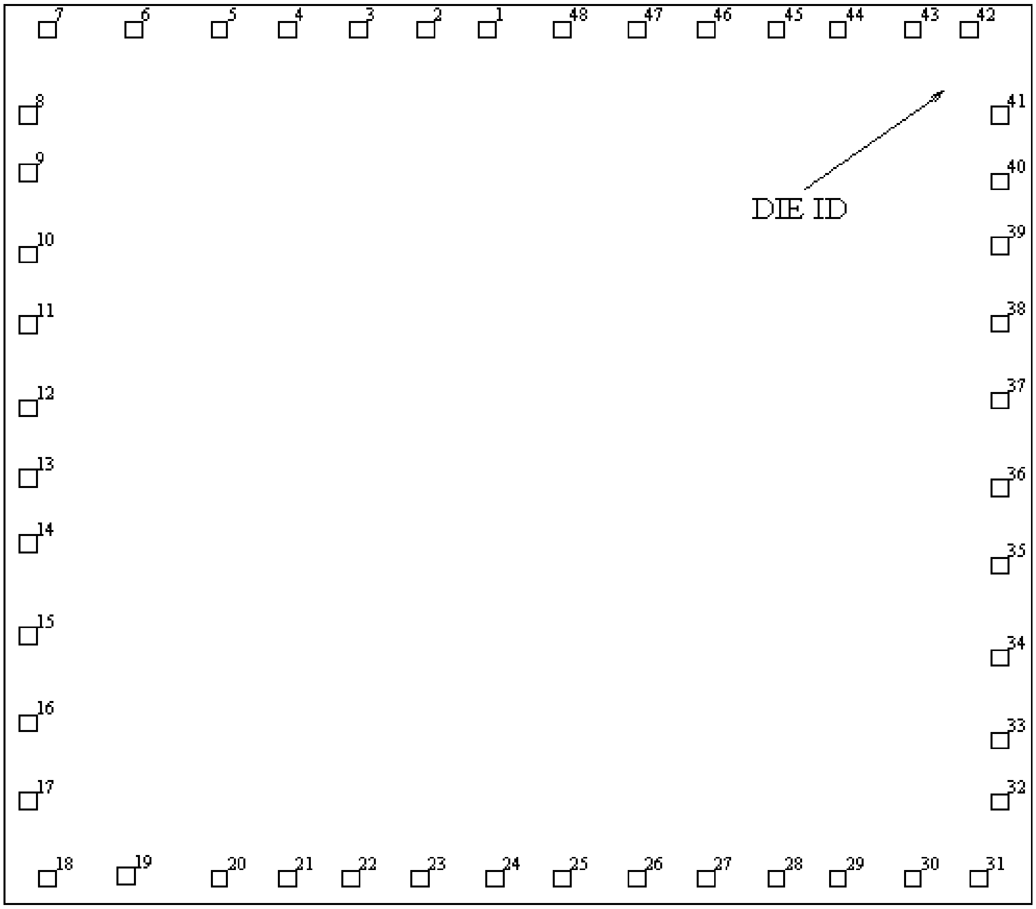
National Semiconductor
*The Sight & Sound of Information*

# DPBU
# Die Datasheet

**CB00291C1 MDC MCD0580A**

**March 05,2004**

## DIE LAYOUT (B-STEP)



## DIE/WAFER CHARACTERISTICS

| **Fabrication Attributes** | | **General Die Information** | |
|---|---|---|---|
| Physical Die Identification | C029B | Bond Pad Opening Size (min) | 114µm x 114µm |
| Die Step | B | Bond Pad Metalization | ALUMINUM |
| **Physical Attributes** | | Passivation | NITRIDE |
| Wafer Diameter | 150mm | Back Side Metal | Bare Back |
| Die Size (Drawn) | 6960µm x 6121µm<br>274.0mils x 241.0mils | Back Side Connection | |
| Thickness | 406µm Nominal | | |
| Min Pitch | 339µm Nominal | | |

**Special Assembly Requirements:**

**Note: Actual die size is rounded to the nearest micron.**

## Die Bond Pad Coordinate Locations (B -Step)

(Referenced to die center, coordinates in µm) NC = No Connection, N.U. = Not Used

