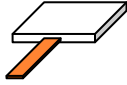




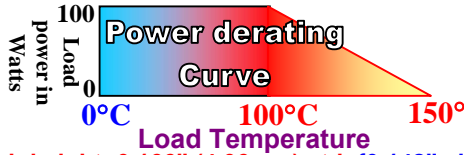
Optional Monitor tabs are ~ 0.150" long typically.



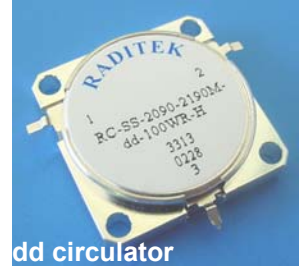
**Samarium side (SS) Magnets**

Attenuator load option  
20dB or 30 dB 100W

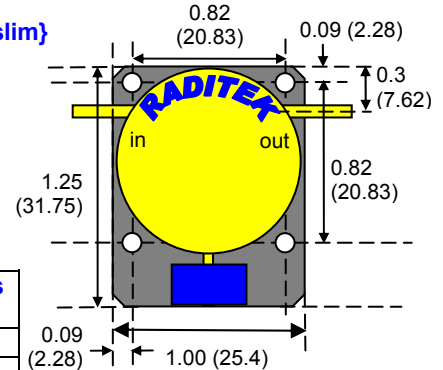
## RI-SS-de/dd isolator RC-SS-dd circulator



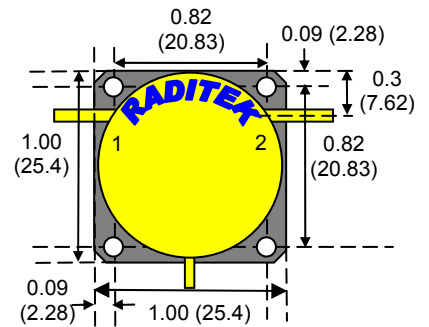
**Circuit Tab height: 0.166" (4.06mm) std. {0.142" slim}**  
**Overall height: 0.26 (6.6mm) (incl. magnet). Max std {0.24" slim}**  
**Flange Thickness: 0.150" (3.81mm). std , {0.125" slim}**  
**Mounting holes Ø: 0.116" (2.95mm)**



dd circulator



**de Isolator 110W load or 100W Attenuator Opt**



**dd Circulator or 10 / 20W isolator**  
Units: Inch(mm)

Tolerance	.XX	.XXX
Inch	±0.02	±0.010
mm	±0.5	±0.25

## 660MHz to 2.17GHz

### Standard Specification examples:

Frequency MHz	Insertion Loss dB Max.	Isolation Minimum dB	Return Loss dB	VSWR All ports
820-850	0.3	22	21	1.19:1
860-900	0.25	22	21	1.19:1
869-894	0.25	22	21	1.19:1
935-960	0.25	22	22	1.17:1
1930-1990	0.5	24	23	1.15:1

### Circuit tab details:

Unit	Length	Width	Thickness
Inch	0.09	0.05	0.005
mm	2.29	1.4	0.13

Size	de	dd	dd
ID:	RI	RI	RC
	Iso.	Iso.	Circ.
P rev	110/ 100W	10W /20W	200W

Order Examples: **RI-SS-F1-F2-de-110WR**  
**I=ISOLATOR / C=CIRCULATOR**

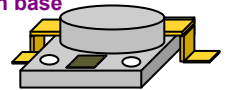
Direction of RF:	
R	Default ▶
L	◀

General specifications:		
Max. Fwd power:	<b>250 Watts</b>	Average
Max. Rev power(avg): (Load rating)	<b>110 / 150 / 200W load</b> <b>100W attenuator</b> <b>10 / 30W (option)</b>	Assumes infinite heat sink Load temp to be kept < 90°C
<b>Forward Peak Power</b>	>1KW	into a non short circuit load
<b>Passband ripple</b>	0.05 dB	Pk-Pk
<b>Operating temp.</b>	<b>-20°C to 85°C</b>	-54°C to 110°C storage

