

ICS RADIATION TECHNOLOGIES, INC.

8416 Florence Avenue, Suite 207
Downey, CA 90240-3949

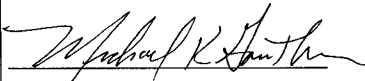
TEL: 562.923.1837 FAX: 562.923.3609

WEB: www.icsrad.com

CERTIFICATE OF CONFORMANCE

This document certifies that the task requirements of Line Item Number 1 of Purchase Order Number G0193570, dated 6/28/01 have been completed and meet the requirements of the above Purchase Order.

Our Quality Assurance procedures are in conformance to MIL-I-45208A and MIL-Q9858A. A government subcontractor has inspected our facilities.



Quality Assurance Officer

June 30, 2001

Date



(seal)



5335 PRICE AVENUE
BUILDING 258
McCLELLAN, CA 95652
PHONE: (916) 614-6200
FAX: (916) 614-6250
WEB: <http://www.ucdavis.edu/mnrc>

29 June 2001

MEMORANDUM FOR ICS, Inc.

FROM: UCD/MNRC

SUBJECT: Dosimetry for ¹³⁷Cs Irradiations 6/27/01-6/28/01

1. The following 1 MeV Equivalent Fluence (1 MeV neutrons/cm²) values were measured during the irradiations performed at the UCD/MNRC 4/2/01-4/4/01.

Date	1 Mev Equivalent Fluence (Exposure)	1 Mev Equivalent Fluence (Accumulated)
6/27/01	9.40E11	9.40E11
6/28/01	8.10E12	9.04E12

2. Attached please find additional data you may require. If you have any questions please call.

Daniel L. Newell
Nuclear Engineer, UCD/MNRC

IN COLLABORATION WITH
SCIENCE APPLICATIONS
INTERNATIONAL CORPORATION



I C S Radiation Test Results
IRH67260 N-CHANNEL POWER MOSFET (IRC)

IGSSF VGS=20V nA

Table with 5 columns: FLUENCE, neutrons/cm2, INITIAL, 9.40E+11, 8.10E+12. Rows include S/N, 15, MINIMUM, MEAN, MAXIMUM, and various test conditions (+P, -P, SIGMA).

IGSSF VGS=20V nA [DELTA]

Table with 5 columns: FLUENCE, neutrons/cm2, INITIAL, 9.40E+11, 8.10E+12. Rows include S/N, 15, MINIMUM, MEAN, MAXIMUM.

DEVICE TYPE IRH67260 N-MOSFET (IRC)
RADIATION SOURCE TRIGA Reactor (MNRC), 1.00MeV.

D/C CIRC 01 || PACKAGE TO-3 || LOT# ER14253
LOG# 972 || TEST DATE 06/26/01 || RTP# 386

I C S RADIATION TECHNOLOGIES, INC.

I C S Radiation Test Results
IRH67260 N-CHANNEL POWER MOSFET (IRC)

IGSSR VGS=-20V nA

Table with 5 columns: FLUENCE, neutrons/cm2, INITIAL, 9.40E+11, 8.10E+12. Rows include S/N, 15, MINIMUM.

FLUENCE	neutrons/cm2	INITIAL	9.40E+11	8.10E+12
----- S/N -----				
15			4.40E+03	5.07E+03
MINIMUM			4.40E+03	5.07E+03
MEAN			4.40E+03	5.07E+03
MAXIMUM			4.40E+03	5.07E+03

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.   DEVICE TYPE      IRH67260 N-MOSFET (IRC)   .
.   RADIATION SOURCE TRIGA Reactor (MNRC), 1.00MeV.
.
.   D/C  CIRC 01 || PACKAGE   TO-3      || LOT#  ER14253  .
.   LOG# 972  || TEST DATE  06/26/01 || RTP#  386    .
.
.....
I C S RADIATION TECHNOLOGIES, INC.
    
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I C S Radiation Test Results
 IRH67260 N-CHANNEL POWER MOSFET (IRC)
 =====

VGS(th) ID=1mA VDS=VGS V
 =====

FLUENCE	neutrons/cm2	INITIAL	9.40E+11	8.10E+12
----- S/N -----				
15		2.49E+00	2.50E+00	2.48E+00
MINIMUM		2.49E+00	2.50E+00	2.48E+00
MEAN		2.49E+00	2.50E+00	2.48E+00
MAXIMUM		2.49E+00	2.50E+00	2.48E+00
+P 50/90		*****	*****	*****
-P 50/90		*****	*****	*****
+P 99/90		*****	*****	*****
-P 99/90		*****	*****	*****
SIGMA		*****	*****	*****

VGS(th) ID=1mA VDS=VGS V [DELTA]
 =====

FLUENCE	neutrons/cm2	INITIAL	9.40E+11	8.10E+12
----- S/N -----				
15			1.00E-02	-1.00E-02
MINIMUM			1.00E-02	-1.00E-02
MEAN			1.00E-02	-1.00E-02
MAXIMUM			1.00E-02	-1.00E-02

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.   DEVICE TYPE      IRH67260 N-MOSFET (IRC)   .
    
