



PCN #: 20070518001
Texas Instruments Incorporated
Enterprise Notification

**Addition of RoHS Designation
Symbols to Semiconductor
Product Labels**





Release Date: July 21, 2007



New RoHS Symbols

TI Semiconductor Products

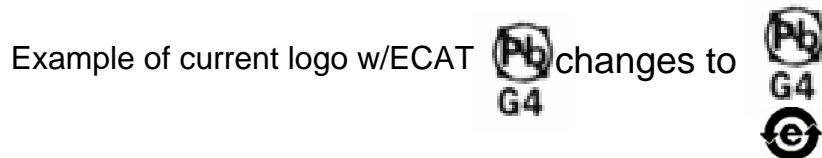
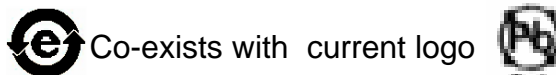
Texas Instruments Incorporated (TI) is updating its semiconductor product labels to include EU and China Restriction on Use of Hazardous Substance (RoHS) designations for three scenarios:

-  • **RoHS Compliant:** TI is adding the chasing arrow logo with an “e” in the middle to its affected product labels for fully RoHS compliant products. This new symbol, required under China RoHS, will be added to the Pb-Free and JEDEC E and G codes on the label, to further denote compliance to known RoHS regulatory requirements.
 - Compliant to known RoHS regulatory requirements like the EU, China and California
 - Meets 1000ppm maximum concentration values (MCV) at the homogenous level for Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr6+), Polybrominated Biphenyls (PBB) and Polybrominated Diphenylether (PBDE)
 - Meets 100ppm MCV at the homogeneous level for Cadmium (Cd)
-  • **RoHS Exempt:** For EU RoHS Exempt products (products containing Pb above the RoHS allowable threshold), the chasing arrow logo with “50” will be added to the “RoHS Exempt” designation on affected product labels.
 - Per China RoHS requirements, TI has estimated the environmentally friendly use period (EFUP) of 50 years based on time in years Pb will not leak while in normal use.
- 
 • **Non-RoHS Complaint:** For products that contain Pb but are not covered by an EU RoHS exemption, the chasing arrow logo with “50” will be added to affected product labels to indicate the EFUP.
 - The JEDEC symbol “e0” may also be included on this label to indicate Pb is contained above the RoHS Maximum Concentration Value.



RoHS Compliant Products: Label Changes



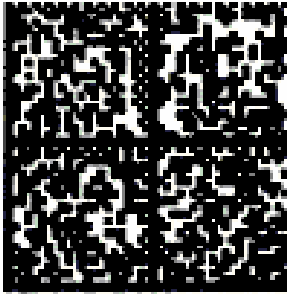
- Chasing Arrow Logo will co-exist with the current Pb-free logo
- ECAT value below the logo will stay the same but include an underscore to match the proposed J-STD-609 format:
 - e or G prefix + numeric lead finish,
 - i.e., e4 or G4 = NiPdAu lead finish
 - ECAT value will be in Arial Font with underline
 - per latest J-STD-609 joint JEDEC/IPC Standard replacing JESD97.





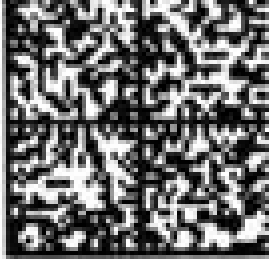



Example: RoHS Compliant Products (Pb-free, no exemptions required)

Current TI Pb-free / RoHS compliant product label example

 TEXAS INSTRUMENTS	 84		(1P) SN74LS07NSR				
MADE IN: Malaysia 2DC: 29:			(Q) 2000 (D) 0336				
<table border="1"><tr><td>HSL 2 / 280C / 1 YEAR</td><td>SEAL DT</td></tr><tr><td>HSL 1 / 235C / UNLIM</td><td>03/29/04</td></tr></table>	HSL 2 / 280C / 1 YEAR	SEAL DT	HSL 1 / 235C / UNLIM	03/29/04			(31T) LOT: 3959047MLA
HSL 2 / 280C / 1 YEAR	SEAL DT						
HSL 1 / 235C / UNLIM	03/29/04						
OPT: ITEM: 39			(4W) TKY (1T) 7523483S12				
LBL: 5A (L) TO: 1750			(P)				
			(2P) REV: (V) 0033317				
			(20L) CSO: SHE (21L) CCO: USA				
			(22L) ASD: MLA (23L) ACO: MYS				

New TI Pb-free / RoHS compliant product label example

 TEXAS INSTRUMENTS	 84		(1P) ADS1286PA				
MADE IN: Taiwan, R.O.C. 2DC: 29:			(Q) 2000 (D) 0714				
<table border="1"><tr><td>HSL NO/NO /NO</td><td>SEAL DT</td></tr><tr><td></td><td>05/01/07</td></tr></table>	HSL NO/NO /NO	SEAL DT		05/01/07			(31T) LOT: 1234567DRW
HSL NO/NO /NO	SEAL DT						
	05/01/07						
OPT: ITEM: 74			(4W) TKY (1T) 0000016Z49				
LBL: 1A (L) TO: 1520			(P)				
			(2P) REV: (V) 0033317				
			(20L) CSO: DMS (21L) CCO: USA				
			(22L) ASD: TAI (23L) ACO: TWN				

