only	
✓	✓	3.4-3.7	15	17	5	2.5		1	0.4	22	1.0	5	5	M only	b
✓	✓	3.4-4.2	15	17	5	2.5		1	0.6	18	1.3	2	1	M only	e
✓	✓	3.4-4.2	15	20	4	4		1	0.4	20	1.25	2	1	M only	b
	✓	3.9-4.4	12	12	5				0.5	20	1.25		1	M only	b
✓	✓	4.3-5.1	12	12	5	2.54		1	0.5	20	1.3	2	0.2	M only	
✓	✓	4.4-4.8	10.6	9	5	2.54		1	0.4	22	1.0	5	0.2	M only	b
✓	✓	4.4-5.0	10.6	9	5	2.54		1	0.5	20	1.22	5	0.2	M only	b
✓	✓	5.0-5.9	10.6	9	5	2.54		1	0.5	20	1.3	2	0.2	M only	

RADIC-MSS

Specifications may be subject to change

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✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
		5.2-5.95	10.6	9	5				0.5	20	1.3	2	0.2	M only	
		5.3-5.9	10.6	9	5				0.5	20	1.3	2	0.2	M only	
	✓	5.3-5.9	10	10	4.5	tba	tba	tba	0.5 0.7	20 17	1.25 1.35	20		M only	b room -55 to +85
	✓	5.3-5.9 (5585)	10	10	4.5	tba	tba	tba	0.5 0.7	20 17	1.25 1.35	5	5	M only	b room -55 to +85
	✓	5.3-5.9 (5585)	12	12	tba	tba	tba	tba	0.5 0.7	22 17	1.17 1.35	5	5	M only	b room -55 to +85
	✓	5.6-6.4	9.97	9	4.0 2				0.5	20	1.22	2	0.2	M only	
✓	✓	5.6-7.4	10	9	5	1.5		0.635	0.5	20	1.3	2	0.2	M or NM	b
✓		5.6-7.4	12	11	5	2.00		0.635	0.6	18	1.3	2	0.2	M only	e b -10 to +70°C (- NM model)
✓	✓	5.65-6.85	12.7	8	4.5	1.58		0.63	0.5	20	1.22	2	0.2	M only	-30 to +65°C
✓		5.7-7.4	10	9	5	2.54		0.635	0.5	20	1.3	2	0.2	M only	p
		5.8-6.5	16	15	5	4.0	7.5	1	0.5	20	1.2	2	0.2		
		5.8-6.7	12.0	11	5	2.5		0.635	0.7	18	1.35	1	0.25	nm	e -40 to +70
✓		5.8-7.1	12	11	4.5	2.5		0.635	0.5	20	1.25	2	1	M	p J special
✓		5.8-7.1	12	11	4.5	2.5		0.635	0.5 0.7	20 18	1.3 1.4	2	1	NM	b room -10 to +60
	✓	5.8-7.2	10	9	5	2.54		0.635	0.5	20	1.25	2	0.2	NM	b
	✓	5.8-7.2	10	9	5.5	2.54		0.635	0.5	20	1.25	2	0.2	M	b
✓	✓	5.85-6.45	10	9	5	2.54		0.635	0.4	22	1.0	5	5		b
✓		5.9-6.5	10	9	5	2.54		0.635	0.4	20	1.2	2	0.2		b -10to+70
✓		5.9-7.2	10	9	5	2.54		0.635	0.65	18	1.3	2	0.2	NM	p
	✓	6.0-7.0	12	11	6	2		0.635	0.5	19	1.25	20	20	NM	e -30 to +70
		6.0-8.0	10	9	5	2.0		0.635	0.6	18	1.3	1	1	M	b -40 to +70
✓		6.33-8.0	10	9	5	2.0		0.635	0.5	20	1.25	5	0.25	NM	e -30 to +70C
✓		6.4-7.1	10	9	5	2.54		0.635	0.4	20	1.2	2	0.2	NM	b -10to+70
✓	✓	6.7-7.1	10	9	5	2.54		0.635	0.4	22	1.0	5	5	NM	b
✓	✓	6.9-8.9	10	9	5	2.54		0.635	0.5	20	1.3	2	0.2	NM	b -002
✓	✓	7.1-7.7	9.9	9	5	2.49		0.635	0.4	20	1.2	2	0.2	NM	b -10to+70