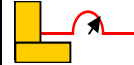
### Specification Options:

Attenuator type	-A20; -A30	20 dB or 30 dB 100W Rating
Phase Matching	-PM	+/- 5 degrees of gold standard
Surface mount	-S	Tab is level with base, add 0.10dB to IL
Low Loss	-M	See specs for availability
Special	-Z	Tab ht. is 62 mils (1.58 mm)
Tab left or right, de model (800-900MHz) only	-TABL(R)	Monitor tab (L or R of Load)
Low Intermodulation.	-H	-63dBc with two 50W tones, 5MHz apart

Circuit Tabs can be bent flush with base for surface mounting "option S"



### Standard dd/de strain relief.



**20 mil ±10 mil radius (0.5±0.25mm)**

Machined surface:  $\sqrt{63}$   
 Housings are made from Steel & Aluminum, Magnetically shielded, Nickel or Silver plated.

See the -U models for very best IMD performance.

## Additional Specs for d models

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
660-710		0.8	20	19	1.25		50M Bandwidth
665-735		0.8	20	19	1.25		0.85/19/19 SMT
684-746	8.7	0.8	23	19	1.25		0.4/23/19 at RT
695-705		0.5	23	20	1.22		
698-787		0.5	20	18	1.25		0.55/19/19 SMT
700-800		0.5	19	19	1.25		p 0.6/18/18 at -40 to 60C (-LT model)
700-930		0.75	10	10			@ RT 0.7/13/13
700-950		0.64	9	10			-S
710-730		0.25	22	21	1.19		0.3/21/20 SMT
710-745		0.35	21	19	1.25		
728-758		0.35	21	19	1.25		p
728-768		0.40	22	21	1.19		p
740-746		0.25	22	21	1.19		
747-767		0.25	22	21	1.19		
755-805		0.4	22	21	1.19		0.45/21/21 SMT
760-780		0.28	22	22	1.17		mt 6-2-09
760-810		0.45	21	20	1.22		p
780-830		0.4	22	21	1.19		
780-862		0.45	21	21	1.19		0.4dB typical
790-810		0.25	22	22	1.17		
790-880		0.45	21	21	1.19		
790-960		0.5	22	20	1.22		
794-825		0.28	22	22			
800-810		0.25	22	22	1.17		p
800-850		0.4	21.5	21.5			Conf d 2-3-05
800-900		0.4	21	21	1.19		0.45/20/20 SMT
800-1000		0.5	15	15		-40 to 85C	RI-SS-800-1000M-dd-10WL (SCD 70105-001-r1)
800-1000		0.5	15	15		-40 to 85C	RC-SS-800-1000M-dd-200WR (SCD 70104-001-r1)
806-870		0.3	21	21	1.19		
810-915	12.96	0.45	18	18	1.30	-20 to 85C	0.3/20/1.20 @ RT
811-821		0.28	25	25			
815-925		0.4	20	20	1.22		
820-840		0.25	22	23	1.15	0-50C	
820-850 -con		0.25	22	23	1.15	0-65C	Tabs 0.07Lx.025W
824-849		0.3	23	23	1.15		3-30-05 with Y13-0025
825-835		0.25	22	21	1.19		
825-880	65M	0.3	21	21	1.19		
830-845	15M	0.25	22	21	1.19		p
830-872		0.3	20	18	1.30		
840-900		0.3	22	22	1.17		
846-876		0.25	23	20.8	1.20		
850-866		0.25	24	24			
850-870		0.25	23	22			
850-880		0.25	22	21	1.19		
850-900		0.30	20	21	1.19		
850-920		0.4	19	19	1.25		

