

PART SPECIFICATION

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

SHELF LIFE	PROJECT #	CN	REV	APPROVAL	DATE
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	P607	CN20898	A	G. Giroux	12/11/07
MONTHS	CR29585	CN33017	B	Norm Pyle	08/06/14

<p>MOISTURE SENSITIVE</p> <p><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If Yes, what level? 1-6 LEVEL [3] Ref. J-STD-020D.1 pg 6</p> <p>SHELF LIFE DISPOSITION</p> <p><input type="checkbox"/> TEST <input type="checkbox"/> SCRAP <input type="checkbox"/> REPACKAGE If Test, please attach Test Procedure.</p> <p>SPECIAL HANDLING</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If Yes, please attach handling instructions.</p>	<div style="text-align: center;">  <p>GEO Semiconductor Inc.</p> <p>MG3500</p> <p>Multichannel 1080p30 H.264 Compression SoC</p> </div> <p>General Description</p> <p>The MG3500 is a highly integrated, multichannel, low-power, HD H.264 SoC ideal for today's consumer and security markets.</p> <p>It offers a fully compliant baseline, main, and high-profile HD H.264 codec, MJPEG codec, HD MPEG2 decoder, video preprocessors and postprocessors, 240MHz ARM9™ CPU, and a host of peripherals including Gigabit Ethernet MAC, USB 2.0 OTG, SD™ card, compact Flash, IDE, CE-ATA, SDIO, and MMC.</p> <p>At the heart of the audio/video subsystem are two real-time programmable multimedia engines (MME). One controls the video codecs and input/output processors, while the other implements the soft audio codecs and low-level analytics, leaving the ARM9 processor completely available for application programs.</p>
--	--

QANTEL COMMENT: MOBILIGEN WAS ACQUIRED BY MAXIM AND THE MG3500 PART IS CURRENTLY BEING DIVESTED TO GEO SEMICONDUCTOR INC.

CN33017 CHANGE SOURCE FROM MOBILYGEN TO GEO SEMICONDUCTOR INC.

SOURCES

	PDF	SOURCE	PART NUMBER	UL FILE NUMBER	CERTIFICATION CONTROLLED (REQUIERES R-HOLD)	
1:		MOBILYGEN	MG3500		<input type="checkbox"/> UL	<input type="checkbox"/> CCC
2:		GEO SEMICONDUCTOR INC.	MG3500A3-376B		<input type="checkbox"/> KCC	<input type="checkbox"/> EMC
3:					<input type="checkbox"/> ATEX	<input type="checkbox"/> IECEx
4:						<input type="checkbox"/> Other