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✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
✓		7.7-8.5	9.9	9	5	2.49		0.635	0.4	20	1.2	2	0.2	NM	b -10to+70
	✓	7.1-8.5	9.9	9	5	2.49		0.635	0.5	20	1.29	3	3	NM	Circ only
✓	✓	7.1-8.5	10	9	4.5	2.54		0.635	0.5	18	1.3	2	0.2	NM	
✓		7.1-8.5	10	9	4.5	1.5		0.635	0.5 0.6	20 18	1.25 1.30	2	1	NM	b room -30 to +70
✓	✓	7.1-8.5	10	9	4.7	2.50		0.635	0.5	20	1.25	3/5	1	NM	RFQ 12004
✓	✓	7.7-9.0	10	9	5	2.54		0.635	0.6	17	1.35	2	0.2	NM	
✓	✓	8.0-8.6	10	9	5	2.54		0.635	0.45	20	1.30	2	0.2	NM	
✓		8.4-10.7	7	10	5.5	1.5		0.635	0.5	18	1.3	5	0.25	NM	e -30 to +65C
	✓	8.5-11.0	10	9	5				0.5 0.6	18 17	1.35 1.40	10		NM	b room -30 to +60C
✓	✓	9-10	6.35	6.35	4	1.5	3	0.635	0.5	19	1.25	2	0.2	NM	p
	✓	9-10	7	7	5				0.5	20	1.25	10	10	NM	b
✓	✓	9.0-10.5	6.35	6.35	4	1.5	3	0.635	0.5	19	1.25	2	0.2	NM	
✓	✓	9.0-10.5	7	7	4	1.5		0.635	0.5	20	1.22	2	0.2	M	e -30 to +70
✓	✓	9.0-11.0	7	7	4.5	2.5		0.635	0.6	18	1.3	1	1		p
✓	✓	9.1-9.6	7	7	5	1.5		0.635	0.5	20	1.22	1	0.2	M	p
✓	✓	9.2-9.6	7	7	5	1.5			0.4	20	1.22	10	10	NM	p
✓		9.5-9.7	7	7	5	1.5		0.635	0.5	20	1.22	1	0.2	M	p
✓	✓	9.5-11.5	7	7	4.5	2.5		0.635	0.6	18	1.3	1	1		p
✓	✓	9.5-12.0	7	7	4.5	2.5		0.635	0.6	18	1.3	1	1	M	b -40 to +70
✓	✓	9.6-10.2	6.35	6.35	4	1.5	3	0.635	0.5	20	1.25	2	0.2		b
✓		9.8-10.2	6.35	6.35	4	1.5	3	0.635	0.5	20	1.25	1	0.5		p
✓	✓	9.9-10.1	7	7	3.5	1.5		1	0.5	20	1.22	1	0.5		
✓	✓	10.0-10.7	7	7	3.5	1.5		1	0.5	20	1.25	1	0.5		-30 to +85C
✓	✓	10.0-10.7	6.35	6.35	3.5	1.5		1	0.5	20	1.25	1	0.5		Special
✓	✓	10-12	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2	NM	-002
✓		10-12	7	7	4	1.5	3	0.5	0.7 0.8	18 17	1.30 1.40	2	1	NM	b room -30 to +70
✓		10.7-12.7	10.16	10.16	5	2.50		0.635	0.6	19	1.3	1	1	M	E -30 to +65C
		10.9-11.5	6.35	6.35	4	1.5	3	0.635	0.5	20	1.22	2	0.2		
✓	✓	10.9-12.0	6.35	6.35	4	1.5	3	0.5	0.4	22	1.0	5	5		b
✓	✓	11.4-11.75	7	7	4	1.5	3	0.5	0.4	22	1.0	5	5		b
✓	✓	12.4-13.1	7	7	4	1.5	3	0.5	0.5	20	1.25	2	0.2		
✓		12.5-13.0	7	7	4	1.5	3	0.5	0.5	20	1.25	2	0.2		p