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
850-940		0.5	18	18	1.30		
851-866		0.25	22	22	1.17		
851-894		0.25	22	22	1.17		
855-900		0.25	23	21	1.19		Op. Temp.-30 to +60
856-866		0.2	24	24			
859-904		0.25	23	20.8	1.20		
860-900		0.25	22	21	1.19		
860-904		0.30	22	21	1.19		
860-872		0.25	23	23	1.15		
860-875		0.25	23	23	1.15		p
860-915		0.30	22	21	1.19		
860-930	70M	0.3	22	22	1.17	RFID	
860-950	90M	0.35	20	20	1.22		
860-960	100M	0.4	19	19	1.25		
864-868		0.25	30	25	1.12	RFID	tbc 2-7-05
865-868	3M	0.20	30	25	1.12		
865-900		0.35	22	20	1.22	0 to 85C	
867-869		0.25	30	25	1.12		
869-894	25M	0.25	23	21	1.19		-M (opt) 0.20dB IL Typical
869-960	91M	0.25	23	23	1.15	dc 8-30-07	
869-960	91M	0.30	20	20	1.22	dc 8-30-07	Model H1 optimized for Low IMD -68 to -70dBc
869-1000	136 M	0.45	18	18	1.30		
870-880		0.25	22	22	1.17		
876-960		0.30	20	20	1.22		
880-894		0.25	22	22	1.17		
880-915		0.4	20	20	1.22		
880-915		0.5	15	15			-40 to +65°C
880-920		0.25	22	22	1.17		t
880-960		0.35	20.5	21	1.19		-s (0.4 IL) ok 5-10-04
882-892	10M	0.25	22	22	1.17		
885-915	30M	0.25	23	21	1.19		
885-920		0.25	22	21	1.19		
889-916	27M	0.3	22	23	1.15		p
890-960		0.30	22	21	1.19		
895-905	10M	0.25	22	22	1.17		
895-935		0.30	22	21	1.19		
900-905	5M	0.25	22	22	1.17		p
900-925		0.25	22	21	1.19		
900-930		0.25	22	21	1.19		
900-930		0.3	21	20	1.22		-40 to 60C (-LT model)
900-950		0.40	20	21	1.19		
900-960		0.40	20	21	1.19		
900-980	80M	0.4	20	20	1.22	RFID	
900-980		0.40	20	21	1.19	-15 to +90C	
902-928		0.3	22	22	1.17		* 0.40/20/20 for SMT Versions (p)
902-930	28M	0.3	23	22	1.17		p
905-925		0.3	22	22	1.17		* 0.35/21/21 for SMT Versions
905-935		0.3	21	21	1.19		* 0.40/20/20 for SMT Versions
910-920	20M	0.22	28	27	1.09		SO 8128 Circ dc 5-21-08

