



LIGO Laboratory / LIGO Scientific Collaboration

LIGO-T040220-A-C

LIGO

10 December 2004

Test Results for C30642 LSC Diode Elements

Richard Abbott

Distribution of this document:
LIGO Science Collaboration

This is an internal working note
of the LIGO Project.

California Institute of Technology
LIGO Project – MS 18-34
1200 E. California Blvd.
Pasadena, CA 91125
Phone (626) 395-2129
Fax (626) 304-9834
E-mail: info@ligo.caltech.edu

Massachusetts Institute of Technology
LIGO Project – NW17-161
175 Albany St
Cambridge, MA 02139
Phone (617) 253-4824
Fax (617) 253-7014
E-mail: info@ligo.mit.edu

LIGO Hanford Observatory
P.O. Box 1970
Mail Stop S9-02
Richland WA 99352
Phone 509-372-8106
Fax 509-372-8137

LIGO Livingston Observatory
P.O. Box 940
Livingston, LA 70754
Phone 225-686-3100
Fax 225-686-7189

<http://www.ligo.caltech.edu/>

1 Introduction

Measurements were taken to quantify series capacitance and series resistance for the C30642 InGaAs, 2mm photodiodes used in the LSC RF Photodetector. Data taken in January of 2003 is included for comparison.

All measurements were taken using an HP4195A and associated Impedance Test Adapter. The data was taken at 24.5 MHz with 7 volts reverse bias applied

2 Diodes from LHO and LLO, November 2004

Serial Number	Series Capacitance (pF)	Series Resistance, Ohms
A6578	105	11.9
A6579	105	11.4
A6580	105	11.6
A6581	106	10.8
A6582	105	11.8
A6584	108	10.9
A6585	106	11.3
A6590	105	11.5
A6591	105	11.7
A6592	105	11.6
A6594	107	10.6
A6595	106	11.3
A6596	105	11.4
A6598	107	10.9
A6603	107	10.6
A6604	106	11.5
A6605	107	10.7
A6606	105	11.9
A6607	106	11.1
Average	105.8421053	11.28947368
Std. Dev.	0.932633955	0.420394222

3 C30642 Diodes from LHO 10 December 2004

Serial Number	Series Capacitance (pF)	Series Resistance, Ohms
A6721	125.7	14.4
A6722	111.7	12.1
A6723	125.5	14.3
A6725	106.8	12.4
A6714	130.6	13.2
A6713	125.8	13.8
A6712	105.3	11.8
A6711	105.6	11.8
A6719	107	11.1
Average	116	12.76666667
Std. Dev	10.00177762	1.130388331

4 C30642 Diodes from CIT measured in January 2003

Serial Number	Series Capacitance (pF)	Series Resistance, Ohms
Cut off	137	7.6
Cut off	138	7.4
Cut off	69	15.4
Cut off	138	7.5
Cut off	138	7.6
Cut off	138	7.4
Cut off	137	7.3
A5890	139	7.5
A5898	139	9.1
A2486	95	11.6
A5897	139	7.4
Cut off	136	8.8
A5910	138	7.6
A5947	137	7.4
Average	129.8571429	8.542857143
Std. Dev	20.16311039	2.209626434

5 GAP2000 Diodes measured in January 2003. Units have no serial numbers

Capacitance	Resistance
193	9.5
211	8.8
209	9.1
202	8.9
205	8.9
200	9
200	8.6
191	8.4
197	8.5
201	8.9
215	8.7
192	8.4
192	8.5
197	8.5
201	8.9
191	8.5
195	8.4
192	8.2
189	8.3
189	8.3
195	8.5
196	8.5
191	8.4
199	8.5
197	8.7
197	8.5
202	8.7
190	8.4
189	8.3
192	8.4

201	8.6
211	8.9
197	8.5
200	8.9
192	8.5
206	8.7
199	8.9
215	8.7
214	8.6
198	8.8
196	8.8
191	8.6
195	8.7
213	9.2
200	9.3
213	9.1