Addition of chasing arrow logo with an “e” for full RoHS compliancy



Example: RoHS Compliant / Green Products (Pb-free, no exemptions required, Br and Sb <0.1%)

Current TI Pb-free / RoHS compliant / Green product label example

TEXAS INSTRUMENTS MADE IN: Malaysia ZDC: 29:		G4		(1P) SN74LS07NSR (Q) 2000 (D) 0336 (31T) LOT: 3959047MLA (4W) TKY(1T) 7523483SI2 (P) (2P) REV: (V) 0033317 (20L) CSO: SHE (21L) CCO:USA (22L) ASO: MLA (23L) ACO: MYS
HSL 2 /260C/1 YEAR HSL 1 /235C/UNLIH	SEAL DT 03/29/04	OPT: ITEM: 39 LBL: 5A (L)TO:1750		



New TI Pb-free / RoHS compliant / Green product label example

TEXAS INSTRUMENTS MADE IN: Taiwan, R.O.C. ZDC: 29:		G4 		(1P) CDC5801DBQR (Q) 2500 (D) 0714 (31T) LOT: 2234567DRW (4W) TKY(1T) 0000019Z49 (P) (2P) REV: (V) 0033317 (20L) CSO: TID (21L) CCO:DEU (22L) ASO: TAI (23L) ACO: TWN
HSL 2 /260C/1 YEAR HSL 1 /235C/UNLIH	SEAL DT 05/01/07	OPT: ITEM: 74 LBL: 2A (L)TO:1520		

Addition of chasing arrow logo with an “e” for full RoHS compliancy



RoHS Exempt Products: TI Label Changes (Products *containing* Pb)

- European Union Exempt Products containing Pb
 - Products are compliant with RoHS with the exception of Pb
 - RoHS exempt as high-temperature solder die attach (exemption 7a) or flip-chip solder bumps (exemption 15)
- **Labels will continue to include exempt designation:**
 -  (e1 could be e1, e3, e4, etc.)
- **China RoHS Chasing arrow designation will be added to label**
 - For EU RoHS Exempt products (products containing Pb above the RoHS allowable threshold), the chasing arrow logo with “50” will be added to the “RoHS Exempt” designation on affected product labels. 
 - Per China RoHS requirements, TI has estimated the environmentally friendly use period (EFUP) of 50 years based on time in years Pb will not leak while in normal use.



Example: RoHS Exempt Product (Contains Pb, EU RoHS exempt, China EFUP)

Current TI product label example -- EU RoHS exemption

TEXAS INSTRUMENTS MADE IN: Philippines 2DC: 2Q:		RoHS Exempt e1		(1P) TMS320TCI100BQZLZ (Q) 165 (D) 0614 (31T) LOT: 6312259WCW (4W) TKY(1T) 9029908SI4 (P) (2P) REV: - (V) 0033317 (20L) CSO: KLB (21L) CCO:USA (22L) ASO: PHI (23L) ACO: PHL
MSL 4 /260C/72HR	SEAL DT 04/24/06	OPT: ITEM: 64 LBL: 1A (L)T0:1755		

New TI product label example -- EU RoHS exemption

TEXAS INSTRUMENTS MADE IN: Taiwan, R.O.C. 2DC: 2Q:		RoHS Exempt e1		(1P) TMS320C6412AZNZA5 (Q) 160 (D) 0714 (31T) LOT: 5234567DRW (4W) TKY(1T) 0000027Z49 (P) (2P) REV: (V) 0033317 (20L) CSO: SHE (21L) CCO:USA (22L) ASO: TAI (23L) ACO: TWN
HBL NC/NC /NC	SEAL DT 05/01/07	OPT: ITEM: 74 LBL: 2A (L)T0:1520		


Addition of chasing arrow logo with “50” years for Environmentally Friendly Use Period (EFUP) value



Non-RoHS Compliant Products – Label Changes (Products *containing* Pb)

- **Semiconductor products containing Pb above RoHS thresholds**
 - Products are compliant for all RoHS substances except Pb
 - No exemption applies
 - RoHS designation space on label is blank


- **New “e0” ECAT Symbol**
 - To meet the latest J-STD-609 labeling proposal for products containing lead (Pb) TI may include the **e0** ECAT symbol for product with a lead (Pb) based lead or ball finish.

- **China RoHS Chasing arrow designation will be added to label**
 - For non-RoHS compliant products, the chasing arrow logo with “50” will be provided on affected product labels. 
 - Per China RoHS requirements, TI has estimated the environmentally friendly use period (EFUP) of 50 years based on time in years Pb will not leak while in normal use.


