

## Libraries

Name	Process	Form Factor
RGO_TSMC28_18V33_HPM_20C_RGMII	HPM	Staggered CUP

## Summary

The (R)GMII library provides the combo driver / receiver cell for both Gigabit Media Independent Interface signaling and Reduced Gigabit Media Independent Interface signaling. It is designed to interface Ethernet PHY to network switch ASICs. This library is provided as a supplement to the 28nm GPIO libraries provided by Aragio Solutions.

**GMII Specification Compliant:**  
IEEE 802.3-2005

**RGMII Specification Compliant**  
HP RGMII, version 1.3, 12/10/2000

### ESD Protection:

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

### Latch-up Immunity:

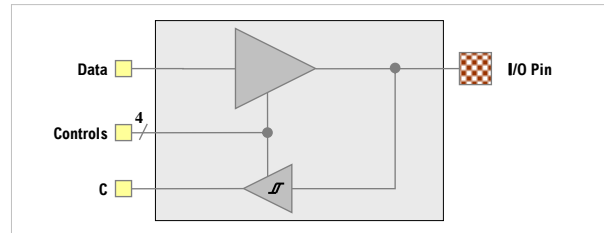
- JEDEC compliant
  - Tested to I-Test criteria of  $\pm 100\text{mA}$  @  $125^\circ\text{C}$

## Recommended operating conditions

Description	Min	Nom	Max	Units
V <sub>VDD</sub> Core supply voltage	0.81	0.9	0.99	V
T <sub>J</sub> Junction temperature	-40	25	+125	°C
V <sub>PAD</sub> Voltage at IO	0		V <sub>DVDD</sub>	V
V <sub>DVDD</sub> I/O supply voltage	2.97	3.3	3.63	V
V <sub>IH</sub> Input logic high	1.7	-	-	V
V <sub>IL</sub> Input logic low	-	-	0.9	V
V <sub>IL_AC</sub> Input high voltage, AC	1.9	-	-	V
V <sub>IH_AC</sub> Input low voltage, AC	-	-	0.7	V
V <sub>OH</sub> Output logic high voltage	2.1	-	3.6	V
V <sub>OL</sub> Output logic low voltage	0	-	0.5	V
V <sub>DVDD</sub> I/O supply voltage	2.25	2.5	2.75	V
V <sub>IH</sub> Input logic high	1.7	-	-	V
V <sub>IL</sub> Input logic low	-	-	0.7	V
V <sub>OH</sub> Output logic high voltage	2.0	-	V <sub>DVDD</sub> +0.3	V
V <sub>OL</sub> Output logic low voltage	V <sub>DVSS</sub> - 0.3	-	0.4	V
F Clock frequency / accuracy	2.5 <sup>[1]</sup> - 100ppm		125 + 100ppm	MHz

[1] The lowest supported frequency is 10BASE-T over RGMII

## MIP\_BI\_SDS\_33V\_NC



## (R)GMII Combo Driver Features:

- Selectable output slew rate
- GMII mode powered by 3.3V I/O & 0.9V core supplies
- RGMII mode powered by 2.5V I/O & 0.9V core supplies

## Pad Size

Pad	Width	Height	Units
MIP_BI_SDS_33V_NC	25	165	μm

Vertical-only and horizontal-only orientations.

## Characterization Corners

Nominal VDD	Model	VDD	DVDD <sup>[1]</sup>	Temperature
0.9	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 = 2.5V and 3.3V

© 2011-2014 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**