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✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
✓	✓	12-13.5	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2		-006
		12.75-14.5	7	7	4	0.50	1.5		0.6	19	1.3	1	1	e	Rfq 14359
		13-15	7	7	5	1.5		0.5	0.7	18	1.35	1	0.25	NM	E -40 to +70
✓		13.75-14.50	7	7	4	1.5	3	0.5	0.5	20	1.25	2	0.5	NM	
✓		13.75-14.75	7	7	4	1.5	3	0.5	0.5	20	1.25	2	0.2		
✓	✓	13.9-14.55	7	7	4	1.5	3	0.5	0.4	22	1.0	5	5		b
✓	✓	14-14.5	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2		-004
✓	✓	14-15.6	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2	M	-004
✓	✓	14.4-15.5	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2		-004
	✓	14.5-15.35	6.35	6.35					0.7	15	1.5	2			-40 to +85
✓	✓	14.5-15.6	7	7	4	1.5	3	0.5	0.6	17	1.35	2	0.2		-004
	✓	14.85-17.05	7	8	4.5				0.5	18	1.30	8	8		B
✓		15-17	7	7	4.5				0.6	18	1.35	1	1	NM	p
	✓	15-18	7	7	4.5				0.7	18	1.35	1	1	M	b
✓	✓	15.1-15.35	6.35	6.35	3.9	1.5	3	0.5	0.5	20	1.25	1	0.2		B 60-90C
✓		15.15-15.35	6.35	6.35	3.8 1	1.5	3	0.5	0.5	20	1.13	1	0.2		B 60-90C
✓		15.5-17.5	7	7	4.5	1.5		0.5	0.6	20	1.3	2	0.25		e -10 to +50C
	✓	15.5-17.5	7	7	4.5				0.7	18	1.35	8	8		b -54 to +85 20w Pk
	✓	15.5-17.5	6	6	3	1.5		0.5	0.7	17	1.35	8	8		e -54 to +85 20w Pk
✓	✓	15.7-16.2	7	7	4	1.5	3	0.5	0.6	18	1.30	1	0.2	NM	e Pad 0.35mm wide
✓	✓	16.5-17.1	7	7	4	1.5	3	0.5	0.5	18	1.25	1	0.2	NM	p
✓	✓	16.5-17.5	7	7	4	1.5	3	0.5	0.5	18	1.25	2	0.25	NM	b -45 to +70
✓	✓	17.0-19.7	7	6	4	1.0		0.38	0.8	20	1.3	2	1	NM	b e
	✓	17.1-17.3	6	6	3.5	1.5		0.5	0.5	20	1.25	1	1	NM	b
✓	✓	17.7-19.7	6	6	4	1.0	2	0.38	0.8	20	1.25	2	0.2*	NM	-005
✓	✓	18.0-19.0	6	6	4	1.0	2	0.38	0.8	20	1.25	2	0.2*	M	
✓		18.8-22.0	6	6	4	1.0	2	0.38	1 1.1 1.3	18 17 15	1.35 1.4 1.5	2	0.25	NM	b room -10 to +60 -40 to +70

