

NAVIGATOR

TECHNOLOGY DIRECTION FOR THE MIL/AERO COMMUNITY

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WELCOME TO THE NAVIGATOR SPACE EDITION!

This is the first in a series of newsletters tailored to space-level customers. In this letter will be the latest information on National Semiconductor's space-level offerings as well as other items that we hope are of interest to you.

QMLQ "R"— NATIONAL'S LOWER COST SPACE FLOW

With the Internet creating the need for cheaper, better, and faster methods to carry data, the commercial space-level market is booming. Greater numbers of satellite launches are planned than ever before. Constellations of up to 300 satellites are expected to revolutionize the telecommunications industry. For these commercial constellations to become reality, cost control is more important than ever.

To meet these needs, National Semiconductor has developed a new process flow to support the commercial space market. By combining some of the best aspects of the traditional space-level flow with the cost savings and known reliability of the QMLQ/JAN B flow, we have developed QMLQ "Rad", or QMLQ "R".

QMLQ R begins with S-level die that is subjected to Wafer Lot Acceptance with SEM inspection to the space-level criteria of MIL-STD-883, Method 2018. Die is then radiation tested and certified to qualified levels, with each wafer individually tested for radiation performance. Product is built from single wafer assembly lots. Wafer number

QMLQ R FEATURES

Space-level die
Known/proven reliability
Standard minimum quantities
Substantially improved leadtimes
Significantly lower costs

QMLQ R RADIATION TEST LEVELS

F = 300krads L = 50krads
R = 100krads P = 30krads

NUMBERING NOMENCLATURE

SMD	National Part #
5962F8961501QXA	DS16F95XFQML
5962R8752501BXA	JM54ACT74BXA-RH
5962L8771002QXA	LM158AXLQML

traceability is provided. Individual products are tested to their maximum total dose radiation capability. The product is then sent through assembly, test, burn-in, and QCI testing in accordance with QML Class Q requirements and specifications.

QMLQ R products are priced lower than JAN S or QMLV. The flow will be available for a wide range of products including FACT™ and F100K 300 Series ECL logic, Interface, and Analog families.

Page 2 of this letter lists National's available and future QMLQ R products. For more information on this new space-level flow, email us at milmktg@nsc.com or visit our web site at www.national.com/mil.

COME TO

NATIONAL SEMICONDUCTOR
FOR SPACE-LEVEL PRODUCTS

OP AMPS/COMPARATORS

General Purpose • High Speed • Low Power

VOLTAGE REGULATORS

Low Drop Out • Switching

DATA ACQUISITION

Voltage References • ADCs

LOGIC

CMOS/FACT • BiCMOS/ABT • ECL • SCAN

INTERFACE

RS-232 • RS-422 • RS-485 • LVDS

NETWORKING DEVICES

Ethernet • FDDI

REQUEST A COPY OF NATIONAL'S
[TECHNOLOGIES FOR SPACE BROCHURE](#)
AND [RADIATION OWNER'S MANUAL](#).

For more information on National's products:

In the U.S.

Tel: 1-800-272-9959
Fax: 1-800-737-7018
Email: milmktg@nsc.com

In Europe

Call the Customer Support Centre

- German Speaking Service
Tel: +49 (0) 1 80 5 30 85 85
- English Speaking Service
Tel: +49 (0) 1 80 5 32 78 32
- Fax: +49 (0) 1 80 5 30 85 86
- Email: europe.support@nsc.com

Or call Mil/Aero Marketing at
+49 (0) 8141 351492/495

In Southeast Asia

Contact the Customer Support Center

- Tel: (65) 2544466
- Fax: (65) 2504466
- Email: sea.support@nsc.com

In Japan

Call Jepico at (03) 3348 0623

QMLQ R PRODUCT OFFERING

AVAILABLE PRODUCTS

Part #	SMD/JAN #	Part #	SMD/JAN #	Part #	SMD/JAN #
54AC00	JM38510R75001BxA	54AC169	5962R9160301MxA	54ACT138	5962R8755401BxA
54AC02	JM38510R75101BxA	54AC174	JM38510R75307BxA	54ACT151	5962R8875601BxA
54AC04	JM38510R75701BxA	54AC191	JM38510R76305BxA	54ACT157	5962R8968801xA
54AC05	5962R9059001BxA	54AC240	JM38510R75703BxA	54ACT161	5962R9172201MxA
54AC08	JM38510R75203BxA	54AC241	JM38510R75704BxA	54ACT163	5962R9172301MxA
54AC10	JM38510R75002BxA	54AC244	JM38510R75705BxA	54ACT240	5962R8775901BxA
54AC11	JM38510R75204BxA	54AC245	JM38510R75503BxA	54ACT244	5962R8776001BxA
54AC14	JM38510R75702BxA	54AC257	JM38510R76207BxA	54ACT245	5962R8766301BxA
54AC20	JM38510R75003BxA	54AC273	JM38510R75601BxA	54ACT574	5962R8960101BxA
54AC32	JM38510R75201BxA	54AC373	JM38510R75403BxA	54ACTQ08	5962R8954702xA
54AC74	JM38510R75302BxA	54AC374	JM38510R75602BxA	54ACTQ245	5962R9218701MxA
54AC86	JM38510R75202BxA	54AC520	5962R9091601BxA	54ACTQ273	5962R8973501xA
54AC109	JM38510R75304BxA	54AC521	5962R9098501BxA	54ACTQ374	5962R9218901MxA
54AC138	JM38510R75802BxA	54AC541	JM38510R75711BxA	DS16F95	5962F8961501QxA
54AC139	JM38510R75803BxA	54AC574	JM38510R75604BxA	LM108	5962R9863702QxA
54AC153	JM38510R76202BxA	54ACT00	5962R8769901BxA	LM124	5962R9950401QxA
54AC157	JM38510R76203BxA	54ACT74	5962R8752501BxA	LM139	5962R9673801QxA
54AC161	JM38510R76302BxA	54ACT109	5962R8853401xA	LM158	5962L8771002QxA
54AC163	JM38510R76304BxA				

PRODUCTS IN QUALIFICATION

LM101	5962R99515xxQxA	LM118	5962R98539xxQxA	LM137K	5962P99517xxQYA
LM111	5962L86877xxQxA	LM119	5962R96798xxQxA	LM148**	5962 -TBDQxA**
LM117H	5962L99516xxQXA	LM136	5962R -TBDQxA	LP2953**	5962 -TBDQxA**
LM117K	5962L99516xxQYA	LM137H	5962L99517xxQXA		

** Guaranteed radiation level to be determined

Notes: Products are available in a variety of packages, including cerpacks, cerdips, leadless, metal cans, and National's new SOIC package.

x = insert appropriate package code

FUTURE PRODUCTS

National Semiconductor will qualify additional space-level QMLQ R products as warranted by customer demand.



Visit National Semiconductor's Military/Aerospace group on the Internet at www.national.com/mil or email us at milmktg@nsc.com

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