



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Gallium Arsenide CATV Integrated Amplifier Module

Features

- Specified for 79-, 112- and 132-Channel Loading
- Excellent Distortion Performance
- Built-in Input Diode Protection
- GaAs FET Transistor Technology
- Unconditionally Stable Under All Load Conditions
- RoHS Compliant
- In Tape and Reel. T1 Suffix = 1000 Units per 16 mm, 13 inch Reel.

Applications

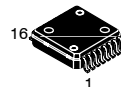
- CATV Systems Operating in the 40 to 870 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Output Stage Amplifier on Applications Requiring Low Power Dissipation and High Output Performance
- Driver Amplifier in Linear General Purpose Applications

Description

- 24 Vdc Supply or 12 Vdc Supply with Bias Change, 40 to 870 MHz, CATV Integrated Forward Amplifier Module

MMG1001NT1

**870 MHz
19 dB GAIN
132-CHANNEL
CATV INTEGRATED AMPLIFIER
MODULE**



**CASE 978-03
PFP-16**

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+65	dBmV
DC Supply Voltage 24 V Application 12 V Application	V_{CC}	+26 +14	Vdc
Operating Case Temperature Range	T_C	-20 to +100	°C
Storage Temperature Range	T_{stg}	-40 to +100	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	6.6	°C/W

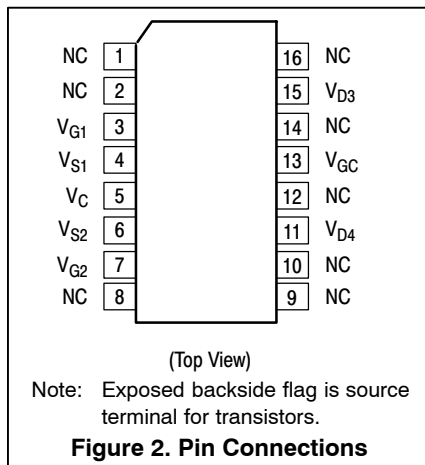
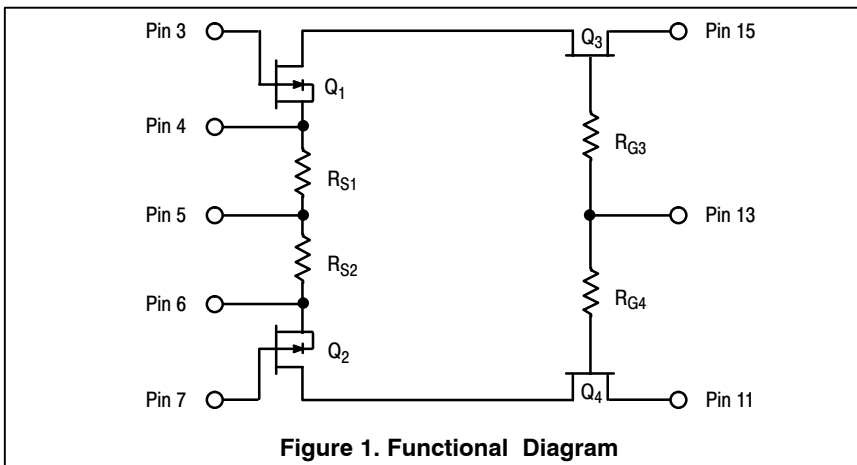


Table 3. ESD Protection Characteristics

Test Conditions	Class
Human Body Model	1 (minimum)
Machine Model	M1 (minimum)
Charge Device Model	C5 (minimum)

Table 4. Moisture Sensitivity Level

Test Methodology	Rating	Package Peak Temperature	Unit
Per JESD 22-A113, IPC/JEDEC J-STD-020	3	260	°C