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✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
															(TBC)
	✓	18.86- 19.26	6	6	4				0.8	20	1.30	2	2	NM	p
✓	✓	19.5-19.8	6	6	4.3 8	1.0		0.38	0.8	20	1.35	1	0.25*	NM	
✓	✓	20-22.5	5	6	4	1.0		0.38	0.8	17	1.25	2	0.2*	NM	
✓		19.5-20.5	5	7	4	1.35		0.38	0.8/ 9	20	1.3	2	1	NM	
		20.0-22.0	6	6	4	1.0		0.26	0.9	20	1.35	2	1	-M	
	✓	20.0-22.5	5	5	3.8	1.5		0.38	0.8	18	1.3	0.2	0.2	M	e -40 to +70
✓		20.0-22.5	6	6	3.8	1.0		0.38	0.8	18	1.3	1	0.2*	M	e -40 to +70
✓		20.2-21.2	6	6	4.4			0.38	0.8	18	1.3	1	0.2*	M	e -40 to +70 p
✓	✓	20.75- 21.05	6	6	4.4	1.0		0.38	0.5	20	1.35	1	0.25*	NM	
✓	✓	21.2-23.6	6	6	4	1.0		0.38	0.9 <sup>1</sup>	17	1.25	2	0.2*	NM	-007
✓	✓	21.2-23.6	6	6	4	1.0		0.38	0.7	17	1.25	2	0.2*	NM	-b special for hyu
✓	✓	21.2-23.6	6	6	4	1.0		0.38	0.8	16	1.25	2	0.2*	NM	-40 to 70C
✓		21.5-27.5	6	6	2.5	1.0		.38	1.2	20	1.35	0.2	0.2	NM	b
✓	✓	22-24	5	6	4	1.0		0.38	0.8	17	1.25	1	0.2*	NM	
✓	✓	22-25	6	6	2.5	1.0		0.38	1.0	17.5	1.30	0.2	0.2	NM	b -30 to 70C
✓		20-27.5	6	6	2.5	1.0		.38	tba	tba	tba	0.2	0.2	NM	p
		22-28	6	6	2.5	1.0		.38	1.2	20	1.35	0.2	0.2	NM	b
✓	✓	22-25	6	6	2.5	1.0		0.38	1.0	17.5	1.30	0.2	0.2	NM	b -30 to +70C
		22.5-25.0	6	6	2.4	1.0		TBD	0.8	TBD	TBD	1	0.2*		
	✓	23.5-24.5	6	6	2.4	1.0		0.38	0.7	20	1.25	1	0.25	M	b
	✓	23.8-24.8	6	6	2.3	tba		tba	1.0	20	1.3		0.01	M	b
✓	✓	23.9-24.1	6	5	4	10		0.25	0.8	20	1.30	1	0.2		
	✓	23.93- 24.08	6	5	4	10		0.25	0.8	20	1.30	1	1		p
✓	✓	23-25	6	5	4	1.0		0.25	1.1	18	1.35	1	0.2		
	✓	23-25	5	5	3.5	1.0		0.25	0.9	18	1.3	2	2	M	e -30 to +65
✓	✓	23-24.6	6	5	4	1.0		0.25	1.1	17	1.35	1	0.2	M	b
✓	✓	23-25	6	5	4	1.0		0.25	1.1	17	1.35	1	0.2	NM	b
✓	✓	23-25	6	5	4	1.0		0.25	1.1	18	1.35	1	0.2	NM	e

## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands RADI/C-FLOW-FHIGH-MSS-XW-L/R-NM/M