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
910-970	60M	0.3	21	21	1.19		
911-946		0.35	21	21	1.19	full	
914-916		0.25	30	25	1.12	RFID	tbc 2-7-05
915-960		0.3	21	21	1.19		0.3/20/20 for SMT version
920-960	40M	0.3	21	21	1.19		0.35/20/20 for SMT version
920-965		0.3	21	21	1.19		
921-960	39M	0.3	22	22	1.17		* 0.35/21/21 for SMT Versions
925-960		0.3	21	21	1.19		dc 5-4-07
925-960		0.4	22	21	1.19		-40 to +65°C
925-965		0.3	22	22	1.17		
928-929		0.25	24	24	1.19		
930-960		0.25	24	23	1.15		
935-940		0.23	22	22	1.17		
935-960	25M	0.25	22	22	1.17		(-M 0.2dB IL (0.15dB typical) 4/22/04)
947-960		0.25	22	22	1.17		
950-953		0.25	30	25	1.12	RFID	ok 2-7-05
950-1000		0.3	21	21	1.19		Ok mt 3/10/08
950-1100		0.6	18	18	1.30		
950-1115		0.5	18	15	1.4		
950-1230		0.6	16	14	1.5		0 to 50C To meet cust request (e)
950-1250	300M	0.6	16	14	1.5		-30 to 85C, confirmed 9-30-05
950-1260	310M	0.6	16	14	1.5		p
950-1280	330M	0.8	16	16	1.38		
950-1300	350M	0.9	14	14	1.5		
950-1400		1.2	12	12	1.65		
950-1450	500M	1.2	12	12	1.65		0-50C
960-1206	31.6	0.7	16	16	1.38		
960-1215		0.6	16	16	1.38	At -20 to 85C	target 0.5 IL SMT 0.7/15/15
960-1220	260M	0.6	16	16	1.38	@-40 to +70	
960-1240		0.6	16	14	1.35		
960-1240 -2h		0.6	16	14	1.35		second harmonic -20dBc
960-1450	400M	1.0	13	13	1.6	tbc	
960-1450		0.6	16	14	1.35		
978.5-1081.5		0.3	21	21	1.19		
978-1082		0.3	21	21	1.19		
978-1092		0.5	20	19	1.25		
980-1055		0.3	21	21	1.19		p
980-1200	20.18	0.6	16	14 was 15		-40 to +85C	dc 5/18/09
990-1010	2%	0.25	22	21	1.19		p
1000-1100		0.5	20	19	1.25		
1000-1200		0.5	16	16		rt	De 7/25/08 SMT 0.6/16/16
1000-1300		0.6	16	14	1.30		cmi
1000-1600*		0.5	20	19	1.25	(S) 12-3-02	* 200M BW
1010-1090		0.5	18	16	1.40	-40 to 85C	
1010-1119		0.5	20	19	1.25		
1020-1040		0.3	20	21	1.19		

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
1020-1110		0.5	18	16	1.40	-40 to 85C	
1020-1250		0.6	16	16	1.38		
1024-1036		0.3	20	21	1.19		
1025-1035		0.3	20	21	1.19		p
1025-1150		0.4	18	15	1.34	-30 to 85C	
1030-1090	60M	0.5	18	16	1.40	-20 to 85C	
1034-1145		0.5	20	19	1.25		
1050-1070		0.3	21	21	1.19		P 10-24-07
1055-1065		0.5	20	19	1.25	-55 to +95	
1080-1100		0.5	20	19	1.25		
1085-1095		0.5	20	19	1.25	-55 to +95	p
1100-1200		0.5	22	19	1.25	0 to 40°C	p
1100-1400		0.6 0.55	15 17	14 14	1.30 1.30	room temp 85C	so 9852 11/18/10
1100-1220		0.5	22	19	1.25	0 to 40°C	
1105-1155		0.30	21	21	1.19		p
1117-1143		0.25	22	21	1.19		p
1150-1300		0.4	19	19	1.25		
1160-1180	1.71	0.25	22	21	1.19		p
1155-1185		0.3	21	21	1.19		p
1175-1225		0.30	21	21	1.19		
1140-1260		0.5	22	19	1.25	0 to 40°C	
1180-1420	18.46%	0.5	18	18	1.30	To be confirmed	Wide band, 0 to +40°C
1200-1250		0.3	21	21	1.19		
1200-1400		0.5	20	21	1.19	std	Conf dc 8-18-08
1200-1400 -S		0.65	20	20	1.20	-40 to +70	-s
1200-1400 -M		0.35	20	20	1.20	-10 to +75°C	-M version
1200-1400 -AMS		0.5	17	19	1.25		-AMS
1200-1400-SP1		0.5 0.6	20 19	20 18	1.20 1.30	0 to 85C -50 to 0C	-SP1 (for e)
1200-1415		0.45	19	19	1.25		-30 to +75
1200-1600	28.57%	0.6	18	18	1.30	To be confirmed	0.8/10/10 customer spec (3-16-05)
1210-1620		0.6	18	18	1.5	To be confirmed	
1225-1275		0.30	20	20	1.22		p
1240-1300		0.30	20	20	1.22		
1240-1320		0.35	20	20	1.22		
1240-1385	145M	0.4	20	20	1.20		0.5/18/18 @-40 to -20C
1250-1350		0.30	20	20	1.22		
1250-1400	150M	0.4	20	20	1.20		
1260-1300		0.3	20	19	1.25		-Ball minimum Return Loss @1575MHz
1265-1295		0.3	20	19	1.25		-Ball minimum Return Loss @1380MHz
1290-1310		0.3	20	19	1.25		p
1295-1345		0.25	20	20	1.22		p
1300-1400		0.35	20	20	1.22		
1300-1500		0.4	20	19	1.25		0.25/20/19 on test 1/16/06
1310-1410		0.35	20	20	1.22		p