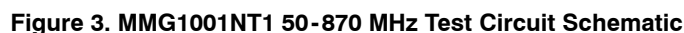
Table 5. Electrical Characteristics for 24 V Application ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	870	MHz
Power Gain 50 MHz 870 MHz	G_p	— —	18 19	— —	dB
Slope 40 - 870 MHz	S	—	0.6	—	dB
Gain Flatness (40 - 870 MHz, Peak to Valley)	G_F	—	0.5	—	dB
Input Return Loss ($Z_0 = 75$ Ohms) f = 40 - 160 MHz f = 161 - 450 MHz f = 451 - 870 MHz	IRL	— — —	21 19 22	— — —	dB
Output Return Loss ($Z_0 = 75$ Ohms) f = 40 - 400 MHz f = 401 - 870 MHz	ORL	— —	22 17	— —	dB
Composite Second Order ($V_{out} = +44$ dBmV/ch., Worst Case) 132-Channel FLAT ($V_{out} = +46$ dBmV/ch., Worst Case) 112-Channel FLAT ($V_{out} = +48$ dBmV/ch., Worst Case) 79-Channel FLAT	CSO_{132} CSO_{112} CSO_{79}	— — —	-65 -65 -71	-58 -59 -62	dBc
Cross Modulation Distortion @ Ch 2 ($V_{out} = +44$ dBmV/ch., FM = 55 MHz) 132-Channel FLAT ($V_{out} = +46$ dBmV/ch., FM = 55 MHz) 112-Channel FLAT ($V_{out} = +48$ dBmV/ch., FM = 55 MHz) 79-Channel FLAT	XMD_{132} XMD_{112} XMD_{79}	— — —	-64 -63 -62	-52 -52 -52	dBc
Composite Triple Beat ($V_{out} = +44$ dBmV/ch., Worst Case) 132-Channel FLAT ($V_{out} = +46$ dBmV/ch., Worst Case) 112-Channel FLAT ($V_{out} = +48$ dBmV/ch., Worst Case) 79-Channel FLAT	CTB_{132} CTB_{112} CTB_{79}	— — —	-63 -64 -65	-56 -56 -58	dBc
Noise Figure 50 MHz 870 MHz	NF	— —	4 4	5.0 5.0	dB
DC Current ($V_{DC} = 24$ V, $T_C = -20^\circ$ to $+100^\circ\text{C}$)	I_{DC}	230	250	265	mA

(continued)

