

Product brief

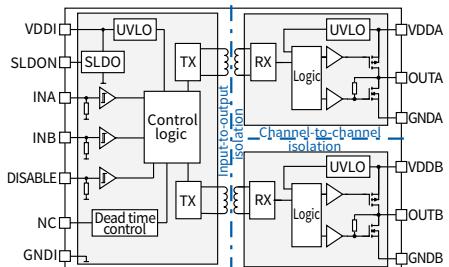
EiceDRIVER™ 2EDF7275F and 2EDF7175F

Fast, robust, dual-channel, functional isolated MOSFET gate drivers with accurate and stable timing

Overview

The EiceDRIVER™ 2EDF7275F is the perfect fit for robust and stable operation for primary side control of high- and low-side MOSFETs in noisy high-power switching environments. The strong 4 A/8 A source/sink dual-channel gate drivers provide a fast turn on/off when driving high- and medium-voltage MOSFETs such as CoolMOS™ or OptiMOS™. Both output channels are individually isolated and can be flexibly deployed as floating gate drivers with very high 150 V/ns CMTI (Common Mode Noise Immunity). The VDDI input supply supports a wide voltage range SLDO mode to save on-board LDOs. For slower switching or driving smaller MOSFETs, a 1 A/2 A peak current product variant, the EiceDRIVER™ 2EDF7175F, is available in the DSO-16 narrow body package with 4 mm creepage distance.

Device overview



EiceDRIVER™ 2EDF7275F and 2EDF7175F block diagram

Product key features
Fast power switching with accurate timing <ul style="list-style-type: none">Available with 4 A/8 A and 1 A/2 A source/sink currentsPropagation delay typ. 37 ns with 3 ns channel-to-channel mismatchMax. delay variation ~14 ns
Optimized for area and low cost system BOM <ul style="list-style-type: none">Isolation and driver in one packageLess power dissipation due to low on-resistanceOutput stages with 5 A reverse current capability
Robust against switching noise <ul style="list-style-type: none">Floating drivers are able to handle large inductive voltage over- and undershootsVery high common mode transient immunity CMTI > 150 V/nsUndervoltage lockout function for switch protection
Output-to-output channel isolation <ul style="list-style-type: none">Functional level galvanic isolation
Input-to-output channel isolation <ul style="list-style-type: none">Functional galvanic isolation

Product benefits
Power efficiency and high resolution PWM control <ul style="list-style-type: none">Lower switching losses in half-bridges due to fast and accurate turn on/offPerfect match for a new digitally controlled high resolution PWM control
Cooler package at smaller form factor <ul style="list-style-type: none">Replaces classic bulky PT pulse transformers or costly high speed data couplers and discrete driversCooler gate driver packageEliminates need for two costly protection diodes
Protection and safe operation <ul style="list-style-type: none">Protection against shoot-through (EOS)Supports decoupling and limits the di/dt switching and ringing noiseReliable CT coreless transformer PWM signal chain
Flexible assignment of any driver channel <ul style="list-style-type: none">HS+LS, HS+HS, LS+LS or 2x I_{max} on 1xHS
Floating gate drive and regulatory safety <ul style="list-style-type: none">Functional isolation for primary or secondary side control

System benefits
Enabling higher power stage efficiency and higher power density designs
Improving long term competitive cost position, integration and mass manufacturability
Improved end-product lifetime by improved safe operation of power switches
Lower EMI by ground isolation, driver proximity to MOSFETs or the use of 4-pin Kelvin source MOSFETs
Meeting requirements to build isolated AC-DC, DC-DC half-bridge topologies



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Device pin assignments

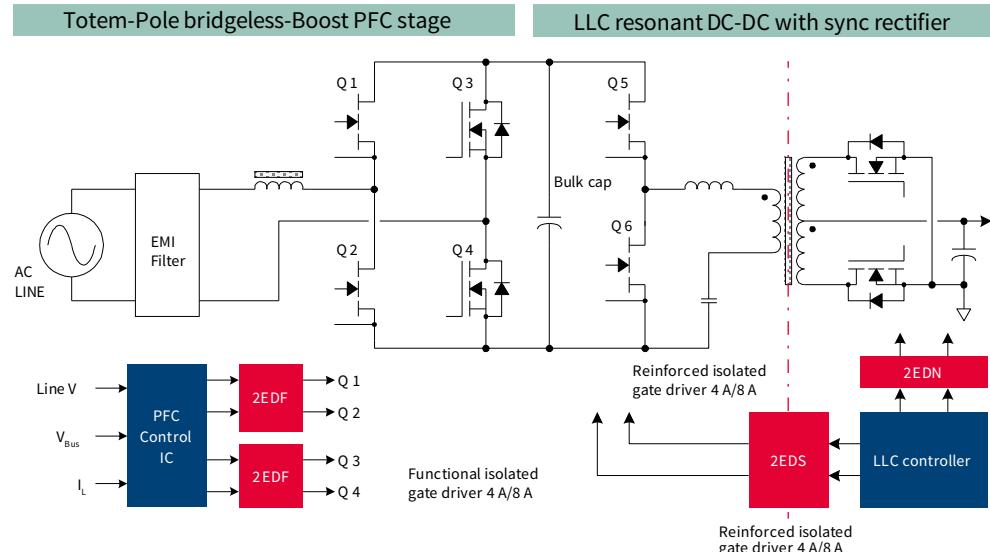
DSO-16	
INA	1
INB	2
VDDI	3
GNDI	4
DISABLE	5
N.C.	6
N.C.	7
SLDON	8
	16
	15
	14
	13
	12
	11
	10
	9

Valid for:

Narrow Body
2EDF7275F
2EDF7175F

Wide Body
2EDS8265H
2EDS8165H

Application diagram example



The 2EDF7275F input-to-outputs are functional isolated, which is used today in larger power PCB designs or when seeking to isolate the switching noise in the power loop from the microcontroller. With its >150 V/ns common mode noise immunity, the 2EDF is one of the most robust solutions available today for high-side, low-side half-bridge topologies with simple CMOS level PWM inputs. The high-side driver supply in the 2EDF can be implemented with a low cost bootstrap method.

The consistent performance and timing accuracy over temperature and production spread of the 2EDF family of isolated gate drivers makes them easy to use within a power stage or across multi-phase, multi-level designs and enables further efficiency gains in high performance power conversion applications.

Product portfolio

Part number	Orderable part number (OPN)	Package	PWM Input type	Driver source/ Sink current	Gate driver UVLO	Input to output isolation				Dead-time control
						Isolation class	Rating	Surge testing	Safety certification	
2EDF7275F	2EDF7275FXUMA1	NB-DSO16 10x6mm	Dual mode (input A, input B)	4 A/8 A	4 V	Functional	1.5 kV _{peak}	n.a.	n.a.	no
2EDF7175F	2EDF7175FXUMA1	NB-DSO16 10x6mm	Dual mode (input A, input B)	1 A/2 A	4 V	Functional	1.5 kV _{peak}	n.a.	n.a.	no

For further device information, configurations and application notes, visit the 2EDi EiceDRIVER™ family under www.infineon.com/2EDI

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