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.      RADIATION SOURCE      TRIGA Reactor (MNRC), 1.00MeV.
.
.  D/C  CIRC 01 || PACKAGE    TO-3      || LOT#   ER14253
.  LOG# 972   || TEST DATE  06/26/01 || RTP#   386
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.
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I C S RADIATION TECHNOLOGIES, INC.

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I C S Radiation Test Results
 IRH67260 N-CHANNEL POWER MOSFET (IRC)
 =====

BVDSS ID=1mA VGS=0V V
 =====

FLUENCE	neutrons/cm2	INITIAL	9.40E+11	8.10E+12
----- S/N -----				
15		2.04E+02	2.04E+02	2.05E+02
MINIMUM		2.04E+02	2.04E+02	2.05E+02
MEAN		2.04E+02	2.04E+02	2.05E+02
MAXIMUM		2.04E+02	2.04E+02	2.05E+02
+P 50/90		*****	*****	*****
-P 50/90		*****	*****	*****
+P 99/90		*****	*****	*****
-P 99/90		*****	*****	*****
SIGMA		*****	*****	*****

BVDSS ID=1mA VGS=0V V [DELTA]
 =====

FLUENCE	neutrons/cm2	INITIAL	9.40E+11	8.10E+12
----- S/N -----				
15			0.00E+00	1.00E+00
MINIMUM			0.00E+00	1.00E+00
MEAN			0.00E+00	1.00E+00
MAXIMUM			0.00E+00	1.00E+00

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.      DEVICE TYPE      IRH67260 N-MOSFET (IRC)
.      RADIATION SOURCE      TRIGA Reactor (MNRC), 1.00MeV.
.
.  D/C  CIRC 01 || PACKAGE    TO-3      || LOT#   ER14253
.  LOG# 972   || TEST DATE  06/26/01 || RTP#   386
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I C S RADIATION TECHNOLOGIES, INC.

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I C S Radiation Test Results
 IRH67260 N-CHANNEL POWER MOSFET (IRC)

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RDS(on)  VGS=12V  ID=16A  OHMS
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FLUENCE  neutrons/cm2  INITIAL          9.40E+11  8.10E+12
-----  S/N  -----
15              2.35E-02      2.30E-02      2.40E-02

MINIMUM        2.35E-02      2.30E-02      2.40E-02
MEAN           2.35E-02      2.30E-02      2.40E-02
MAXIMUM        2.35E-02      2.30E-02      2.40E-02
+P 50/90      *****          *****          *****
-P 50/90      *****          *****          *****
+P 99/90      *****          *****          *****
-P 99/90      *****          *****          *****
SIGMA         *****          *****          *****

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RDS(on)  VGS=12V  ID=16A  OHMS  [DELTA]
=====
FLUENCE  neutrons/cm2  INITIAL          9.40E+11  8.10E+12
-----  S/N  -----
15              -5.00E-04      5.00E-04

MINIMUM        -5.00E-04      5.00E-04
MEAN           -5.00E-04      5.00E-04
MAXIMUM        -5.00E-04      5.00E-04

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.
.   DEVICE TYPE      IRH67260 N-MOSFET (IRC)   .
.   RADIATION SOURCE TRIGA Reactor (MNRC), 1.00MeV. .
.
.   D/C  CIRC 01 || PACKAGE  TO-3      || LOT#  ER14253 .
.   LOG# 972  || TEST DATE 06/26/01 || RTP#  386   .
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RADIATION TEST PROCEDURE

No. 386

Device Type: IRH 67260 N-Channel Power MOSFET
 Manufacturer: International Rectifier Corp.
 Lot No: ER14253 Date Code: Circ. 2001
 Package Type: TO-3 Can
 No. of Devices Supplied: 10
 No. of Devices to be tested: 9 + 1 Control

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RADIATION CONDITIONS: MIL STD 750D, Test Method 1017

Facility: TRIGA Reactor

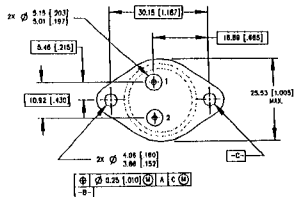
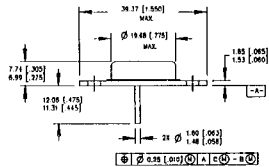
Energy: 1 MeV Equivalent

Neutrons/cm ²	1E12	1E13
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BIAS CONDITIONS DURING IRRADIATION: All leads grounded.

Pin No.	Name
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- | | |
|---|--------------|
| 1 | SOURCE |
| 2 | GATE |
| 3 | DRAIN (Case) |



RADIATION TEST PROCEDURE

Device Type: IRH 67260 N-Channel Power MOSFET

Electrical Parameter Measurement Conditions*

TEST NUMBER	TEST NAME	TEST CONDITIONS	LIMIT/UNITS
1	IGSSF	VGS=20 V	100 nA
2	IGSSR	VGS=-20 V	-100 nA
3	IDSS	VDS=160 V VGS=0 V	10 μ A
4	VGSTH	ID=1mA VDS=VGS	2 to 4 V
5	BVDSS	ID=1 mA	200 V
6	RDSON	VGS=12 V ID=20 A*	0.025 Ω

*Pulsed: Pulse width \leq 300 μ s; Duty Cycle \leq 2%.

*Measurements shall be made using a Tektronix 370 Curve Tracer at room ambient temperature.