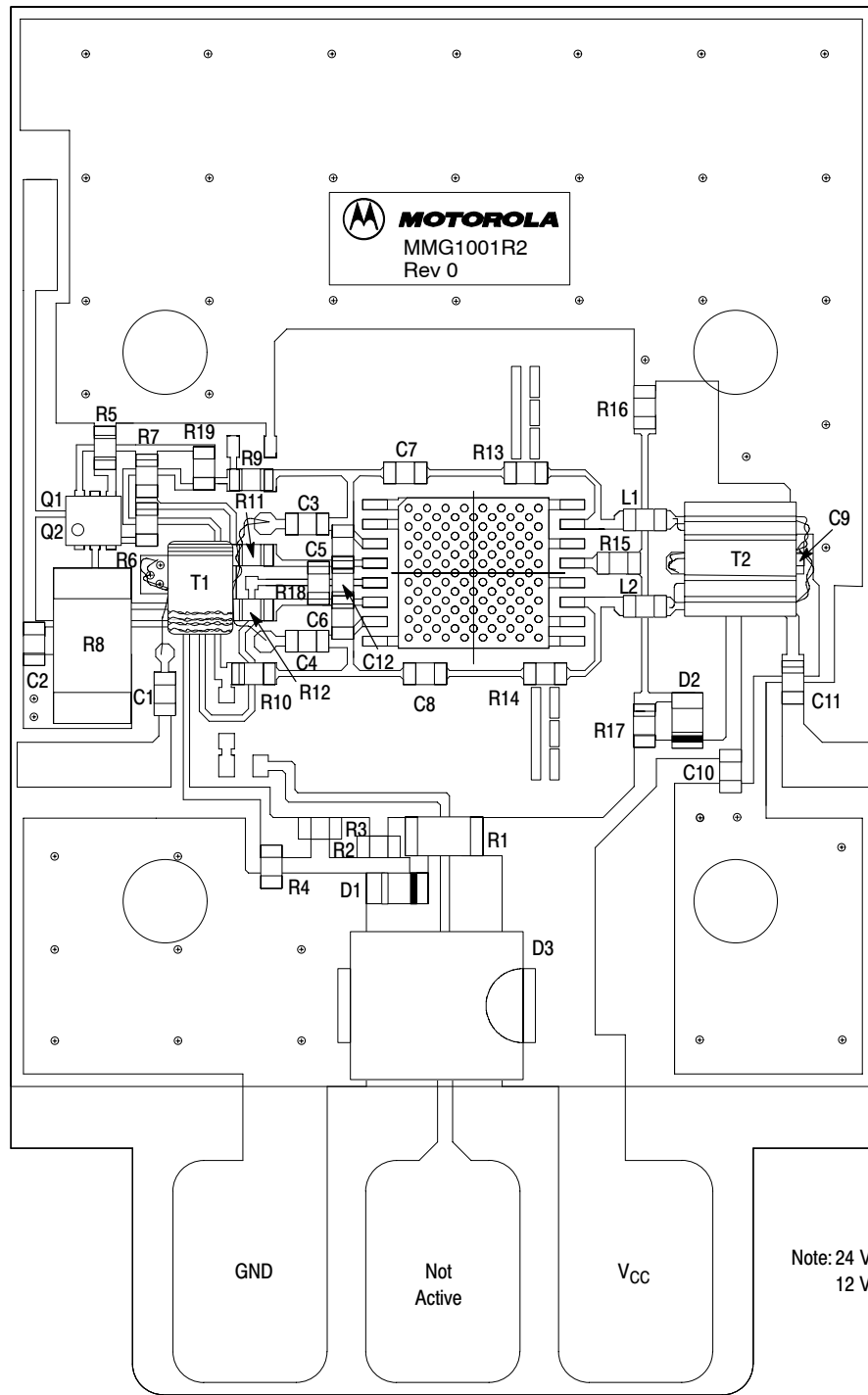
Table 5. Electrical Characteristics for 12 V Application ($V_{CC} = 12 \text{ Vdc}$, $T_C = +30^\circ\text{C}$, 75Ω system unless otherwise noted)
(continued)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	870	MHz
Power Gain 50 MHz 870 MHz	G_p	— —	18 19	— —	dB
Slope 40 - 870 MHz	S	—	0.6	—	dB
Gain Flatness (40 - 870 MHz, Peak to Valley)	G_F	—	0.5	—	dB
Input Return Loss ($Z_0 = 75 \text{ Ohms}$) f = 40-160 MHz f = 161-450 MHz f = 451-870 MHz	IRL	— — —	21 19 19	— — —	dB
Output Return Loss ($Z_0 = 75 \text{ Ohms}$) f = 40-400 MHz f = 401-750 MHz f = 751-870 MHz	ORL	— — —	19 17 15	— — —	dB
Composite Second Order ($V_{out} = +42 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +42 \text{ dBmV/ch.}$, Worst Case) 112-Channel FLAT 79-Channel FLAT	CSO_{112} CSO_{79}	— —	-65 -71	— —	dBc
Cross Modulation Distortion @ Ch 2 ($V_{out} = +42 \text{ dBmV/ch.}$, FM = 55 MHz) ($V_{out} = +42 \text{ dBmV/ch.}$, FM = 55 MHz) 112-Channel FLAT 79-Channel FLAT	XMD_{112} XMD_{79}	— —	-63 -62	— —	dBc
Composite Triple Beat ($V_{out} = +42 \text{ dBmV/ch.}$, Worst Case) ($V_{out} = +42 \text{ dBmV/ch.}$, Worst Case) 112-Channel FLAT 79-Channel FLAT	CTB_{112} CTB_{79}	— —	-64 -65	— —	dBc
Noise Figure 50 MHz 870 MHz	NF	— —	4 4	5.0 5.0	dB
DC Current ($V_{DC} = 12 \text{ V}$, $T_C = -20^\circ$ to $+100^\circ\text{C}$)	I_{DC}	190	210	225	mA



ARCHIVE INFORMATION

MMG1001NT1



Freescle has begun the transition of marking Printed Circuit Boards (PCBs) with the Freescle Semiconductor signature/logo. PCBs may have either Motorola or Freescle markings during the transition period. These changes will have no impact on form, fit or function of the current product.

