DIODES
INCORPORATED ®

PI6CG33xQ

PCIe 6.0/5.0/4.0 Automotive-Compliant Clock Generator Family with Multiple Outputs for Connected Driving Applications

The PI6CG33xQ are a family of low-power, HCSL (high-speed current-steering logic), automotive-compliant PCIe® 6.0 clock generators. These devices have 2, 4, 6, and 8 outputs, and are backwards compatible to all earlier versions of PCIe.

This family uses a 25MHz crystal or CMOS reference input to generate multiple 100MHz differential HCSL outputs with on-chip termination. The on-chip termination removes the need to have four external resistors for each output, thereby saving board space.

All PI6CG33xQ devices have individual output-enables for improved power management. Both slew rate and amplitude are adjustable via SMBus, enabling users to configure the device to optimize performance for their individual boards.

These clock generators are packaged in wettable flank QFN packages and have been qualified to AEC-Q100 Grade 2, supporting ambient temperatures from -40°C to +105°C.

Automotive-compliant - AEC qualified, manufactured in IATF 16949 certified sites supporting PPAP documents.

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The DIODES Advantage

These automotive-compliant PCIe 6.0 clock generators provide accurate clock signals in infotainment, ADAS, and telematics applications.

- **Ultra-Low <40fs$_{RMS}$ Jitter**
  Enables robust and reliable PCIe 6.0 system design through good timing margins

- **On-Chip Termination**
  Saves four resistors per output pair (up to 32 resistors); reduces size and BOM cost

- **Wettable Flank QFN Packages**
  Meets automotive requirements for visual inspection

- **Programmable Slew Rate and Amplitude**
  Improves design flexibility and performance

- **AEC-Q100 Grade 2 Temperature Range (-40 to +105°C)**
  Meets the temperature range requirements of infotainment, ADAS, and telematics applications

Applications

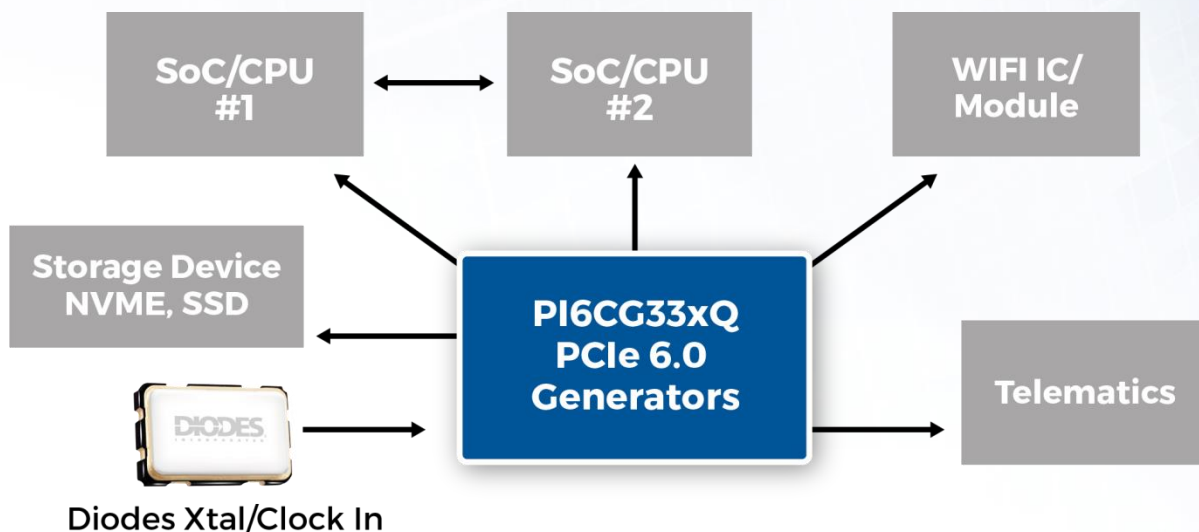**Automotive PCIe Clock distribution in:**

- Navigation
- Infotainment
- ADAS
- Telematics
- Head units
- NVM/storage
- Electrical control units

Typical Application

Automotive-Compliant PCIe 6.0 Clock Generator Portfolio

Part Number	# of Outputs	Voltage Support	Output Frequency MHz	Output Type	RMS Jitter ps	Temp. Range °C	Package
PI6CG332Q	2	3.3V	100	HCSL	0.04	-40 to +105	24-TQFN/SWP (4mm x 4mm)
PI6CG334Q	4		100	HCSL	0.04	-40 to +105	32-TQFN/SWP (5mm x 5mm)
PI6CG336Q	6		100	HCSL	0.04	-40 to +105	40-TQFN/SWP (5mm x 5mm)
PI6CG338Q	8		100	HCSL	0.04	-40 to +105	48-TQFN/SWP (6mm x 6mm)

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing Quantity	Packing Carrier
PI6CG332Q2ZDWEX	Automotive	ZDW	24-TQFN V-QFN4040-24/SWP	MSL-1	3,500	13" Tape & Reel
PI6CG334Q2ZHWEX	Automotive	ZHW	32-TQFN W-QFN5050-32/SWP	MSL-1	2,500	13" Tape & Reel
PI6CG336Q2ZLWEX	Automotive	ZLW	40-TQFN W-QFN5050-40/SWP	MSL-1	3,500	13" Tape & Reel
PI6CG338Q2ZLWEX	Automotive	ZLW	48-TQFN V-QFN6060-48/SWP	MSL-1	3,000	13" Tape & Reel