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
1350-1400		0.25	20	20	1.22		
1350-1450		0.35	20	19	1.25	(-M is 0.32)	Special (0.25dB @ Room Temp)
1350-1525		0.35	20	19	1.25		0.35/20/20 @ -10 to +50 °C
1350-1550		0.4	20	19	1.25		
1350-1850		0.8	14	14	1.50	-30 to 70°C	dc 2/9/2011 so 10,008
1365-1395		0.35	20	19	1.25		-Ball minimum Return Loss @0-1280MHz and 1575MHz
1393-1433		0.35	20	19	1.25		
1400-1500		0.35	21	20	1.21		
1400-1550	10.17%	0.4	20	19	1.25		p
1400-1600		0.4	20	19	1.25	-40 to 85°C	.4.5 / 20 / 1.25 @ -55-85C
1400-1650		0.4	22	19	1.25	-30 to 70°C	dc 2/9/2011 so 10,008
1400-2000	35% WB	0.95	10.8	10.1		RT	.1.6 / 8.5 / 83 @ 85C
1420-1550		0.35	21	21	1.19		
1420-1560		0.35	21	21	1.19		
1420-1620-SP1		0.40	20	20	1.22	-40 to 85C e	0.5/19/1.3 @ -50 to -20°C
1450-1500		0.35	21	21	1.19		
1425-1525		0.3	21	21	1.19		
1429-1487		0.25	22	21	1.19		
1435-1525		0.35	20	19	1.25	(-M is 0.32)	Special (0.25dB @ Room Temp)
1450-1550		0.3	21	21	1.19		
1500-1600		0.3	20	20	1.22		
1500-1620		0.3	20	20	1.22		p
1500-1700		0.4	19	20	1.22		C – tbc 010906
1500-2000		0.8	14	14	1.50	-20 to60C	0.8/12.5/12.5 @ 70C
1518-1675		0.45	21	21	1.19		
1522-1661		0.4	22	22	1.17		
1525-1661		0.4	22	22	1.17		0.55/21/22 (s) 9-17-06 mt
1550-1600	3.17%	0.4	22	22	1.17	-40 C	-Ball minimum Return Loss @0-1380MHz
1550-1610	3.8%	0.4	22	22	1.17		
1550-1650	6.25%	0.5	19	20	1.22		
1550-1660		0.5	19	20	1.22		
1550-1750		0.4	19	20	1.22		
1550-1750		0.5	18	19		(s) 3/22/05	
1555-1595		0.3	21	20	1.22		p
1575-1620	2.82%	0.3	21	20	1.22		
1585-1770	11.03%	0.4	18	18	1.30	5/05/05 (br)	
1600-1660		0.3	22	21	1.19		0.3/25/1.19 @ room temp
1600-1750		0.4	20	20	1.22		
1600-1800		0.4	20	20	1.22	(S) 12-3-02	
1610-1626		0.3	23	20	1.22	p	
1610-1626.5		0.3	23	20	1.22		0.4/22/19 for SMT
1624-1662		0.3	23	18	1.30		
1626-1661		0.3	23	18	1.30		
1626.5-1660.5		0.3	23	22	1.17		p
1650-1700		0.3	22	21	1.19		0.3/25/1.19 @ room temp
1650-1750		0.4	21	20	1.22		