Figure 4. MMG1001R2 50-870 MHz Test Circuit Component Layout

TYPICAL CHARACTERISTICS FOR 24 V APPLICATION

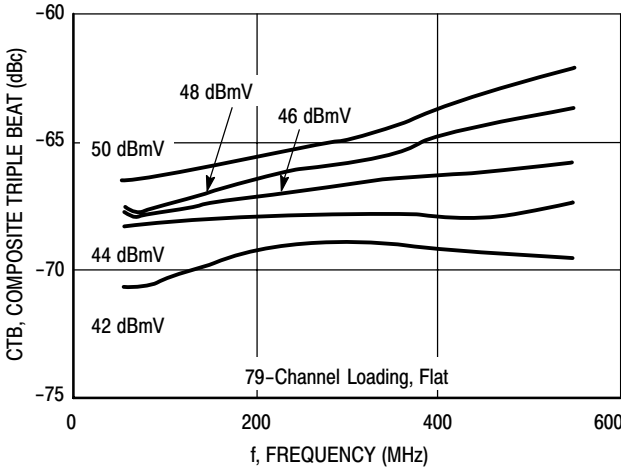


Figure 5. Composite Triple Beat versus Frequency

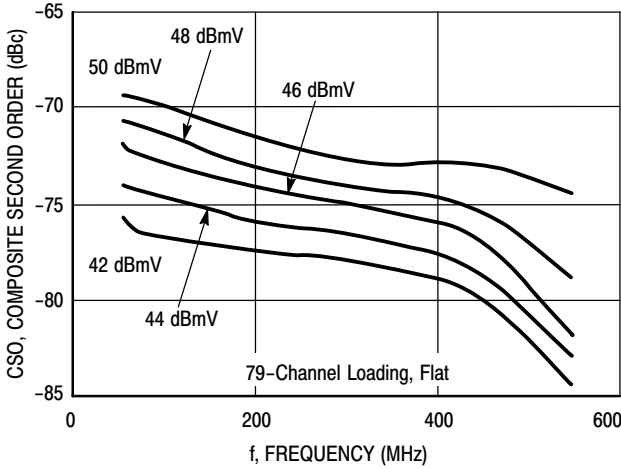


Figure 6. Composite Second Order versus Frequency

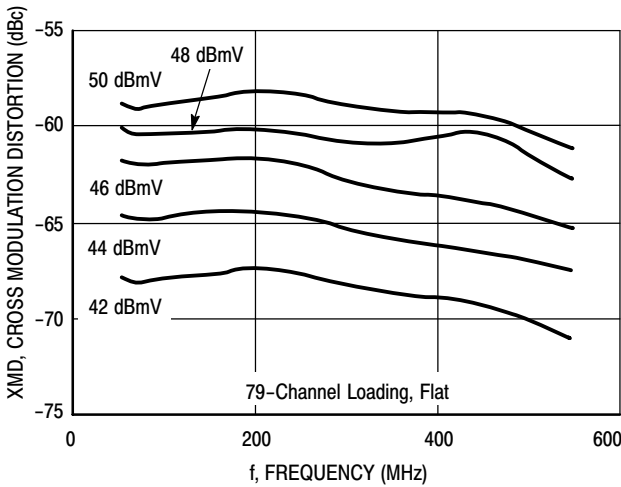
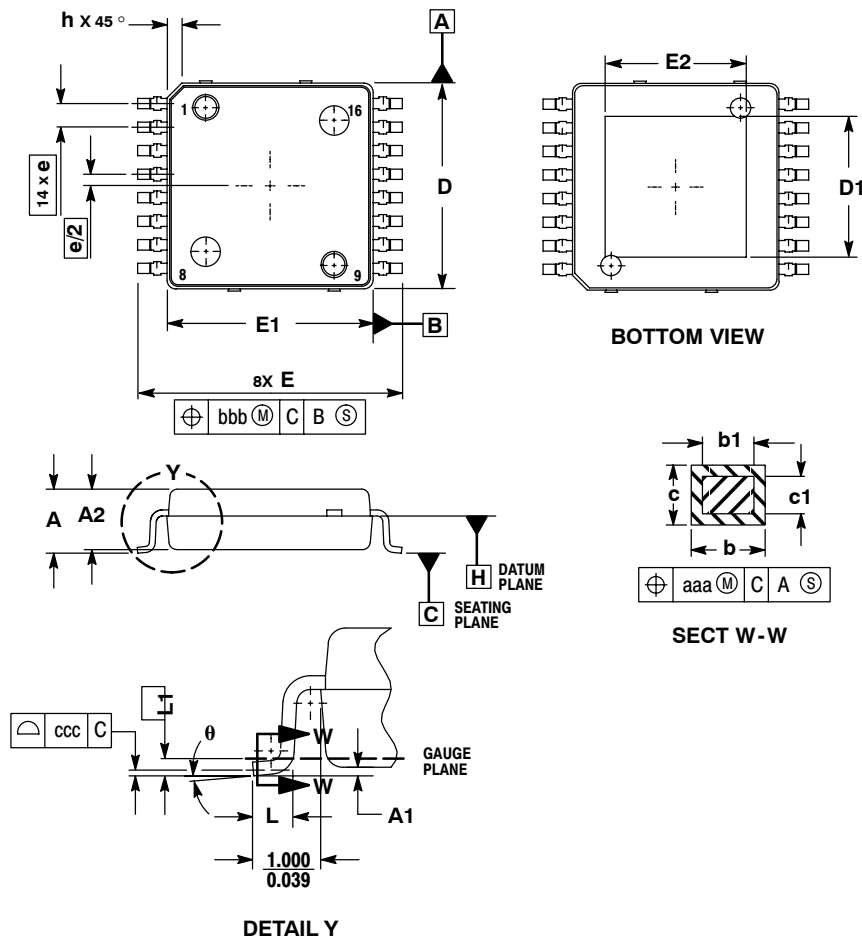


