

Firstack

Driving a Green Future


2025
GATE DRIVER CATALOG

www.firstack.com

Firstack

Driving a Green Future

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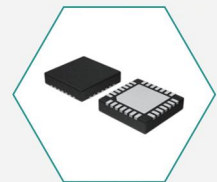




DRIVING A GREEN FUTURE

About Us

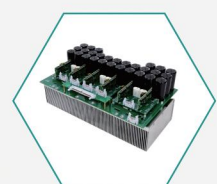
Hangzhou Firststack Technology Co., Ltd. was established in 2011, focusing on providing customers with total power solutions of highest level of reliability and excellent performance. Firststack offers an extensive range of products from DC-DC, gate driver cores, Plug-and-Play gate drivers to complete IGBT and Silicon Carbide(SiC) based power stacks, efficiently empowering customers to achieve intelligence and flexibility across a broad spectrum of applications including wind, PV, ESS, motor drives and other markets demanding high reliability.



Driver IC



Gate driver





Power stack








Gate Driver Cores

Product part No.	Output power per channel/ Gate peak current	Rated voltage	Page
 2FSC0110	1W/10A	1200V	5
 2FHC0210	2W/15A	1700V	7
 2FHC0215B1V	2W/15A	1700V	9
 2FHC0215	2W/15A	1700V	11
 2FHC0435	4W/35A	1700V	13
 2FHC0660	6W/60A	3300V	15





Plug-and-Play Gate Driver

Product part No.	Output power per channel/ Gate peak current	Voltage class	Page
 2FHD0115	1.2W/20A	1700V	17
 2FHD0115x	1.2W/20A	1700V	19



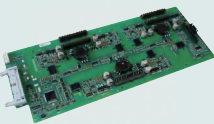
Plug-and-Play Gate Driver

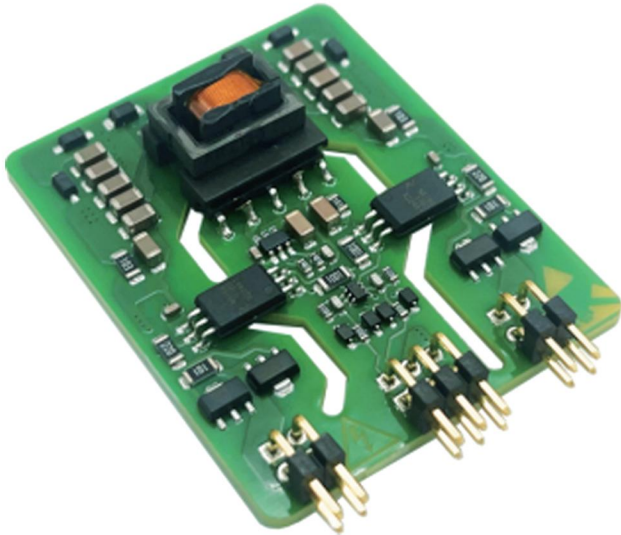
Product part No.	Output power per channel/ Gate peak current	Voltage class	Page
	2FHD0320	3W/20A	1700V 21
	PM120E	4W/38A	1700V 23
	PM110TRP	4W/38A	1700V 25
	1FSD08110	4W/110A	1700V,3300V 27
	1FSD215	8W/110A	1700V,3300V 29
	SK08110	8W/110A	4500V,6500V 31
	HV1027P	3W/27A	4500V,6500V 33
	FPS08-15K	8W	4500V,6500V 35
	FPS08-35K	8W	4500V,6500V 36

SiC Solution

Product part No.	Output power per channel/ Gate peak current	Voltage class	Page
 2FHD0620	6W/20A	1700V	37
 2FHC06M33XX	6W	3300V	39
 FS020P	2W	Insulation voltage:6500V _{DC}	41
 FS06P	6W	Insulation voltage:10000V _{DC}	43

Application Specific Gate Driver Solution

Product part No.	Output power per channel/ Gate peak current	Voltage class	Page
 2FSS0338	3W/38A	1700V,3300V	45
 1FSS0560	5W/60A	3300V,4500V	47
 ED-WP-CB	4W/108A	1700V	49



Overview

The 2FSC0110 is a IGBT driver core without protection developed for small and medium power inverters, which can be applied to various topologies such as 2-level, T-type 3-level, NPC I-type 3-level, etc. The 2FSC0110 has a powerful driving capability of 1W/channel ($T_a=85^{\circ}\text{C}$).