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*

I	C	RADI/C:- (GHz)- MSS	W mm	L mm	H m m ma x	N mm	X m m	C mm	In. loss dB	Isol dB	VSW R	Pwr W	Pwr W	NM/M	Notes
✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
	✓	24-24.25	6	5	4	1.0		0.25	1.0	18	1.3	1	0.2	M	p
✓	✓	24-26.5	5	6	4.5	1.0		0.25	0.8	17	1.25	1	0.2*	M	2G Bw max
✓	✓	24-30 <sup>2</sup>	5	6	4.5	1.0		0.25	0.8	17	1.25	1	0.2*	M	2G Bw max
✓	✓	24-30	5	5	3.5	1.35		0.25	1.1	17	1.35	1	0.2*	M	e -40 to 70 C
✓	✓	24.25-27.25	5	5	3.5	1.35		0.25	0.9	19	1.25	1	0.2*	M	e -40 to 70 C
✓	✓	25-30	5	5	3.5	1.35		0.25	1.5	17	1.4	1	0.2*	M	b 1 2 - 9 -30 to 70 C RFQ 13975 preliminary
✓	✓	25-27	5	5	3.5	1.35		0.25	0.9	19	1.25	1	0.2*	M	e -40 to 70 C
	✓	25-27	5	5	3.5	1.35		0.25	0.9	18	1.3	2	2	M	e -30 to +65
✓		25.0-28.0	6	5	2.3	TBD		TBD	0.9	18	1.3	1	0.2*	M	
✓		25-30	5	7	3.5	1.0	Tb d	0.25	1.4	17	1.35	1	0.2*	M	full 5G Bw max
✓	✓	25-32 full	6	5	4.5	1.0		0.25	1.5	17	1.4	1	0.2*	M	b New design -30 to +70C preliminary specs
✓	✓	25-32	5	5	4.5	1.0		0.25	0.8	17	1.25	1	0.2*	M	2G Bw max
		27-31	5	6	3.5	1.0		0.25	1.0	18	1.35	2	1	NM	b 11-29-07
		27-31	5	5	4	1.0		0.25	1.0	18	1.35	2	2	NM	e 11-29-07
✓		27.5-29.5	5	5	4	1.0		0.25	0.9	20	1.3	1	0.2*	M	e 12-13-07
✓	✓	27.5-31.0	5	6	3.5	1.0	Tb d	0.25	0.8	17	1.25	1	0.2*	M	3.5G Bw max
		28-30	5	5	3	Tbd		tbd	1.0	20	1.3	2	2	M	b
		28.0-31.0	6	5	2.3	1.0		0.25	0.9	20	1.35	1	0.2*	M	
✓	✓	28.0-32.0	5	5	2.5	1.0		0.25	1.0	20	1.35	2	0.2*	M	b -40 to 70C
✓	✓	28.5-28.8	5	6	4.0	1.0		0.25	0.9	20	1.35	1	0.2*	M	
		29-30.0	5	6	4.0	1.0		0.25	0.9	20	1.30	2	1	NM	
✓		29.0-31.0	5	5	2.3	1.1		0.25	0.8	20	1.3	2	0.25	M	b hi qty optimized
✓		29.0-31.0	5	5	2.3	1.1		0.25	0.9	20	1.35	2	0.25	M	e
✓		29.0-31.5	5	5	2.3	1.1		0.25	0.8	20	1.3	2	0.5	M	p
✓		29.5-31.0	5	5	4.0	1.1		0.25	0.9	20	1.35	1	0.2*	M	b Note b 5x5

RADIC-MSS

Specifications may be subject to change

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## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands RADI/C-FLOW-FHIGH-MSS-XW-L/R-NM/M

