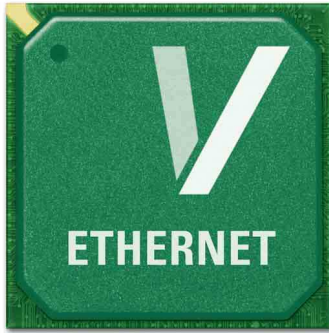


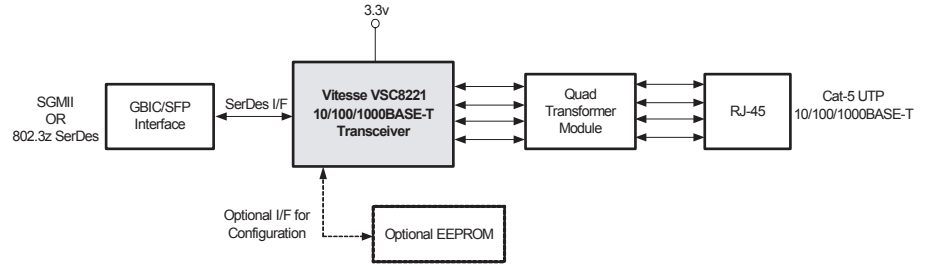
# VSC8221

VITESSE

## Single Port 10/100/1000BASE-T PHY with 1.25 Gbps SerDes / SGMII for SFPs / GBICs



SFP/GBIC Serial Interface (SGMII or 802.3z SerDes) to Cat-5



FEATURES:	BENEFITS:
▶ Very Low Power Consumption at < 700mW	▶ Only Gigabit Ethernet PHY That Enables Copper SFP Designers to Meet the Stringent MSA Power Consumption Specification of < 1W
▶ Single 3.3V Power Supply with On-chip Regulator	▶ Eliminates External Regulators, Reducing System Costs
▶ Patented, Low EMI Line Driver with Integrated Line Side Termination Resistors	▶ Removed 12 Passive Components, Reducing PCB Area and Cost by 50%
▶ Supports PICMG 2.16 and 3.0 Ethernet Backplanes at Approximately 500mW	▶ Lowest Power Mode Reduces Power Supply Costs
▶ High Performance 1.25 Gbps SerDes Supports SGMII and SerDes to Cat-5 Interfaces	▶ Connects to Serial MACs or Optical Modules and can be Used to Design Copper SFP/GBIC Modules and 100BASE-FX Modules
▶ Compliant with IEEE 802.3 (10BASE-T, 100BASE-TX, 1000BASE-T, 1000BASE-X) and SFP MSA Specifications	▶ Ensures Seamless Deployment Throughout Copper and Optical Networks with Industry's Highest Tolerance to Noise and Substandard Cabling Infrastructures
▶ Full Suite of BIST, MAC, Far-end, and Connector Loopback Modes	▶ Simplifies Comprehensive In-system Test to Ensure the Highest Product Quality
▶ Over 150m of Category-5 Reach with Industry's Highest Noise Tolerance	▶ Ensures Trouble-free Deployment in Real World Ethernet Networks
▶ VeriPHY™ Cable Diagnostics Software Suite	▶ Enables Network Manufacturers to Simplify Deployment and improve Network Management Capabilities of Gigabit Ethernet Links
▶ Automatic Detection and Correction of Cable Pair Swaps, Pair Skew and Pair Polarity, Along with Auto MDI/MDI-X Crossover Function	▶ Compatible with 1st Generation 1000BASE-T PHYs, Minimizing Common Interoperability Problems
▶ Several Flexible Power Management Modes	▶ Reduces Power Consumption and System Costs
▶ Manufactured in Advanced 0.13µm, 3.3V/1.2V Digital CMOS Process	▶ Most Cost Effective Technology Eliminates more Expensive Analog Process Variants