The 2FSC0110 is a dual-channel driver core. The peripheral application circuit is simple, which means customers can drive the IGBT safely and reliably without investing in debugging the driver core.

Highlights:

- 1W/±10A
- Support up to 1200V module
- Support multi-level applications

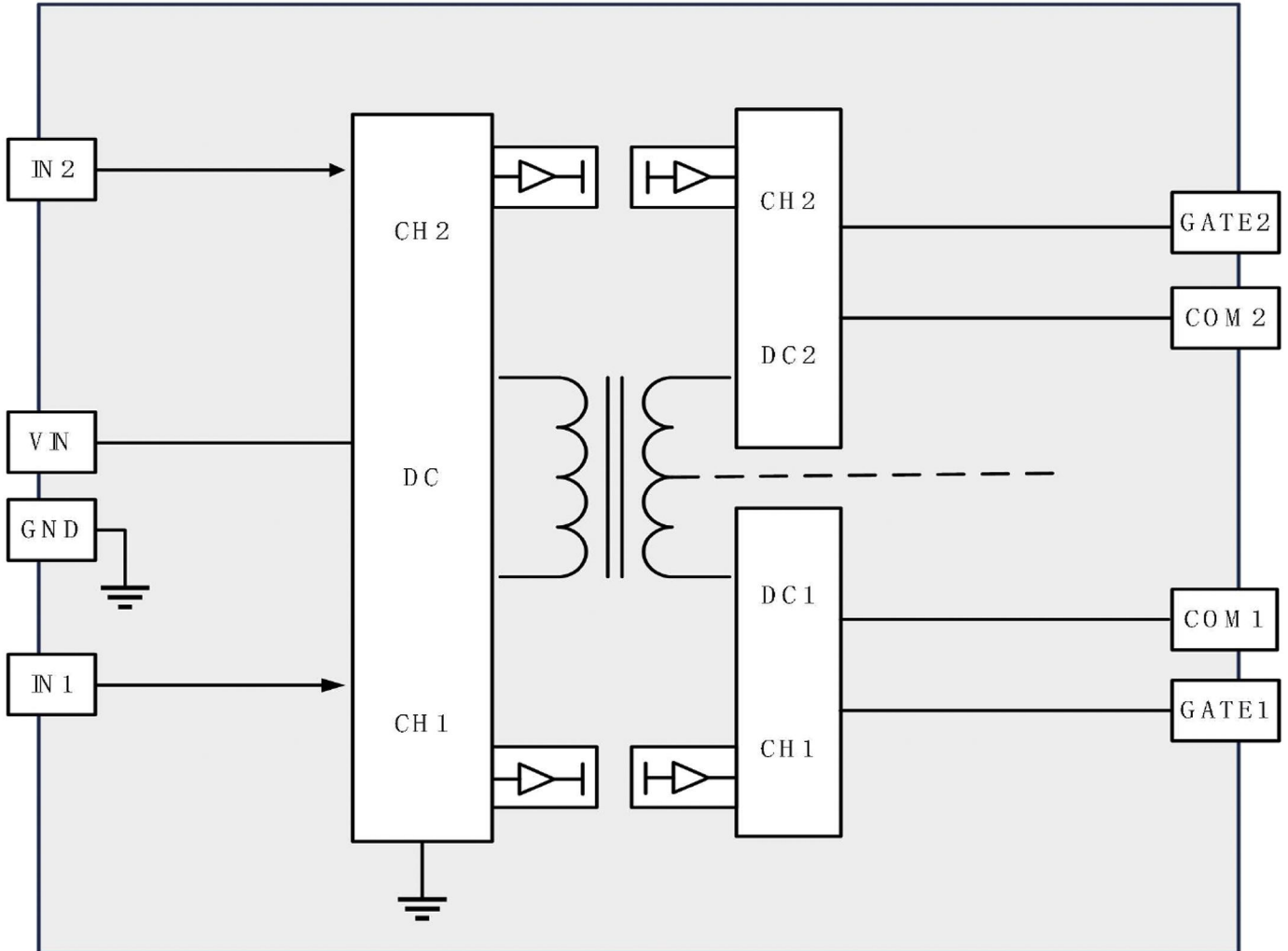
Applications:

- PV
- ESS

Key data overview:

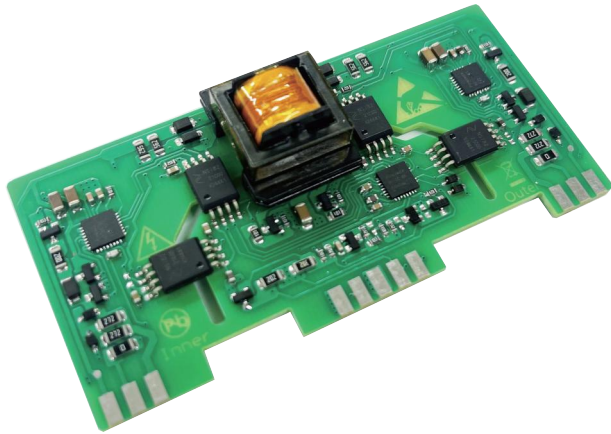
Parameter	Min	Typ	Max
Supply voltage /V		12/15	
Output power/ channel (85°C) /W		1	
Gate peak current /A	-10		+10
Test voltage /Vac	5000		
Operating temperature / °C	-40		+105

Functional block:



Ordering information:

Part number	Supply voltage /V	Gate voltage /V	IN _x	Note
2FSC0110T12A1	12	+15/-5	5V PWM	/
2FSC0110T12B1	12	+15V/-8	15V PWM	/
2FSC0110T12D1C	12/15	+15V/-8	5V PWM	Coating



Overview

The 2FHC0210C17 is a high-performance, dual-channel driver core developed based on intelligent chip technology by Firstack, supports IGBT modules up to 1700V. The peripheral application circuits are simple, so customers can drive the IGBT safely and reliably without investing in debugging the driver core.

Highlights:

- 2W/±15A, support up to 30kHz applications
- Support up to 1700V module
- Short-circuit protection (soft shut down)
- UVLO
- Support multi-level applications
- Sequence soft shut down

Applications:

- Motor drives
- ESS

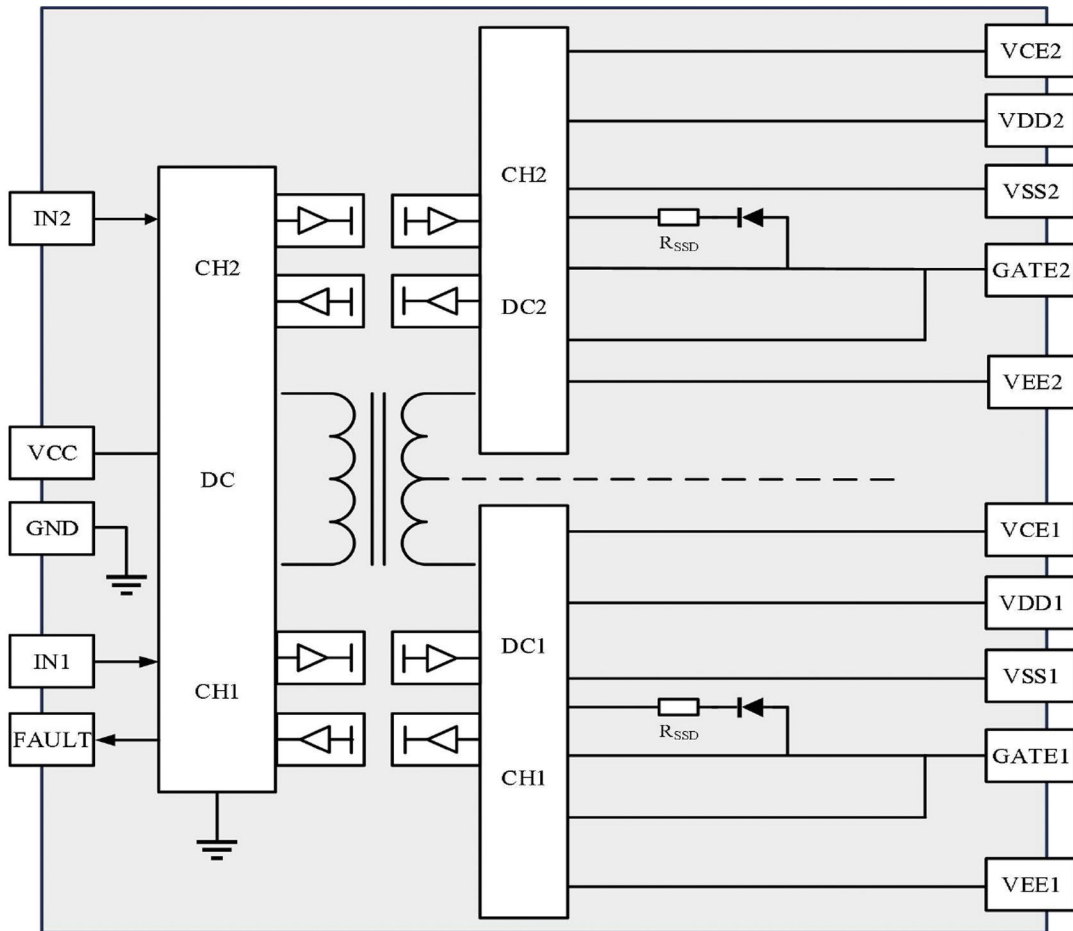
Key data overview:

