

Product Overview

UCC276X4: Enabling Higher Efficiency in a Smaller Package



The UCC276X4 devices are a family of high-current, low-side drivers designed primarily to drive MOSFETs and IGBTs in both automotive and industrial applications. The family includes both the single channel UCC27614 and dual channel UCC27624.

Power Dense: The UCC276x4 features high drive current, up to 10A, to reduce switching losses and improve overall system efficiency. This combined with the small SON package options for both the dual and single channel versions makes the UCC276x4 family one of the most power dense gate drivers available.

Robust: The UCC276x4s 30V max VDD and the -10V negative voltage handling enable excellent noise and transient handling without the need for external components such as clamp diodes on the inputs and outputs.

Table 1. Product Summary

Product Features	Product Benefits	Key Applications
Up to 10A Drive Strength	Enables higher efficiency systems	Server Power
30V Max V _{DD}	An excellent choice for handling transients and noise in operation	HEV/EV OBC + DC/DC
-10V Negative Voltage Handling		EV Charging
4V or 8V UVLO Options	Fit for MosFET GaN or IGBT applications	Micro-Inverter
2mm × 2mm Package Options	High power density	Factory Automation
10ns Minimum Input Pulse	1MHz+ operation	

Target End Equipments

The UCC276X4 can be utilized in a wide variety of end equipments. Consider how the product features can improve a system design.

Table 2. The UCC276x4 Helps Improve Your System

Size	2mm × 2mm packages enable small board size.
Robustness	30V VDD and -10V negative voltage handling allows the UCC27x24 to better withstand noise and transients
Cost	The excellent transient performance reduces the need for external components such as clamp diodes.
	Using the UCC27624 with a pulse transformer eliminates the need for a bias supply.
Efficiency	4V UVLO allows for use with 5V power rail reducing overall power loss.
	The 5A/10A output current helps reduce switching losses.
	High drive current and low rise and fall times enable switching above 1MHz.
Flexibility	UVLO, channel count, and package options help keep your system optimized.

Figure 1 through Figure 3 help explore some of the most popular use cases and respective topologies.

