FAIR-RITE PRODUCTS CORP.

WALLKILL NEW YORK

Telephone 3-2632

MAGNETIC PROPERTIES OF FAIR-RITE MATERIALS

	Unit	M Material	LDR	LD	LDF
Initial Permeability		375	175	135	130
Maximum Permeability		1200	600	400	380
Saturation Flux Density	Gauss	2500	2900	3200	3100
Temp.Coeff. of Initial Perm.		.2%/C°	.08%/C°	.1%/C°	.08%C
Curie Temperature		180° C	300° C	300° C	300° C
Volume Resistivity	OHM-CM	1×10^2	1×10^8	1×10^8	1×10^8
Frequency Range	Mc.	.01-2	.1 - 10	.2 - 20	.2 - 20
Specific Gravity		4.9	4.7	4.7	4.7
Loss Factor at 1 Mc.	$\frac{1}{u_o Q}$	.00009	.000043	.000022	.000023

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29/9/66

Diode Transformer.

all Coaxial

Primary 41 mm dia, 21.8 mm long, 0.15 mm wire, 145 turns
Secondary 14 mm dia, 63.4 mm long, 0.15 mm wire, 420 turns
Core 12.7 mm dia, 76.2 mm long, Ferrite

R.F. measurements on Q machine.

Primary 1.7 mh Q = 75 at 250 KC
Secondary 8.1 mh Q = 176 at 250 KC

P+S+2M = 15.1 mh P+S-2M = 4.5 mh M = 2.65 mh K = .71

Coupling much too great so removed primary from over secondary. Placed the two paraxial on 33 mm centers. Now K = 0.1 approx.

Connected OA95 diodes clear end to each end of secondary.
Connected 220 KΩ load resistor and .001 mfd shunt to center of secondary.
Read current thru load resistor in microamperes.

μa	0.2	1	2	4	7	10	36
KC	1710	1740	1810	1830	1850	1870	1880

as DC voltage across diode increases its capacity decreases and resonant frequency rises, at 10 μa the circuit Q = 9.3

Using 10 μa, 1870 KC, 8.1 mh the circuit capacity is 0.87 pf.
The two diodes in series have about 0.5 pf. Thus coil = 0.4 pf approx.
a six layer winding will probably have ten times the capacity or 4 pf.
Total circuit capacity now 4.5 pf.

Resonance at 250 KC requires 90 μh.
Required turns = $(90/8.1)^{1/2} 420 = 1400$ turns
assume 150 turns per inch for 2.5 inches = 375 turns per layer = 3.75 layers.
Use 4 layers = 1500 turns = 103 mh which requires only 3.9 pf to resonate at 250 KC.

30/9/66

Philips Diodes

Data from Keith Bradshaw.

OA 91 General purpose germanium. Max 90V @ 50 ma

OA 95 " " " " "
(probably later version of OA91 as clear glass are new stock)

OA 202 General purpose silicon. Max 150 V @ 160 ma

OA 210 Power diode " . Max 400 V @ 500 ma.
Surge peak 5 amps.

BA 102 Voltage dependent capacitor. 30 pf at 4 V reverse, Q = 65 @ 50 mc. Increasing reverse voltage decreases capacity. Probably a silicon device.

By test: All these devices have forward resistance of 130 to 180 ohms. The backward resistance of germanium devices is 1 to 6 megohms. The backward resistance of silicon devices is much greater than 10 megohms and not detectable on a volt-ohm meter.

By test: OA 95 devices have R.F. capacity of 1 pf ± 0.2
OA 202 " " " " " 18 pf ± 1

The clear glass devices with colored bands are probably Amodeon

Regulated power supply for transistors

R. H. S. Riordan, Proc IREE Aust., June 1965 page 204,

Provides +9 V and -9v ±0.2% at 20 ma.

Source is 24 volt storage battery or AC mains.

2/6/66

General Radio Signal Generator 1001-A

Impedance looking into 2 volt receptacle.

Frequency	Ohms.
5 KC	440
5 MC	330
20 MC	165
50 MC	50

Measurement made by connecting resistance across receptacle so that receptacle voltage is half the open circuit voltage. The resistance is independent of voltage level, Freq Range switch, Output switch. The internal impedance is determined by constants of circuit between output tube and receptacle.

When receptacle voltage is half the open circuit voltage using resistor shunt, the meter indicates about 0.6 to 0.7 of indication without shunt.