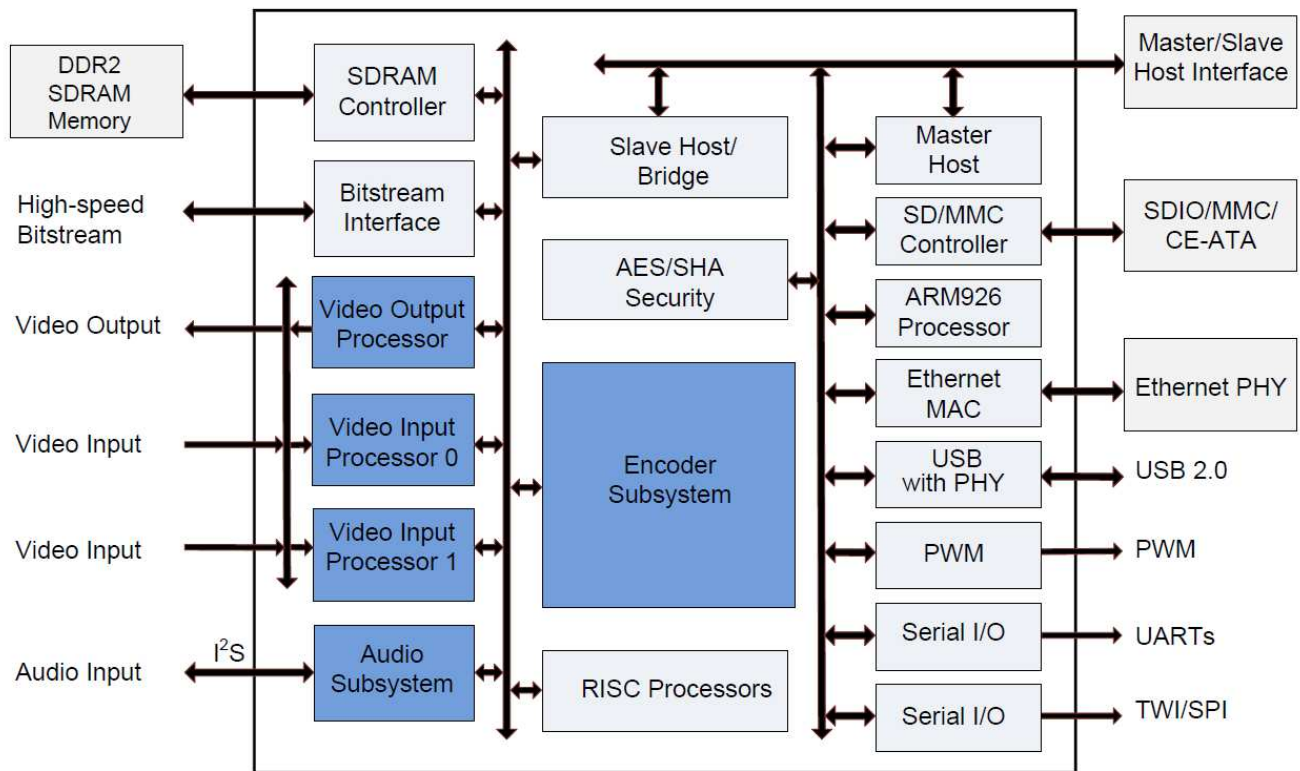
BUYER CODE: R- HOLD B- HOLD

APPROVALS **Stored inside Windchill. Review Windchill CN for detailed information**

PART SPECIFICATION

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

System Block Diagram



PART NUMBER	IC83-3143-3500	GREEN?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		



GEO Semiconductor Inc.

Power and Voltage

- Core voltage: 1.05V \pm 5%
- SDRAM voltage: 1.8V \pm 0.1V
- I/O voltages: 1.8V, 2.5V, 3.3V \pm 5%
- On-chip audio, video Phase Lock Loops (PLLs) driven from a single crystal

Packaging

- 376-pin CTBGA, 17x17mm, 0.5mm pitch, RoHS compliant

Applications

- Compression cameras for consumer video conferencing
- Security IP Cameras and DVRs
- Video Decoding and Transcoding

Ordering Information

Part Number	Package: Type/Pins/FootPrint Package Code/Variation	RoHS/Lead-Free
MG3500A3-376B	Package: CSBGA; 376-pin; 324 mm ² Package code/Variation: X37688+1*	RoHS/Lead-Free

World Headquarters
 Geo Semiconductor Inc.
 2350 Mission College Blvd., Suite 1050,
 Santa Clara, CA – 95054 USA

Development and Operations Center
 Geo Semiconductor Inc.
 155 Gordon Baker Road, Suite 201
 Toronto, Ontario, M2J 3N5 Canada

Website: [http:// www.geosemi.com](http://www.geosemi.com)

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

Device Operating Conditions

4.1 Absolute Maximum Ratings

Table 4-1 gives the absolute maximum ratings. Exposure to stresses beyond those listed in this table can result in device unreliability, permanent damage, or both.

Table 4-1 Absolute Maximum Ratings

Parameter	Value	Units	Notes
CORE_VDD	1.5	V	—
DDR_VDD	2.5	V	—
VID01_VDD	4.5	V	—
VID23_VDD	4.5	V	—
AUD_VDD	4.5	V	—
HOST_VDD	4.5	V	—
USB_VDD	4.5	V	—
ETH_VDD	4.5	V	—
Maximum Input Voltage, DDR	2.1	V	DDR_VDD + 300 mV
Maximum Input Voltage, Other I/O	VDD_VREF + 700 mV	V	Referenced to associated IO VDD
Storage Temperature Range	-40 to 150	°C	—

4.2 Recommended Operation Conditions

Table 4-2 specifies the operating conditions.