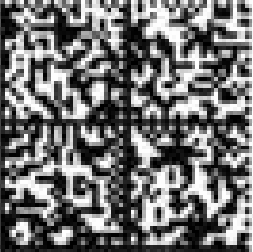


Example: Non-RoHS Compliant Products (RoHS compliant except for Pb, no exemption)

Current TI product label example for non-RoHS compliant product

 TEXAS INSTRUMENTS MADE IN: Philippines 2DC: 20:			(1P) TMS320TCI100BQZLZ			
<table border="1"> <tr> <td>MSL 4 /260C/72HR</td> <td>SEAL DT</td> </tr> <tr> <td></td> <td>04/24/06</td> </tr> </table>			MSL 4 /260C/72HR	SEAL DT		04/24/06
MSL 4 /260C/72HR	SEAL DT					
	04/24/06					
OPT: ITEM: 64 LBL: 1A (L)T0:1755						

New TI product label example for non-RoHS compliant product



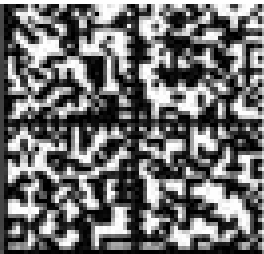
 TEXAS INSTRUMENTS MADE IN: Taiwan, R.O.C. 2DC: 20:			(1P) SN74LS00N			
<table border="1"> <tr> <td>MSL NC/NC /NC</td> <td>SEAL DT</td> </tr> <tr> <td></td> <td>05/01/07</td> </tr> </table>			MSL NC/NC /NC	SEAL DT		05/01/07
MSL NC/NC /NC	SEAL DT					
	05/01/07					
OPT: ITEM: 74 LBL: 4A (L)T0:1520						

Addition of chasing arrow logo with “50” years for EFUP value



Example: Non-RoHS Compliant Products (RoHS compliant except for Pb, no exemption)

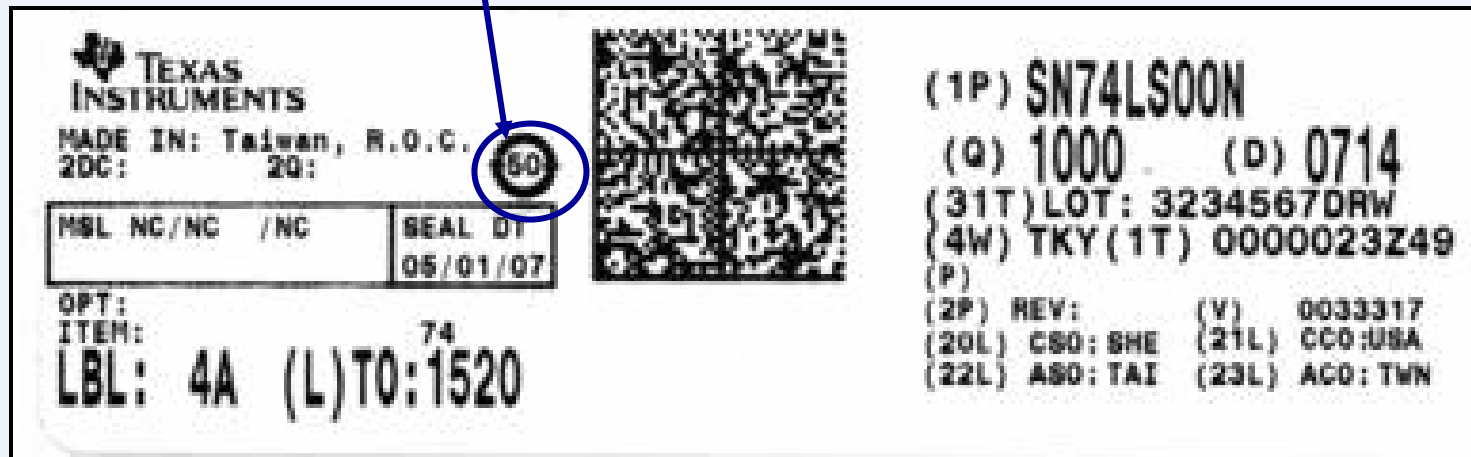
- New ECAT Symbol: per proposed J-STD-609 format

 TEXAS INSTRUMENTS				(1P) CD54ACT139F3A	
MADE IN: Taiwan, R.O.C. 20C: 29:				(Q) 1000 (D) 0714	
MBL NC/NC /NC		SEAL DT	(31T) LOT: 4234567DRW		
		05/01/07	(4W) TKY (1T) 0000025Z49		
OPT:			(P)		
ITEM: 74			(2P) REV: (V) 0033317		
LBL: 2A (L)T0:1520			(20L) CS0: HIJ (21L) CCO: JPN		
			(22L) ASD: TAI (23L) ACO: TWN		



Default: Same as Non-RoHS Compliant

- Default label if banned substance not defined within TI internal traveler system
 - Device is without an EU RoHS exemption and
 - Pb may exist above the 1000ppm MCV
 - Then label will include China RoHS Chasing Arrow with 50 year EFUP



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

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Applications Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community

e2e.ti.com