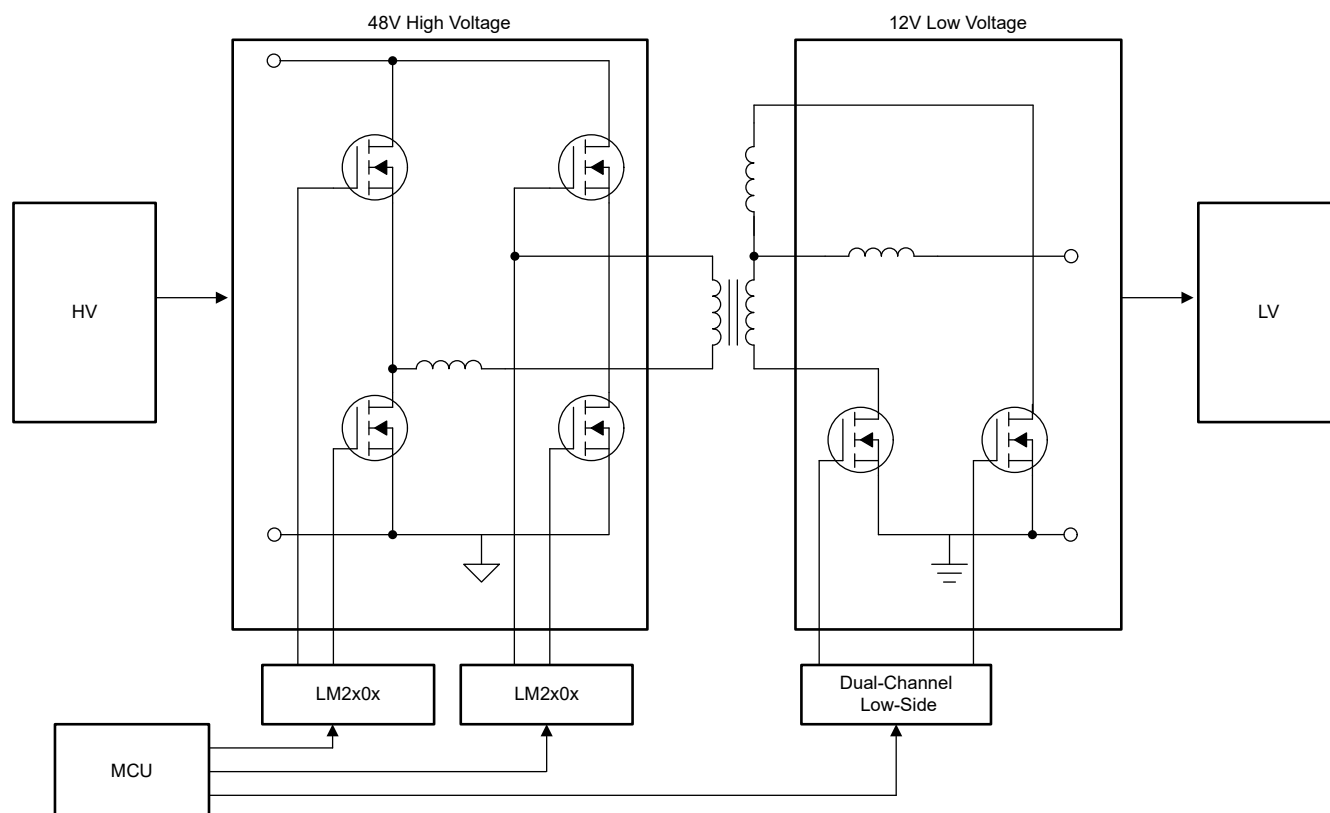


Figure 1. HEV-EV DC-DC, 48V DC-DC

Interleaved Boost PFC

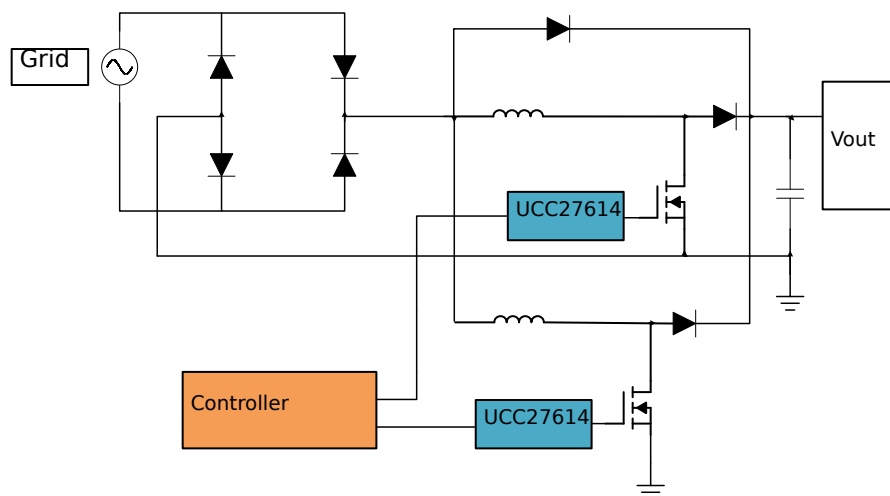


Figure 2. Server Power, Interleaved Boost PFC

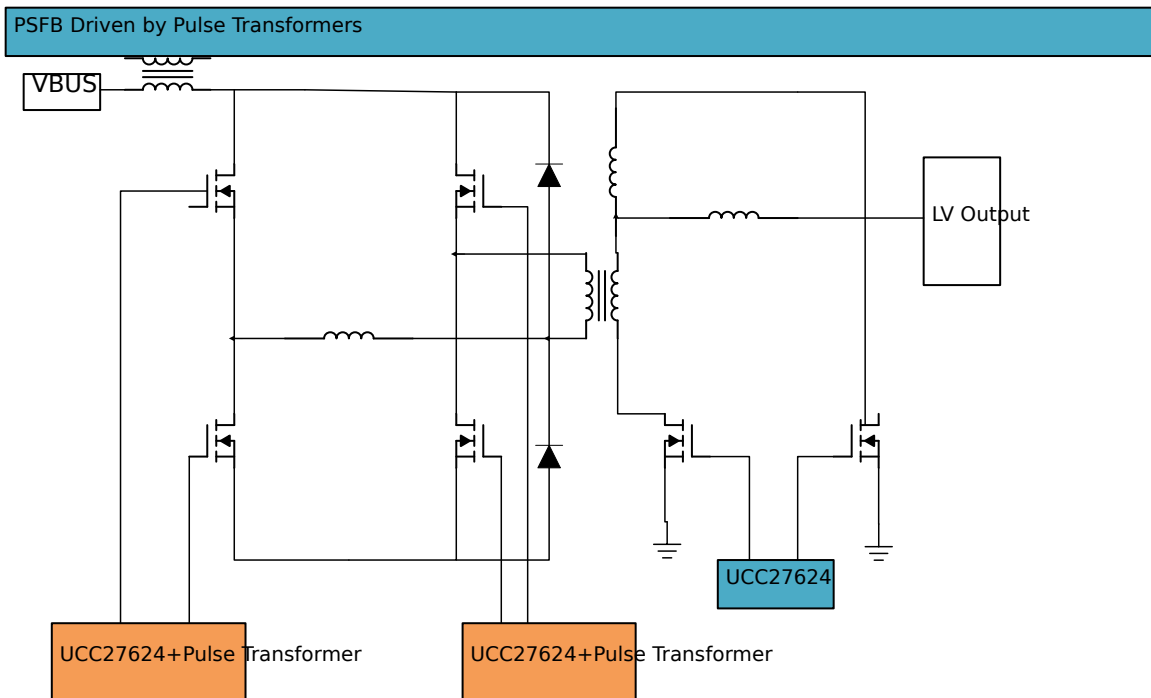


Figure 3. EV Charging, Phase-Shifted Full Bridge Driven by Pulse Transformers

Device Selection Guide

The UCC276X4 devices have distinct features, electrical specifications, and pinouts. To aid in selection, [Table 3](#) through [Table 5](#) help distinguish major differences between part numbers and variants, as well as provide insight to how these compare to legacy offerings.

Table 3. Device Selection Guide

Part Number	Channel Count	Gate Drive Output (Sink-Source)	UVLO	Package Options
UCC27614(-Q1)	1	10A-10A	4V	D, DGN, DSG
UCC27624(-Q1)	2	5A-5A	4V	D, DGN, DSD
UCC27624V(-Q1)	2	5A-5A	8V	D, DGN

Table 4. Pinout Maps

D 4.9mm × 3.9mm SOIC-8	DSG 2mm × 2mm WSON-8	DGN 3mm × 3mm SOIC-8	DSD 3mm × 3mm SOIC-8

Table 5. Legacy Devices Similar to UCC276x4

Legacy Device	New Replacement GPN	Pin-to-Pin	Key Advantages
UCC27524(A)	UCC27624	Yes	The improved VDD and negative voltage provides for improved transient and noise handling
UCC27424	UCC27624	Yes	The increased drive strength provides higher efficiency

Table 5. Legacy Devices Similar to UCC276x4 (continued)

Legacy Device	New Replacement GPN	Pin-to-Pin	Key Advantages
UCC27322	UCC27614	Yes	The improved VDD and negative voltage provides for improved transient and noise handling