Table 4-2 Operating Conditions

Parameter	Minimum	Typical	Maximum	Units	Notes
CORE_VDD PLL_VDD	0.9975	1.05	1.1025	V	1.05V ± 5%
VID01_VDD VID23_VDD AUD_VDD HOST_VDD	1.62 2.25 2.97	1.8 2.5 3.3	1.98 2.75 3.63	V	Programmable Voltage 1.8 / 2.5 / 3.3V ±10%
USB_VDD	2.97	3.3	3.63	V	3.3V ±10%
ETH_VDD	3.13	3.3	3.46	V	3.3V ±5%
DDR_VDD	1.7	1.8	1.9	V	1.8V ±0.1V
DDR_VREF	-	0.60 x DDR_VDD	-	V	This should be tuned for every design. Refer to DDR design guideline, "MG3500/MG2580 DDR2 User's Guide." Use 1% resistors
Operating Temperature Range (case)	0	50	90	°C	—

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

4.3 Essential Characteristics

Table 4-3 defines the DC characteristics for all of the interfaces except the SDRAM interface.

Table 4-3 DC Characteristics

Symbol	Parameters	Test Conditions	VID01_VDD, VID23_VDD, AUD_VDD, HOST_VDD 3.3V ±10%		VID01_VDD, VID23_VDD, AUD_VDD, HOST_VDD 2.5V ±10% ¹		VID01_VDD, VID23_VDD, AUD_VDD, HOST_VDD 1.8V ±10% ¹		Units
			Min	Max	Min	Max	Min	Max	
V _{IH}	Input High Level	V _{DD} = Maximum	2.00	—	See Note 1	See Note 1			V
V _{IL}	Input Low-Level Voltage	V _{DD} = Minimum	—	0.40					V
V _{OH}	Output High-Level Voltage	V _{DD} = Minimum, I _{OH} = -4 mA	2.70	—					V
V _{OL}	Output Low-Level Voltage	V _{DD} = Minimum, I _{OL} = -4 mA	—	0.42					V
I _{IH}	Input Leakage	V _{DD} = Maximum, V _{IN} = V _{DD}	-5	-5					µA
I _{IL}	Input Leakage	V _{DD} = Maximum, V _{IN} = 0V	-2.55	-2.55					µA
C _{PIN}	Capacitance ²	—	—	5					pF

1. The I/O pads are optimized for 3.3 Volt operation. The outputs should scale proportionately for 2.5 and 1.8 Volt operation, but the actual values may vary, depending on the individual device.

2. Not 100% tested.

Table 4-3 defines the DC and AC characteristics for the DDR SDRAM interface.