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*

I	C	RADI/C:- (GHz)- MSS	W mm	L mm	H m m m a x	N mm	X m m	C mm	In. loss dB	Isol dB	VSW R	Pwr W	Pwr W	NM/M	Notes
✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
✓		29.6-30.6 LMCO	5	5	2.3	1.1		0.25	0.9	20	1.35	2	1	M	b ud 6-17-09
✓		29.6-30.6	5	5	4.0	1.0		0.25	0.9	20	1.35	2	1	M	e -30 to +70C
✓	✓	29.75-30.05	5	6	4.0	1.0		0.25	0.9	20	1.35	1	0.2*	M	
✓		30-37 2.5G Bw max	4.5	9	3.5	1.0		0.20	0.8	17	1.25	1	0.2*	M	
✓		31.0-34.0	5	5	2.3			0.20	0.9	20	1.30	2	0.2*	M	b Isolator
	✓	31-34.5	5	5	2.3				1.0	18	1.35	2	0.2*	M	
✓		31.5-32.5	5	5	2.5	1.1		0.20	1.2	17	1.33	1	0.2*	M	
✓		31.5-32.5	5	5	2.3				0.9 1.0	23 20	1.25 1.30	1	1	M	b room -30 to +60
		31.5-33.5	5	5	2.5	1.1		0.20	1.2	17	1.33	1	0.2*	M	
✓		31.5-34.1	5	5	2.3				1.0 1.1	20 19	1.30 1.35	1	1	M	b room -30 to +60
✓		31.8-33.4	5	5	2.5	1.1		0.20	1.2	17	1.33	1	0.2*	M	
	✓	32.7-36.5	4.5	4.5	2.3	Tbd		0.20	1.2	18	1.35	1		M	-30 to +70C
	✓	33.0-33.5	5	5	2.5	1.1		0.2	1.0	20	1.35	5	0.5	M	b
	✓	33-35	4.5	4.5	2.3	1		0.20	1.2	18	1.35	1	0.5*	M	b -30 to +70C
✓		33-35	4.5	4.5	2.3	1		0.20	1.2	18	1/35	1	1	M	P
		33-35.5	5	5	2.5	1.1		0.25	1.0	20	1.35	5	0.25	M	p -40 to +70C
✓		33-36	5	5	2.5	1.1		0.25	1.0	20	1.35	1	0.25	M	b 4/3/08 -40 to +70C
	✓	33-36	4.5	4.5	2.5	1.5		0.2	1.0	20	1.35	2	2	M	b -40 to +70C
✓		33-36	3.3	6.5	3.5	1.0		0.2	1.0	19	1.35	1	0.25	M	e -30 to +70C
✓		33-37							1.2	18	1.4	2	0.5	M	P
✓		33.4-34.1	5	5	2.3				0.9 1.0	23 20	1.25 1.30	1	1	M	b room -30 to +60
	✓	33.5-34.5	4.5	4.5	2.5	1.5		0.20	1.2	18	1.40	6	0.5*	M	b -40 to +70C
	✓	33.5-34.5	5	5	2.3	1.37		0.25	1.2	18	1.40	6	0.5*	M	b -40 to +70C
	✓	33.5-35.6	5	5	2.3			0.25	1.2	18	1.40	6	6	M	P tbc 6-18-09
		34-36	5	5	2.3			0.20	1.0	20	1.3	1	0.2	M	
	✓	34-36	4.5	4.5	3.3	1.0		0.20	1.0	20	1.3	5	5	M	p
		34.0-37.0	5	5	2.3			0.20	tbd	tbd	tbd	1	0.2*	M	Isolator
	✓	34.0-37.0	4.5	4.5	2.3	1.0			tbd	tbd	tbd	1	0.2*	M	

## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands RADI/C-Flow-F<sub>HIGH</sub>-MSS-XW-L/R-NM/M