### APPLICATIONS:

- ▶ Triple Speed Copper SFP/GBIC Modules
- ▶ Media Converters

## Single Port 10/100/1000BASE-T PHY with 1.25 Gbps SerDes for SFPs / GBICs

### GENERAL DESCRIPTION:

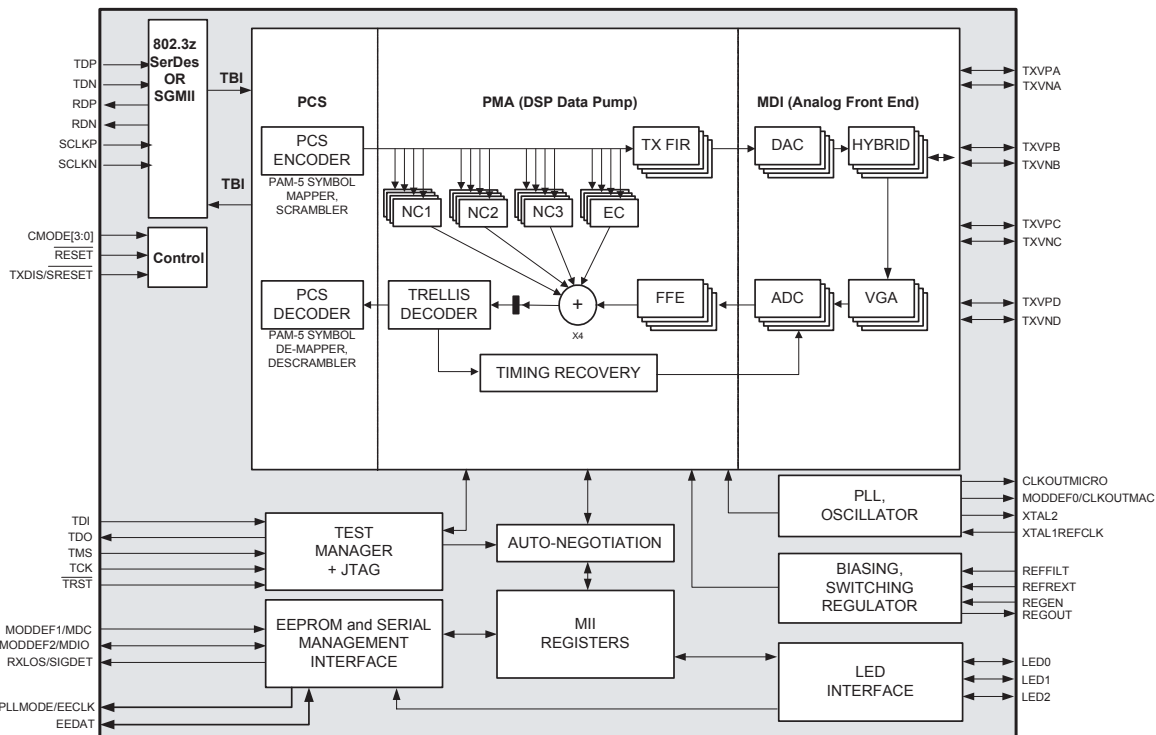


The VSC8221 is the smallest, lowest power Gigabit Ethernet over copper PHY available and is ideal for SFP/GBIC and Media Converter applications. It is the only triple speed copper SFP PHY to meet the stringent MSA power consumption requirement of <1W for the entire module. Its integrated switching regulator enables it to be powered by a single 3.3V power supply, reducing board space requirements and system cost. Vitesse's mixed signal and DSP architecture yields robust performance, supporting both full and half duplex 10BASE-T, 100BASE-TX, and 1000BASE-T over >140m of Category 5, unshielded twisted pair (UTP) cable, with industry leading tolerance to NEXT, FEXT, Echo, and system noise.

### SPECIFICATIONS:

PARAMETER	TYP	UNIT	COMMENTS
$P_D$	700	mW	Steady state power consumption (1000BASE-T) including SerDes
$P_{DQ}$	100	mW	Power consumption in ActiPHY™ power down mode
$L_{1G}, L_{100M}$	150	m	Cable link length supported in 1000BASE-T & 100BASE-TX modes,
Serial Data Rate	1.25	Gbps	SerDes, SGMII interface data rate
VDD	3.3	V	DC power supply voltage range
$F_{TOL(REFERENCE)}$	25	MHz	Crystal parallel resonant frequency (+/- 100 ppm tolerance)

### BLOCK DIAGRAM:



For more information on Vitesse Products visit the Vitesse web site at [www.vitesse.com](http://www.vitesse.com) or contact Vitesse Sales at (800) VITESSE or [sales@vitesse.com](mailto:sales@vitesse.com)

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