Parameter	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		2	
Gate voltage /V		15/-8.5	
Gate peak current /A	-15		+15
Test voltage /Vac	5000		
Operating temperature/°C	-40		85

Main features:

Isolation method	Capacitive coupler
UVLO	Yes
Short-circuit protection	Yes
Soft shut down	Yes
Gate short circuit protection	Yes
Sequence soft shut down	Yes

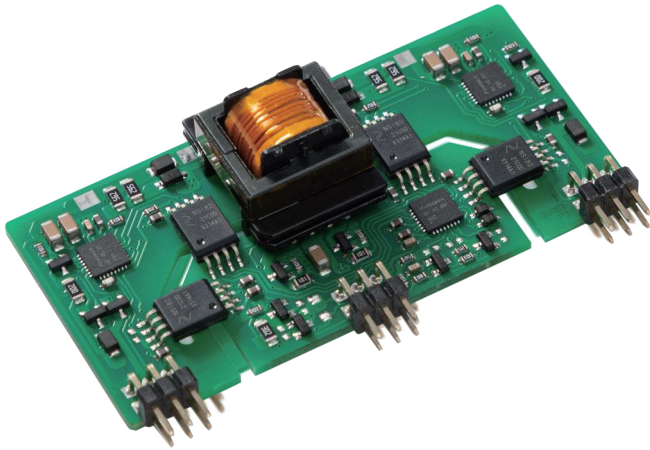
Functional block:



Ordering information:

Part number	Type	Operating temperature
2FHC0210C17	Driver core	-40°C~85°C

*More details or requirements please contact Firstack.



Overview

The 2FHC0215xV is a high performance, dual-channel driver core developed by Firstack based on intelligent chip technology. It supports IGBT modules up to 1700V. The peripheral application circuit is simple, which means customers can drive the IGBT safely and reliably without investing in debugging the driver core.

Highlights:

- 2W/±15A, support up to 30kHz applications
- Support up to 1700V module
- Short-circuit protection(soft shut down)
- UVLO
- Support multi-level applications
- Sequence soft shut down

Applications:

- Motor drives
- ESS

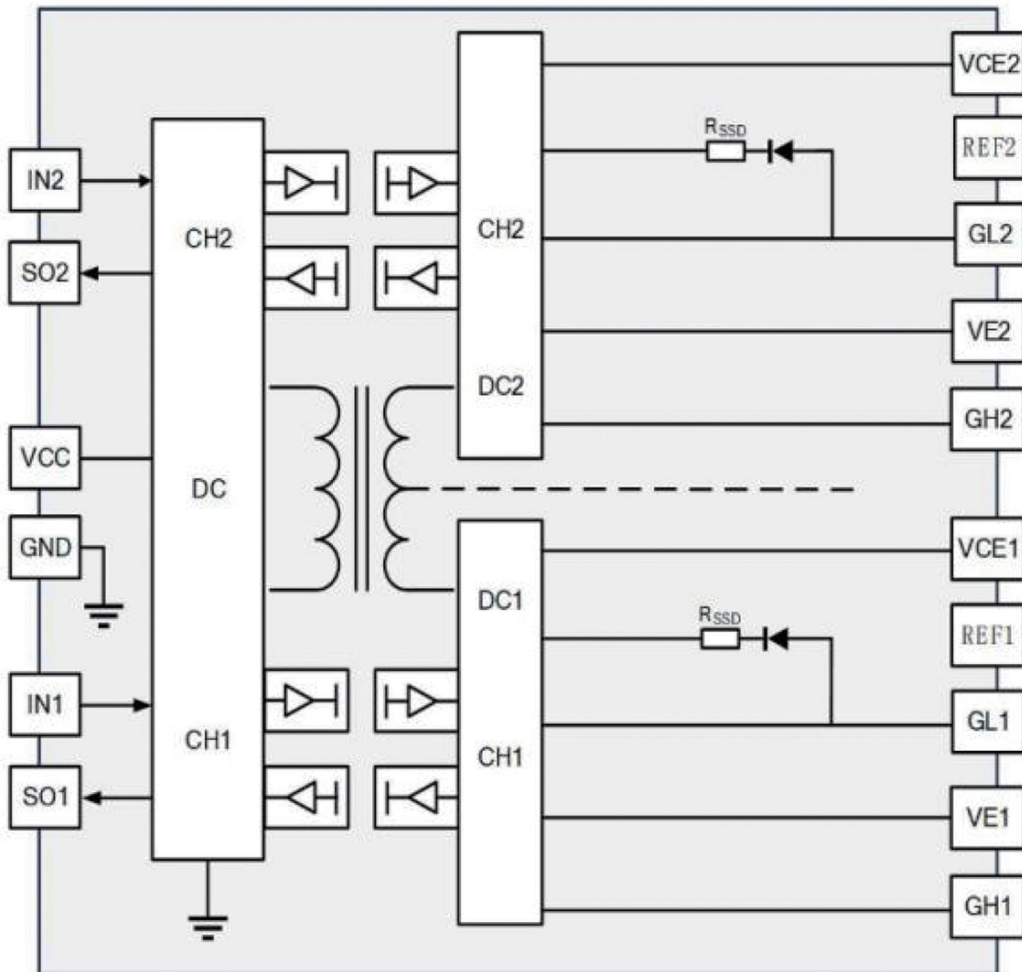
Key data overview:

Parameter	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		2	
Gate voltage /V		15/-8.5	
Gate peak current /A	-15		+15
Switching frequency /kHz	0	30	
Test voltage /Vac	5000		

Main features:

Isolation method	Capacitive coupler
UVLO	Yes
Short-circuit protection	Yes
Soft shut down	Yes
Gate short circuit protection	Yes
Sequence soft shut down	Yes

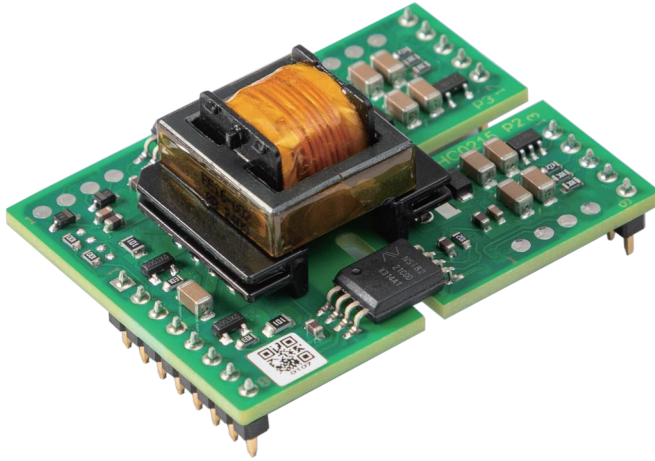
Functional block:



Ordering information:

Part number	Type	Operating temperature
2FHC0215C17B1V	Driver core	-40°C~85°C

*More details or requirements please contact Firstack.



Overview

The 2FHC0215 is a high performance, dual-channel gate driver core developed by Firstack based on intelligent chip technology. It supports IGBT modules up to 1700V. The external circuit is simple, which means customers can drive the IGBT safely and reliably without investing in debugging the gate driver core.

