

CSM65: 3.3V GPIO



Libraries

Name	Process	Form Factor	Silicon proven
RGO_CSM65_25V33_G_30C	G	staggered	yes
RGO_CSM65_25V33_LPe_30C	LPe	staggered	yes
RGO_CSM65_25V33_G_50C	G	Inline	yes
RGO_CSM65_25V33_LPe_50C	LPe	Inline	yes

Summary

A full range of power pads is provided to enable the system designer different options for separate core power (VDD and VSS) and separate I/O padding power and ground (DVDD and DVSS). The ability to isolate separate power domains is also provided. In addition, the I/O library has a full complement of cells that provide the user with the ability to isolate analog I/O's and power within the same padding as the digital I/O's.

Includes:

- Programmable GPIO
- Programmable fault-tolerant GPIO
- Input buffer
- Power supplies
- Isolated analog power supplies
- Programmable oscillator
- Full complement of support pads

ESD Protection

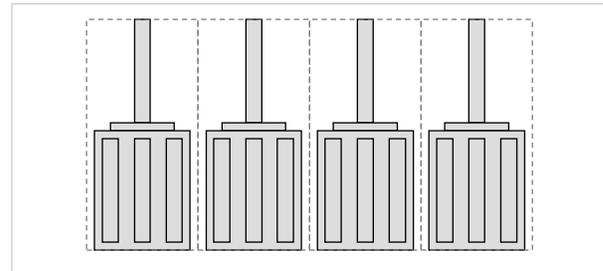
I/O pads are designed with robust ESD protection for all market segments. Passed:

- 2KV ESD Human Body Model (HBM)
- 200 V ESD Machine Model (MM)
- 500 V ESD Charge Device Model (CDM)

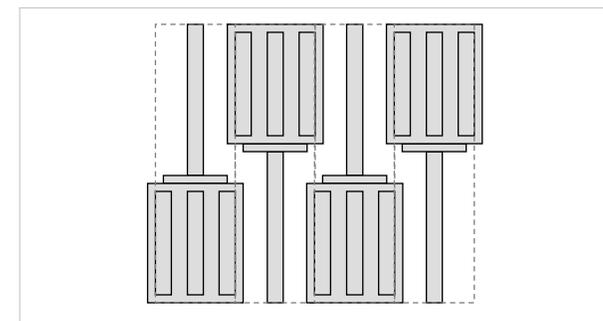
Form factor

Libraries are offered in both inline (core-limited) and staggered (pad limited) configurations.

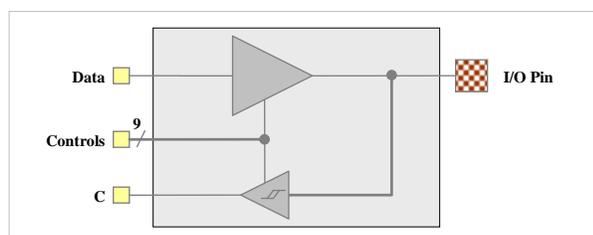
Inline (core-limited) – 50µm x 120µm



Staggered (pad-limited) – 30µm x 180µm



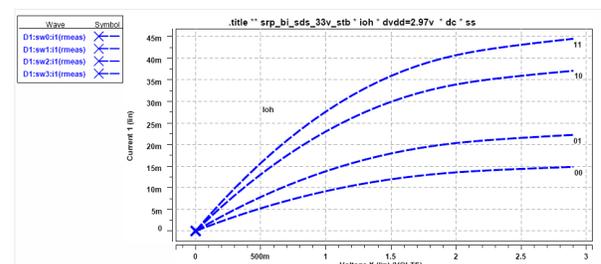
SRx_BI_SDS_33V_STB / FRx_BI_SDS_33V_STB



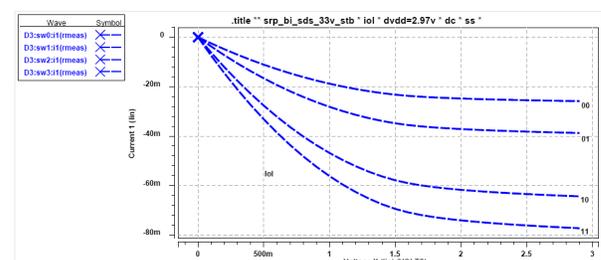
Description

SRx_BI_SDS_33V_STB / FRx_BI_SDS_33V_STB are programmable, multi-voltage (1.8V, 2.5V, 2.8V, 3.0V, 3.3V) general purpose, bi-directional I/O buffers with a selectable LVCMOS input or LVCMOS Schmitt trigger input and programmable pull-up / pull-down. In the full-drive mode, this buffer can operate in excess of 100MHz frequency with 15pF external load and 125 MHz with 10pF load, but actual frequency is load and system dependent. A maximum of 200 MHz can be achieved under small capacitive loads.

I_{OH} (DVDD = 2.97V, SS)



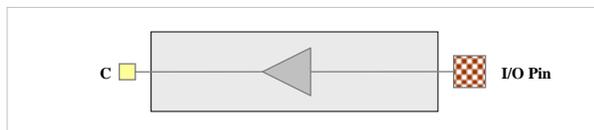
I_{OL} (DVDD = 2.97V, SS)



CSM65: 3.3V GPIO



STx_IN_001_33V_NC



Description

STP_IN_001_33V_NC is an input pad.

Other pads

Type	Total cells
Power pads	8
Analog (isolated) power pads	4
Spacers / corners	6

Recommended operating conditions

Description	Min	Nom	Max	Units
$V_{D\text{VDD}}$ I/O supply voltage	2.97	3.3	3.63	V
	2.70	3.0	3.30	V
	2.52	2.8	3.08	V
	2.25	2.5	2.50	V
	1.62	1.8	1.98	V
T_A Ambient operating temperature	0	25	100	°C
$V_{D\text{DD}}$ Core supply voltage	0.9	1.0 to 1.2	1.32	V
T_J Junction temperature	-40	25	125	°C
V_{PAD} Voltage at PAD	0	-	$V_{D\text{VDD}}$	V
V_{IH} Input logic high	$0.7 * V_{D\text{VDD}}$		$V_{D\text{VDD}} + 0.3$	V
V_{IL} Input logic low	$V_{D\text{VSS}} - 0.3$		$0.3 * V_{D\text{VDD}}$	V

Characterization Corners

Nominal VDD	Model	VDD	DVDD ^[1]	Temperature
1.2 ^[2]	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
1.1 ^[3]	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
1.0	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C

^[1] DVDD = 1.8, 2.5, 2.8, 3.0 and 3.3V

^[2] LPE process only.

^[3] G process only

© 2006-2011 Aragio Solutions. All rights reserved.

Information in this document is subject to change without notice. Aragio Solutions may have patents, patent applications, trademarks, copyrights or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Aragio, the furnishing of this document does not give you any license to the patents, trademarks, copyrights, or other intellectual property.

Published by:

Aragio Solutions
2201 K Avenue
Section B Suite 200
Plano, TX 75074-5918
Phone: (972) 516-0999
Fax: (972) 516-0998
Web: <http://www.aragio.com/>

While every precaution has been taken in the preparation of this book, the publisher assumes no responsibility for errors or omissions, or for damages resulting from the use of the information contained herein. This document may be reproduced and distributed in whole, in any medium, physical or electronic, under the terms of a license or nondisclosure agreement with Aragio.

Printed in the United States of America