Figure 7. Cross Modulation Distortion versus Frequency

ARCHIVE INFORMATION

ARCHIVE INFORMATION

PACKAGE DIMENSIONS



NOTES:

1. CONTROLLING DIMENSION: MILLIMETER.
2. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
3. DATUM PLANE -H- IS LOCATED AT BOTTOM OF LEAD AND IS COINCIDENT WITH THE LEAD WHERE THE LEAD EXITS THE PLASTIC BODY AT THE BOTTOM OF THE PARTING LINE.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.250 PER SIDE. DIMENSIONS D AND E1 DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE -H-.
5. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION IS 0.127 TOTAL IN EXCESS OF THE b DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. DATUMS -A- AND -B- TO BE DETERMINED AT DATUM PLANE -H-.

DIM	MILLIMETERS	
	MIN	MAX
A	2.000	2.300
A1	0.025	0.100
A2	1.950	2.100
D	6.950	7.100
D1	4.372	5.180
E	8.850	9.150
E1	6.950	7.100
E2	4.372	5.180
L	0.466	0.720
L1	0.250 BSC	
b	0.300	0.432
b1	0.300	0.375
c	0.180	0.279
c1	0.180	0.230
e	0.800 BSC	
h	---	0.600
θ	0°	7°
aaa	0.200	
bbb	0.200	
ccc	0.100	

CASE 978-03
ISSUE C
PFP-16

REVISION HISTORY

The following table summarizes revisions to this document.

Revision	Date	Description
7	Oct. 2006	Replaced "N suffix indicates 260°C reflow capable" bullet with RoHS Compliant, p. 1
8	Mar. 2007	Updated Part Numbers in Table 6, Component Designations and Values, to RoHS compliant part numbers and added Manufacturer column, p. 4

ARCHIVE INFORMATION

ARCHIVE INFORMATION

How to Reach Us:

Home Page:
www.freescale.com

Web Support:
<http://www.freescale.com/support>

USA/Europe or Locations Not Listed:
 Freescale Semiconductor, Inc.
 Technical Information Center, EL516
 2100 East Elliot Road
 Tempe, Arizona 85284
 +1-800-521-6274 or +1-480-768-2130
www.freescale.com/support

Europe, Middle East, and Africa:
 Freescale Halbleiter Deutschland GmbH
 Technical Information Center
 Schatzbogen 7
 81829 Muenchen, Germany
 +44 1296 380 456 (English)
 +46 8 52200080 (English)
 +49 89 92103 559 (German)
 +33 1 69 35 48 48 (French)
www.freescale.com/support

Japan:
 Freescale Semiconductor Japan Ltd.
 Headquarters
 ARCO Tower 15F
 1-8-1, Shimo-Meguro, Meguro-ku,
 Tokyo 153-0064
 Japan
 0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:
 Freescale Semiconductor Hong Kong Ltd.
 Technical Information Center
 2 Dai King Street
 Tai Po Industrial Estate
 Tai Po, N.T., Hong Kong
 +800 2666 8080
support.asia@freescale.com

For Literature Requests Only:
 Freescale Semiconductor Literature Distribution Center
 P.O. Box 5405
 Denver, Colorado 80217
 1-800-441-2447 or 303-675-2140
 Fax: 303-675-2150
LDCForFreescaleSemiconductor@hibbertgroup.com

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners.
 © Freescale Semiconductor, Inc. 2007-2008. All rights reserved.

RoHS-compliant and/or Pb-free versions of Freescale products have the functionality and electrical characteristics of their non-RoHS-compliant and/or non-Pb-free counterparts. For further information, see <http://www.freescale.com> or contact your Freescale sales representative.

For information on Freescale's Environmental Products program, go to <http://www.freescale.com/epp>.