UCC27511(A)	UCC27614	No	Smaller package options allow for reduced design size

Additional Information

Additional References:

- [Why use a Gate Drive Transformer?](#)
- [Review of Different Power Factor Correction \(PFC\) Topologies' Gate Driver Needs](#)
- [Managing power-supply noise with a 30V gate driver](#)

Table 6. Orderable Table

Orderable Device	Package Type	Pins	Package Qty	Eco Plan	Lead Finish	MSL Peak Temp	Op Temp (°C)	Device Marking	Samples
UCC27624D GNR	HVSSOP	8	2500	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	U624	Samples
UCC27624D R	SOIC	8	2500	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	U27624	Samples
UCC27624 QDGNRQ1	HVSSOP	8	2500	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	624Q	Samples
UCC27624 QDRQ1	SOIC	8	3000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	27624Q	Samples
UCC27624 QDSRQ1	SON	8	5000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	624QSD	Samples
UCC27614D R	SOIC	8	2500	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	U27614	Samples
UCC27614D SGR	WSO	8	3000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	U614	Samples
UCC27614 QDGNRQ1	HVSSOP	8	3000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	614Q	Samples
UCC27614 QDRQ1	SOIC	8	3000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	27614Q	Samples
UCC27614 QDSGRQ1	WSO	8	3000	RoHS & Green	NIPDAU	Level-1-260 C-UNLIM	-40 to 150	614Q	Samples

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