TSMC28: (R)GMII



Libraries

Name	Process Form Factor
RGO_TSMC28_18V33_HPM_20C_RGMI	T 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

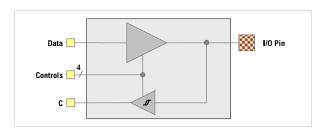
ESD Protection:

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

Latch-up Immunity:

- JEDEC compliant
 - o Tested to I-Test criteria of \pm 100mA @ 125°C

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.

Recommended operating conditions

	Description		Min	Nom	Max	Units
V_{VDD}	Core supply voltage		0.81	0.9	0.99	V
T_J	Junction temperature		-40	25	+125	°C
V_{PAD}	Voltage at IO		0		V_{DVDD}	V
V_{DVDD}	I/O supply voltage		2.97	3.3	3.63	V
V_{IH}	Input logic high		1.7	-	-	V
V_{IL}	Input logic low	_	-	-	0.9	V
V_{IL_AC}	Input high voltage, AC	N N	1.9	-	-	V
$V_{\text{IH_AC}}$	Input low voltage, AC		-	-	0.7	V
V_{OH}	Output logic high voltage		2.1	-	3.6	V
V_{OL}	Output logic low voltage		0	-	0.5	V
V_{DVDD}	I/O supply voltage		2.25	2.5	2.75	V
V_{IH}	Input logic high		1.7	-	-	V
V_{IL}	Input logic low	₹	-	-	0.7	V
V _{OH}	Output logic high voltage	RGMII	2.0	-	V _{DVDD} +0.3	V
V _{OL}	Output logic low voltage		V _{DVSS} - 0.3	-	0.4	V
F	Clock frequency / accuracy		2.5 ^[1] - 100ppm		125 + 100ppm	MHz

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

Characterization Corners

Nominal VDD	Model	VDD	DVDD ^[1]	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

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