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*

I	C	RADI/C:- (GHz)- MSS	W mm	L mm	H m m m a x	N mm	X m m	C mm	In. loss dB	Isol dB	VSW R	Pwr W	Pwr W	NM/M	Notes
✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev		✓
✓		34.5-35.5	3.3	6.5	3.5	1.0		0.2	0.9	20	1.30	2	1	M	e -30 to +70C
		34.5-36.0	5	6	2.3	1.3		0.20	1.0	20	1.3	1	0.2	M	e -30 to +60C
		34.5-36.0	5	5	2.3	1.1		0.20	1.0	20	1.3	1	0.2	M	b 7/28/08 pam
✓	✓	34.5-35.5	5	6	4.0	1.0		0.25	0.8*	20	1.30	1	0.5	M	e *0.9dB worst case over temp -30 to +70
✓	✓	34.5-35.5 LMCO	5	5	2.3	1.1		0.2.0	0.8	20	1.30	2	1	M	b ud 6-17-09
✓		34.5-35.5	5	5	2.3	1.1		0.2.0	1.0	20	1.35		2	M	b -30 to +60C
		35.48- 35.52	5	5	2.3	1.1		0.20	1.0	20	1.3	1	0.2	M	
	✓	35.4-35.6	5	5	3.5	1.0		0.20	0.9	18	1.3	1	0.2	M	e -40 to +70C
✓		35-40 <2.5G BW	4.5	9	3.5	1.0		0.38	0.8	17	1.25	1	0.2*	M	
✓		35-40 <3GHzBW	5	5	2.3	1.0		0.38	1.1	20	1.35	1	0.2	M	b -30 to +70°C
✓		35-40 <3GHzBW	5	5	3.5	1.1		0.20	1.2	17	1.4	1	0.2*	M	e -30 to +70°C
✓		35.2-37.8	4.5	9	3.5	1.0		0.38	0.8	17	1.25	1	0.2*	M	
✓	✓	35.5-36.1	4.5	9	3.5	1.0		0.38	0.8	20	1.30	1	0.2	M	
✓		36.5-37.3	6	5	3.8	1.5		0.20	1.0	18	1.3	2	0.5	M	-40 to +85
✓		37.0-38.6	5	5	3	1.1		0.20	1.0	20	1.35	1	0.5	M	e pad 0.140 w
✓		37.0-38.6	5	5	2.3	1.1		0.20	0.9	20	1.35	1	0.5	M	p Pad width 0.138 mm tabs use <0.12mm
✓		37.0-40.0	5	5	2.3	1.1	2.2	0.20	1.0 1.1	20 19	1.35 1.35	1	0.25*	-30 to +70 -40 to -30 M	b e Pad width 0.138 mm tabs use <0.12mm Magnet dia 1.2 max
	✓	38.5-40.0	5	5	3.2	1.1	1.7	0.20	1.0	20	1.35	1	0.2*	M	b e Pad width 0.2mm tabs use <0.15mm
✓		39.8-40.2	3.3	6.5	2.3				1.0	20	1.30	1	1		b -30 to +60C, b

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## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands **RADI/C-FLOW-F<sub>HIGH</sub>-MSS-XW-L/R-NM/M**

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*

I	C	RADI/C:- (GHz)- MSS	W mm	L mm	H m m ma x	N mm	X m m	C mm	In. loss dB	Isol dB	VSW R	Pwr W	Pwr W	NM/M		Notes
✓	✓	Tolerance	±.03	±.03	±.0 3	±.03	±.0 3	±.01				fwd	Rev			✓
✓	✓	46.5-47.5	5	5	2.5	1.1		0.20	1.2	18	1.3	1	0.5*	M	b	
✓		54.25- 55.25	2.0	5.5	2.0	tbd		0.15	1.2	20	1.5	1	0.25	M	b	

## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands **RADI/C-FLOW-FHIGH-MSS-XW-L/R-NM/M**

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

(-M (magnetic) mount on Steel / Kovar >1mm thick, (default <6GHz // >24GHz to give correct magnetic field to ensure over temperature performance) (if mounted on aluminum will meet spec 10-35°C

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### MSS miniature Size Option (Part # suffix-“min”)

✓		32-34	3.33	6.5	2.2	1.0		0.20	0.9	20	1.3	1	0.5*	M	e	8/10/05 -30 to 65C
✓		32.85-33.45	3.33	6.5	2.2	1.0		0.20	0.9	20	1.3	1	0.5*	M	e	-30 to 65C
✓		32.5-34.5	3.33	6.5	2.2	1.0		0.20	0.9	20	1.3	1	0.5*	M	e	8/10/05 -30 to 65C
	✓	36.5-37.3	3.33	5	3.8	1.5		0.20	1.0	18	1.3	2	0.5	M		-40 to +85
✓		37.0-39.5	3.33	5	4.0	1.0		0.20	0.8	20	1.35	2	0.1	M	e	-30 to +65 pad 0.140 w
✓		37.0-40.0	3.33	6.5	4	1.0		0.20	0.9	20	1.35	2	1	M	e	
✓		43-45	3.33	6.5	4.0	1.0		0.15	1.0 1.1 1.3	20 19 16	1.35 1.35 1.40	1	0.5	M	e	15-35C -10-50C -55-80C