Table 4-4 DC Characteristics

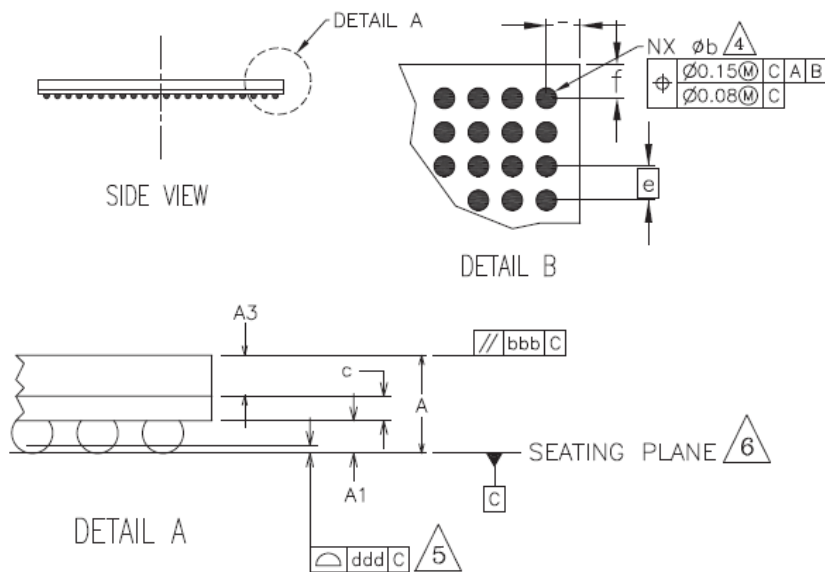
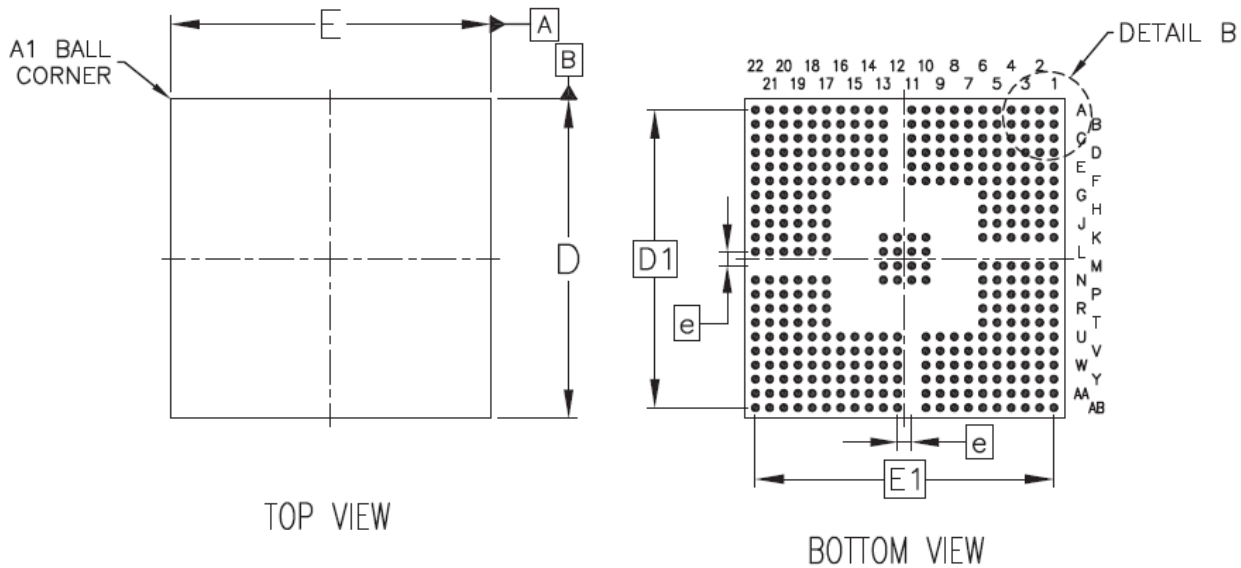
Symbol	Parameters	Test Conditions	DDR_VDD 1.8V ±10%		Units
			Min	Max	
V _{DCIH}	Input DC High Level	V _{DD} = Maximum	DDR_VREF + 125 mV	DDR_VDD + 300 mV	V
V _{DCIL}	Input DC Low-Level	V _{DD} = Minimum	0	DDR_VREF - 125 mV	V
V _{ACIH}	Input AC High Level	V _{DD} = Maximum	DDR_VREF + 250 mV	DDR_VDD + 300 mV	V
V _{ACIL}	Input AC Low-Level	V _{DD} = Minimum	0	DDR_VREF - 250 mV	V
V _{DCOH}	Output DC High Level	V _{DD} = Maximum	1.4	DDR_VDD	V
V _{DCOL}	Output DC Low-Level	V _{DD} = Minimum	0	DDR_VREF - 250 mV	V
V _{ACOH}	Output AC High Level	V _{DD} = Maximum	1.3	DDR_VDD	V
V _{ACOL}	Output AC Low-Level	V _{DD} = Minimum	0	0.5	V
C _{PIN}	Capacitance ¹	—	—	5	pF

1. Not 100% tested.

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

8.0 Packaging Information

8.1 Package Diagram



DIMENSIONAL REFERENCES			
REF.	MIN.	NOM.	MAX.
A	1.19	1.33	1.47
A1	0.26	0.31	0.36
A3	0.65	0.70	0.75
c	0.28	0.32	0.36
D	17.85	18.00	18.15
D1	16.80 BSC.		
E	17.85	18.00	18.15
E1	16.80 BSC.		
b	0.36	0.41	0.46
bbb	0.20		
ddd	0.12		
e	0.80 BSC.		
f	-	0.60	-
M	22		
N	376		
REF.: JEDEC MO-219F			

Figure 8-1 MG3500/MG2580 SoC 376-Ball FPBGA Package Physical Drawing

PART NUMBER	IC83-3143-3500	GREEN?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

Declaration of Material Composition Cover Sheet



Attach this cover sheet to the Material Composition Declarations provided by Pelco suppliers. This cover sheet may also be used for Material Composition information provided by a manufacturers web site.