Frequency MHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
1650-1850		0.4	20	19	1.25		
1700-1820		0.4	20	20	1.22		
1700-1900		0.4	20	20	1.22		
1710-1730		0.3	24	21	1.19		
1710-1880		0.4	20	20	1.22		
1710-1855		0.35	20	20	1.22		
1740-1860		0.3	23	22	1.17		mt 3-3-08
1750-1850		0.4	20	20	1.22		
1770-1830		0.3	24	21	1.19		
1785-1805		0.3	24	21	1.19		
1800-1830		0.3	21	20.8	1.20		p
1800-1880		0.25	24	23	1.15		
1800-1885		0.25	24	23	1.15		Malcolm 8-20-07
1800-1900		0.3	21	21	1.19		
1800-2000		0.4	20	20	1.22		
1800-2170		0.4	19	19	1.25		
1800-2200		0.4	17	17	1.32		Verified 10-10-04 mt
1805-1825		0.3	24	21	1.19		
1805-1880	4.0	0.3	22	21	1.19		
1830-1880		0.3	22	21	1.19		
1850-1910	3.2	0.3	24	21	1.19		
1850-1915		0.4	20	19	1.25		SMT
1850-1880		0.3	22	21	1.19		
1850-1990		0.35	20	19	1.25		
1850-1995		0.38	19.5	19	1.25		
1850-2050		0.4	19	19	1.25		
1893-1920		0.3	22	21	1.19		
1900-2200	14.6%	0.4	18	17.7	1.3	p	Wide band, 0 to +45°C
1900-2200		0.4	20	20	1.22	To be confirmed	0.5/20/20 for SMT version Wide band, 0 to +40°C
1900-2300	19.07%	0.5	19.1	19.1	1.25	To be confirmed	Wide band, 0 to +40°C
1920-1980		0.29	22	21	1.19		SMT 0.4/22/19
1920-2170		0.5	20	20	1.22		
1920-2000		0.35	21	21	1.19		
1920-2200		0.5	20	20	1.22		See D4 dated 2-3-03
1930-1990	3.1	0.25	24	23	1.15		Malcolm 8-20-07
1930-1995	3.15M	0.29	23	21	1.19		SMT 0.4/21/19
1930-2000	70M	0.35	21	21	1.19		p

Frequency GHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
2.010-2.025		0.3	22	21	1.19		
2.07-2.21	0.5	0.4	22	21	1.19		
2.09-2.10	0.5	0.3	22	21	1.19		
2.10-2.17	3.3	0.2	24	21	1.19	-M	loss typically <0.15dB (spec)
2.10-2.17	3.3	0.29	22	21	1.19	Standard	

Frequency GHz	BW %	Insertion Loss dB Max.	Isolation (min) dB	Return Loss dB	VSWR All ports	Full band full temp range, unless specified	
2.10-2.20	3.3	0.3	23	21	1.19		
2.11-2.17	3.3	0.25	24	21	1.19		SMT 0.35/21/20

**Additional Tab Options:**

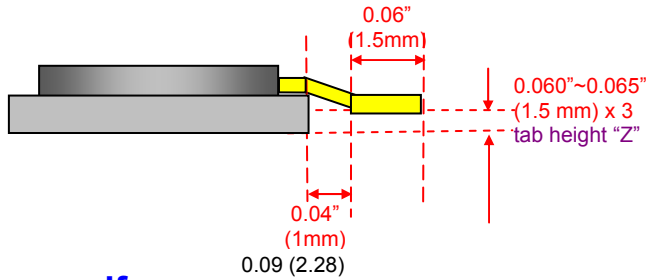
option	Tab above base +/-0.010"	Distance Tab vertical from unit +/-0.005"	Length Flat soldering part of Tab +/-0.005"	Overall tab protrusion from carrier (max)	Tab clearance above channel (Min)	Perpendicular
-S	0.00 (level)	0.040"	0.045"	0.1"		
-Z	0.060" (1.53mm)	0.040" (1.0mm)	0.06"	0.1"	0.06"	Slopes see page 3
-Y	0.035" (0.9mm)	0.040"	0.045"	0.1"		