| SIGNAL | PAD# | X/Y COORDINATES | | PAD SIZE | | |
|---|---|---|---|---|---|---|
| NAME | NUMBER | X | Y | X | | Y |
| Pad | 1 | -179 | 2893 | 114 | x | 114 |
| Pad | 2 | -599 | 2893 | 114 | x | 114 |
| Pad | 3 | -1064 | 2893 | 114 | x | 114 |
| Pad | 4 | -1544 | 2893 | 114 | x | 114 |
| Pad | 5 | -2009 | 2893 | 114 | x | 114 |
| Pad | 6 | -2594 | 2893 | 114 | x | 114 |
| Pad | 7 | -3183 | 2893 | 114 | x | 114 |
| Pad | 8 | -3312 | 2309 | 114 | x | 114 |
| Pad | 9 | -3312 | 1919 | 114 | x | 114 |
| Pad | 10 | -3312 | 1364 | 114 | x | 114 |
| Pad | 11 | -3312 | 884 | 114 | x | 114 |
| Pad | 12 | -3312 | 314 | 114 | x | 114 |
| Pad | 13 | -3312 | -166 | 114 | x | 114 |
| Pad | 14 | -3312 | -608 | 114 | x | 114 |
| Pad | 15 | -3312 | -1238 | 114 | x | 114 |
| Pad | 16 | -3312 | -1831 | 114 | x | 114 |
| Pad | 17 | -3312 | -2363 | 114 | x | 114 |
| Pad | 18 | -3185 | -2893 | 114 | x | 114 |
| Pad | 19 | -2647 | -2871 | 114 | x | 114 |
| Pad | 20 | -2009 | -2893 | 114 | x | 114 |
| Pad | 21 | -1544 | -2893 | 114 | x | 114 |
| Pad | 22 | -1109 | -2893 | 114 | x | 114 |
| Pad | 23 | -644 | -2893 | 114 | x | 114 |
| Pad | 24 | -134 | -2893 | 114 | x | 114 |
| Pad | 25 | 331 | -2893 | 114 | x | 114 |
| Pad | 26 | 841 | -2893 | 114 | x | 114 |
| Pad | 27 | 1306 | -2893 | 114 | x | 114 |
| Pad | 28 | 1786 | -2893 | 114 | x | 114 |
| Pad | 29 | 2206 | -2893 | 114 | x | 114 |
| Pad | 30 | 2716 | -2893 | 114 | x | 114 |
| Pad | 31 | 3166 | -2893 | 114 | x | 114 |
| Pad | 32 | 3312 | -2369 | 114 | x | 114 |
| Pad | 33 | 3312 | -1949 | 114 | x | 114 |
| Pad | 34 | 3312 | -1388 | 114 | x | 114 |
| Pad | 35 | 3312 | -758 | 114 | x | 114 |
| Pad | 36 | 3312 | -233 | 114 | x | 114 |
| Pad | 37 | 3312 | 367 | 114 | x | 114 |
| Pad | 38 | 3312 | 892 | 114 | x | 114 |
| Pad | 39 | 3312 | 1417 | 114 | x | 114 |
| Pad | 40 | 3312 | 1859 | 114 | x | 114 |
| Pad | 41 | 3312 | 2309 | 114 | x | 114 |
| Pad | 42 | 3106 | 2893 | 114 | x | 114 |
| Pad | 43 | 2716 | 2893 | 114 | x | 114 |
| Pad | 44 | 2206 | 2893 | 114 | x | 114 |
| Pad | 45 | 1786 | 2893 | 114 | x | 114 |
| Pad | 46 | 1306 | 2893 | 114 | x | 114 |
| Pad | 47 | 841 | 2893 | 114 | x | 114 |
| Pad | 48 | 331 | 2893 | 114 | x | 114 |

## Life Support Policy

NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety of effectiveness.

---

National Semiconductor

**IN U.S.A.**
Tel: 1 877 Dial Die (1 877 342 5343
Fax: 1 207 541 6140

**IN EUROPE**
Tel: 49 (0) 8141 351492 / 1495
Fax: 49 (0) 8141 351470

**IN ASIA PACIFIC**
Tel: (852) 27371701

**IN JAPAN**
Tel: 81 043 299 2308

---

**National Semiconductor Corporation** 2900 Semiconductor Drive, P.O. Box 58090, Santa Clara, California 95052-8090

# IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as “components”) are sold subject to TI’s terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI’s terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers’ products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers’ products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI’s goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or “enhanced plastic” are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have ***not*** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components which meet ISO/TS16949 requirements, mainly for automotive use. Components which have not been so designated are neither designed nor intended for automotive use; and TI will not be responsible for any failure of such components to meet such requirements.

| **Products** | | **Applications** | |
|---|---|---|---|
| Audio | www.ti.com/audio | Automotive and Transportation | www.ti.com/automotive |
| Amplifiers | amplifier.ti.com | Communications and Telecom | www.ti.com/communications |
| Data Converters | dataconverter.ti.com | Computers and Peripherals | www.ti.com/computers |
| DLP® Products | www.dlp.com | Consumer Electronics | www.ti.com/consumer-apps |
| DSP | dsp.ti.com | Energy and Lighting | www.ti.com/energy |
| Clocks and Timers | www.ti.com/clocks | Industrial | www.ti.com/industrial |
| Interface | interface.ti.com | Medical | www.ti.com/medical |
| Logic | logic.ti.com | Security | www.ti.com/security |
| Power Mgmt | power.ti.com | Space, Avionics and Defense | www.ti.com/space-avionics-defense |
| Microcontrollers | microcontroller.ti.com | Video and Imaging | www.ti.com/video |
| RFID | www.ti-rfid.com | | |
| OMAP Applications Processors | www.ti.com/omap | **TI E2E Community** | e2e.ti.com |
| Wireless Connectivity | www.ti.com/wirelessconnectivity | | |

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265