All substances may be indicated by amount (g), or by concentration (grams per kilogram - g/kg, or percent - %)

1. Company Name: Geo Semiconductor Inc.	2. Date: 08/06/2014	For Pelco Use Only: CR/CN/ECO #: CR29585 /CN33017 Pelco Part #: IC83-3143-3500 Notes:
3. Address: 2350 Mission College Blvd., Suite 1050, Santa Clara, CA 95054 USA		
4. Contact Name: NA		
5. Contact Phone: (408)-869-4000 / 408-980-8044		
6. Contact E-mail: info@geosemi.com		
7. Manufacturer Name: Geo Semiconductor Inc.		
8. Product Name: Multichannel 1080p30 H.264 Compression SoC		
9. Product Part Number or Part Class MG3500A3-376B		
10. Product Total Mass (g): PERCENT	<i>Enter "g/kg" or "percent" when measured by concentration</i>	

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

Manufacturer Declaration of Material Composition



Part / Subpart Declaration.
Please use a separate Part / Subpart Declaration for every subpart.

11. Product / Subpart Name:
Multichannel 1080p30 H.264 Compression SoC

12. Next Higher Assembly (if any):

13. Supplier Part Number:
MG3500A3-376B

14. Mass (g): *Enter "g/kg" or "percent" when measured by concentration*

Pelco encourages its suppliers to follow industry standards IPC-1752 or EIA / JIG-101 in disclosing "Restricted Materials" at the indicated threshold levels. Suppliers, at a minimum, must disclose RoHS materials.

Items discovered to exceed threshold levels of non-RoHS "Restricted Materials" may be rejected.

15. Restricted Materials – see EIA/JIG-101, Annex A for details. <i>Items containing greater than threshold levels of restricted materials will be rejected.</i>			
Material/Substance	Threshold level	Mass (g, g/kg, or %)	Material / Substance information
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Lead / Lead Compounds	1000 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Mercury / Mercury Compounds	1000 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cadmium / Cadmium Compounds	75 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hexavalent Chromium / Hexavalent Chromium Compounds	1000 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Polybrominated Biphenyls (PBBs)	1000 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Polybrominated Diphenylethers (PBDEs)	1000 ppm or Intentionally added		RoHS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Asbestos	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Azo Colorants	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ozone Depleting Substances (CFCs, HCFCs, HBFCs, Carbon Tetrachloride, etc.)	Class 1: Intentionally added. Class II HCFCs: 1000 ppm		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Polychlorinated Biphenyls (PCBs)	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Polychlorinated Naphthalenes (more than 3 chlorine atoms)	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Radioactive Substances	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Shortchain Chlorinated Paraffins	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Tributyl Tin (TBT) and Triphenyl Tin (TPT)	Intentionally added		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Tributyl Tin Oxide (TBTO)	Intentionally added		

PART NUMBER	IC83-3143-3500	GREEN?	[X] YES [] NO
DESCRIPTION	G-IC,SMT,BGA376,HD H.264 CODEC		

Manufacturer Declaration of Material Composition



Pelco encourages suppliers to follow industry standards IPC-1752 or EIA / JIG-101 in disclosing "Industry Relevant Materials" when these materials exist at levels greater than 1000 ppm.

Although disclosure allows Pelco to better control an item's impact on health, safety and hazardous waste management, disclosure is not mandatory.

16. Industry Relevant Materials – see EIA/JIG-101, Annex B for details.

	Material/Substance	Mass (g, g/kg, or %)	Material / Substance information
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Antimony / Antimony compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Arsenic / Arsenic Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Beryllium / Beryllium Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Bismuth / Bismuth Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Brominated Flame Retardants (Other than PBBs or PBDEs)		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Copper / Copper Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Gold / Gold Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Magnesium		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Nickel / Nickel Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Palladium / Palladium Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phtalates		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Selenium / Selenium Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Silver / Silver Compounds		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Vinyl Chloride Polymer (PVC)		

17. Additional Materials Voluntarily Listed due to their High Value or Recyclable nature.

	Material/Substance	Mass (g, g/kg, or %)	Material / Substance information