**leads can be bent + or - 10 mils without affecting performance in any way**

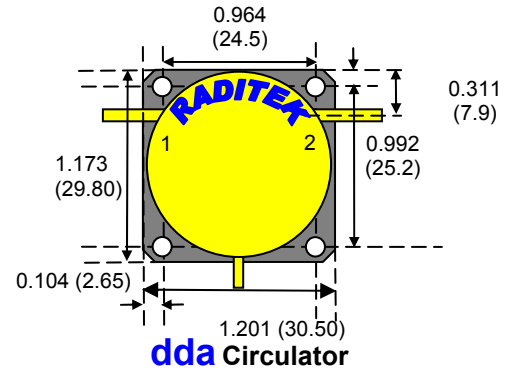
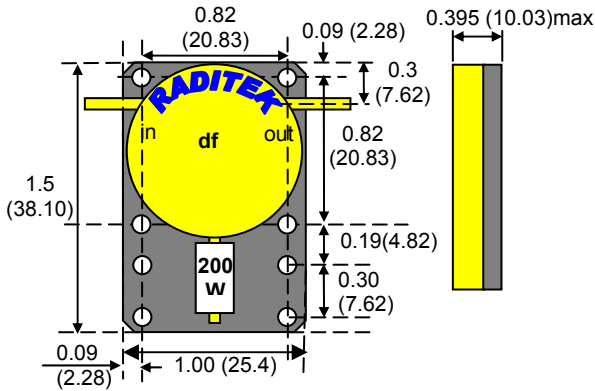
**-Z Model Tab Detail**

(formerly -X)

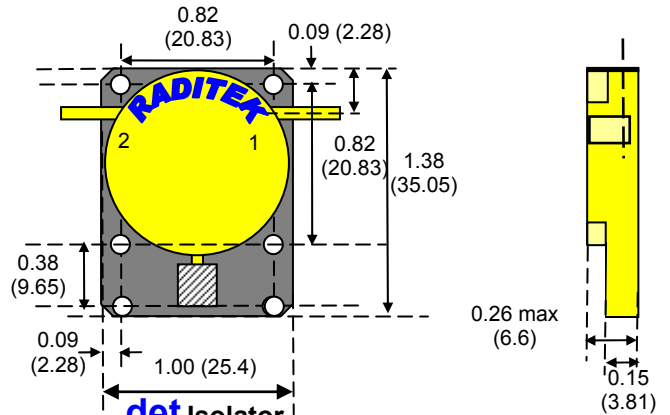
Tab details:



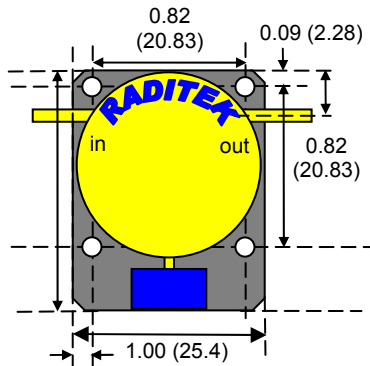
**df Model**  
**200W Isolator**



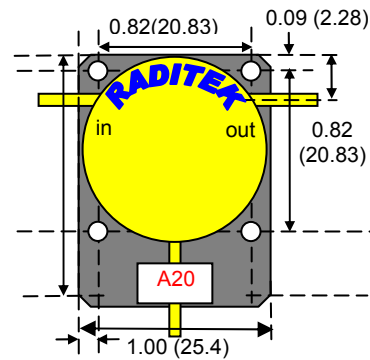
**dda Circulator**



**det Isolator**  
**(200W/load shown)**



**de Isolator 110W load**



**de Isolator 100W**  
**A20 (20dB) or A30 (30dB) Attenuator**