**1.** : 1.0 dB from -30 to 0°C **2.** : Over any 2.5 GHz bandwidth. **3.** : 2dB degradation in Isolation -10 to 30C & 50 to 70C  
Samarium Cobalt magnet, 2 μm thin film Gold on 4μm Copper,  
{\*1W dissipation possible if good thermal conductivity to heat sink}

**Maximum Temperature during Welding 350C @ 25 microseconds**

Curing: can withstand non operating 120 °C for up to 10 min.// <3 min @ 150C, 10 min @ 120C

Note 94GHz too but only over a narrow temp range 0-50C

### Customer Special Request:

✓	✓	9.0-10.0	8.38	8.38	3.05	2.54		1.07	0.5	15	1.22	1	0.2			-25 to +85C
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✓		32-35	4.5	9	3.5	1.0		0.20	0.9	17	1.25	1	0.2*	M		full 3.0G Bw max
✓		32-37	5	5	2.5	1.1		0.20	1.2	20	1.30	1	2	M	b	
✓		32-37	5	5	2.5	1.1		0.20	1.3	19	1.30	1	2	M	b	-40 to 70C

### Extended Temperature range

At -40C or 80 °C, add 0.1 dB to Insertion Loss, and subtract 1.0 dB from Isolation  
At 85 °C, add 0.2 dB to Insertion Loss, and subtract 2.5 dB from Isolation  
At 90C °C, add 0.3 dB to Insertion Loss, and subtract 4.0 dB from Isolation  
At 100C °C, add 0.4 dB to Insertion Loss, and subtract 5.0 dB from Isolation  
Higher temperature parts with better specs are available

## Isolators or Circulators: Microstrip Substrate only, 2-55GHz. Part Bands RADI/C-LOW-F<sub>HIGH</sub>-MSS-XW-L/R-NM/M

L counter clockwise, R clockwise (default) //

(-NM (Non Magnetic) mount on Non Magnetic material ie Aluminum (6 to 23GHz only)

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*See also MSSM Family data sheet for same size part with metal backing shim that can be used from 2-55GHz and mount on Aluminum*

1. The MSS Substrate only series is a little more difficult to use than the carrier versions
  - a. The magnetic circuit has to be considered,
    - i. if the mounting surface is either steel or kovar the magnetic mount version should be selected, lower frequency units must be -M, if steel or kovar mounting is not possible check out the MSSM series which is the same units with a metal back
  - b. If a non magnetic mounting surface ie aluminum is used then the non magnetic mount version should be selected.
2. Adhesive is preferably non conductive epoxy, with a very thin smear used, adequately cured, if conductive epoxy is used take great care that none comes out the sides as it can degrade performance significantly.

**We have exhaustively tested the Microstrip Drop in's. for shock and vibration.**

The units have low mass and are very robust.

-Vibration in frequency range 1-5000Hz with acceleration 400m/sec<sup>2</sup>

(40g)

- repeated shocks with acceleration 1500m/sec<sup>2</sup> (150g) and duration 1-5msec

- single shock with acceleration 15000m/sec<sup>2</sup> (1500g) and duration 0.1-2msec

- linear centrifugal acceleration 5000m/sec<sup>2</sup>

- acoustic noise 50-10000Hz at sound pressure level up to 170dB

- absence of resonance in frequency range 1-100Hz

✓	37.0-40.0	4.5	4.5	2.3	1.1		TBD		TBD	TBD	1	0.2*	M		Not b
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