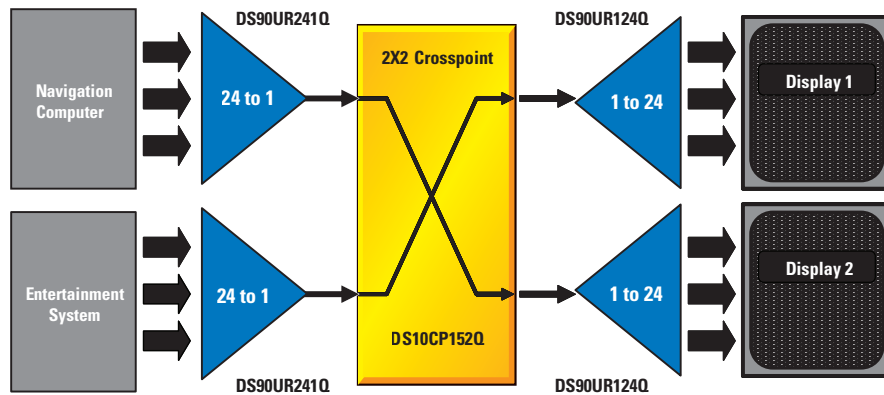


Automotive Infotainment Applications

Drive 10m Cables to Multiple Displays with SerDes and PowerWise® Crosspoint Switches



Crosspoint Switch with SerDes in Automotive Infotainment

Introduction

Infotainment systems continue to evolve and support an ever expanding list of features such as navigation, engine management, and entertainment. Multiple displays are the norm, in both the driver and passenger compartment. Providing feature selection at each display, both the drivers and passengers alike can access the media they desire. Robust single-lane SerDes and low-jitter crosspoint switches are an efficient and cost-effective way to route and switch this video content.

National's LVDS SerDes support 24 bits of data at frequencies between 5 and 43 MHz, and include user-friendly features such as receiver lock-to-data without an external clock, and internal DC-balance for AC-coupled and optical interconnects. These AECQ-100 SerDes are guaranteed for extended temperatures (-40 to 105°C) and include 10 kV ESD protection. An embedded at-speed BIST provides enhanced testability.

The latest AECQ-100 crosspoints from National combine low jitter and low power. Low jitter and signal conditioning ensure that serialized data arrives with minimal distortion, even when driving long cables. These non-blocking crosspoints are available in 2 x 2 and 4 x 4 configurations.

See all National's automotive products and solutions at: national.com/automotive

Crosspoint Features

- Extremely low jitter, 10 ps typ Dj
- Low LVDS power consumption
 - DS10CP152 2 x 2 58 ma typ
 - DS10CP154 4 x 4 115 ma typ
- Equalization and pre-emphasis available

Product ID	Description (Crosspoint)	Data rate (Gbps)	Signal Conditioning	Jitter (DJ Typ)	Temp Range (°C)	Package	Auto Grade
DS10CP152	2 x 2	1.5	—	9 ps	-40 to 85	SOIC-16	
DS25CP102	2 x 2	3.125	Equalization, Pre-emphasis	9 ps	-40 to 85	LLP-16	
DS25CP152	2 x 2	3.125	—	6 ps	-40 to 85	LLP-16	
DS10CP154	4 x 4	1.5	—	12 ps	-40 to 85	LLP-40	—
DS25CP104	4 x 4	3.125	Equalization, Pre-emphasis	10 ps	-40 to 85	LLP-40	—

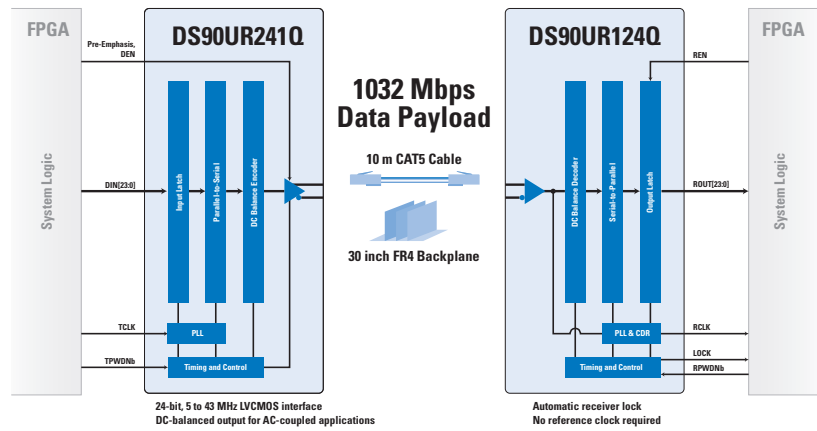
PowerWise® product, = AEC-Q100 qualified

Automotive Infotainment Applications

DS90UR241Q/124Q – 24-bit FPD-Link II LVDS Ser/Des with DC-Balance and Pre-Emphasis

Features

- Serializes 24 bits at 5 to 43 MHz (125 to 1032 Mbps)
- Receiver automatically locks to any data pattern without external clock
- DC-balance encoding for AC-coupled and optical interconnects
- Drives 10m twisted pair cable
- At-speed BIST pattern generation/verification
- 10 kV ESD (ISO-10605) and hot plug protection
- Extreme -40 to +105°C temperature range



Serializer/Deserializer

Product ID	Description	Mux Rate	Throughput (Mbps)	Pixel Clock Rate (MHz)	Graphics Bits	Function	ESD	Temperature Range (°C)	Packaging	Auto Grade
Serializers										
DS90UR241Q	5 to 43 MHz, 24 bit FPD Link II LVDS	24 : 1	1032	43	6	AC-Coupled, DC Balance, Built-In Self Test (BIST), Enhanced Serial Link Randomization and Scrambling to lower EMI	8 kV HBM, ISO 10605	- 40 to 105	TQFP-64	
DS99R421Q	5 to 43 MHz, 24 bit FPD Link to FPD Link II LVDS Converter	24 : 1	1032	43	6	AC-Coupled, DC Balance, Built-In Self Test (BIST), Enhanced Serial Link Randomization and Scrambling to lower EMI	8 kV HBM, ISO 10605	- 40 to 105	LLP-36	
DS90C241Q	5 to 35 MHz, 24 bit FPD Link II LVDS	24 : 1	840	35	6	AC-Coupled, DC Balance	8 kV HBM, ISO 10605	- 40 to 105	TQFP-48	
Deserializers										
DS90UR124Q	5 to 43 MHz, 24 bit FPD Link II LVDS	1 : 24	1032	43	6	AC-Coupled, DC Balance, Built-In Self Test (BIST), Frequency spread PTO and Slew rate control to lower EMI	8 kV HBM, ISO 10605	- 40 to 105	TQFP-64	
DS90C124Q	5 to 35 MHz, 24 bit FPD Link II LVDS	1 : 24	840	35	6	AC-Coupled, DC Balance, Adjustable PTO to lower EMI	8 kV HBM	- 40 to 105	TQFP-48	

= AEC-Q100 certified