Highlights:

- 2W/±15A, support applications up to 30kHz
- Support up to 1700V module
- Short-circuit protection(soft shut down)
- Intelligent fault management
- UVLO

Applications:

- Motor drives
- ESS

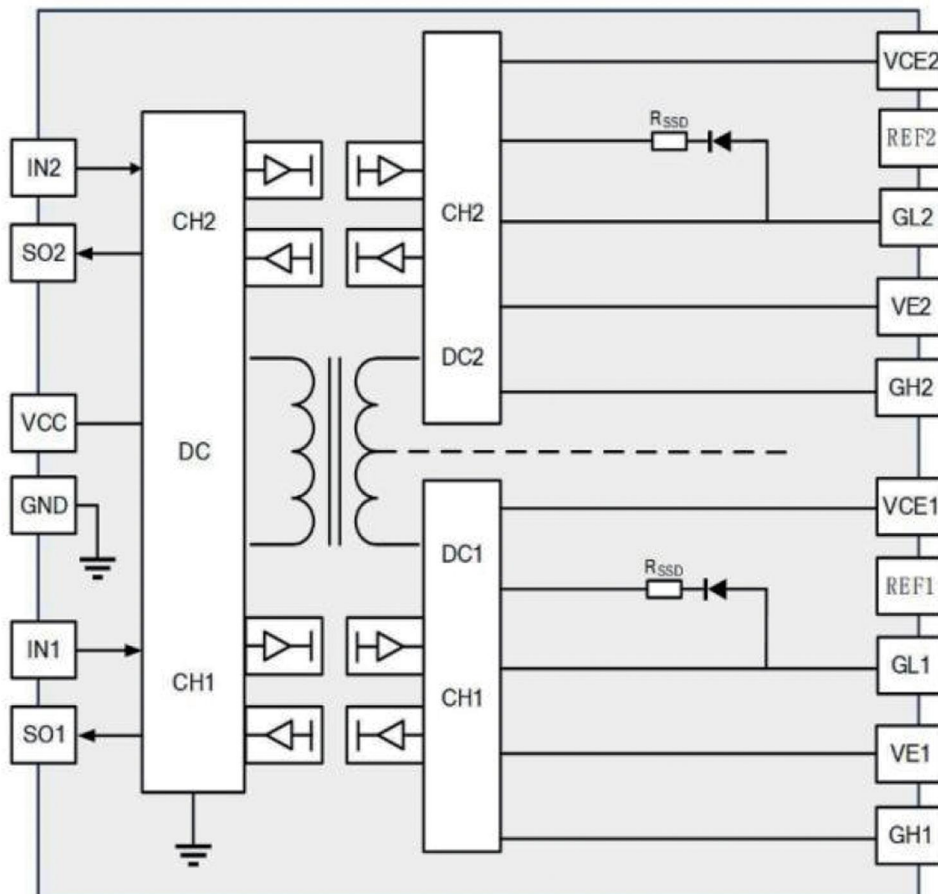
Key data overview:

Parameter	Firstack (2FHC0215)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		2			1	
Gate voltage /V		15/-8.5			15/-8	
Gate peak current /A	-15		+15	-8		+8
Test voltage /Vac	5000			5000		

Main features:

	Firstack (2FHC0215)	Other similar products
Isolation method	Capacitive coupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

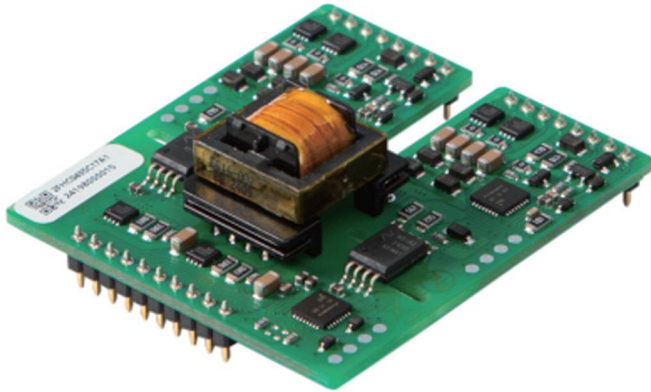
Functional block:



Ordering information:

Part number	Type	Operation mode	Operating temperature
2FHC0215C17A1	Driver core	Direct	-40°C~85°C
2FHC0215C17B1	Driver core	Half-bridge	-40°C~85°C

*More details or requirements please contact Firstack.



Overview

The 2FHC0435 is a high-performance, dual-channel gate driver core developed independently by Firstack based on intelligent chip technology, and supports up to 1700V IGBT modules. The peripheral application circuits are simple, so customers can drive IGBTs safely and reliably without extra configuration.

Highlights:

- 4W /±35A, support applications up to 30kHz
- Support up to 1700V module
- Short-circuit protection(soft shut down)
- Intelligent fault management
- UVLO
- Advanced active clamping

Applications:

- Motor drives
- ESS

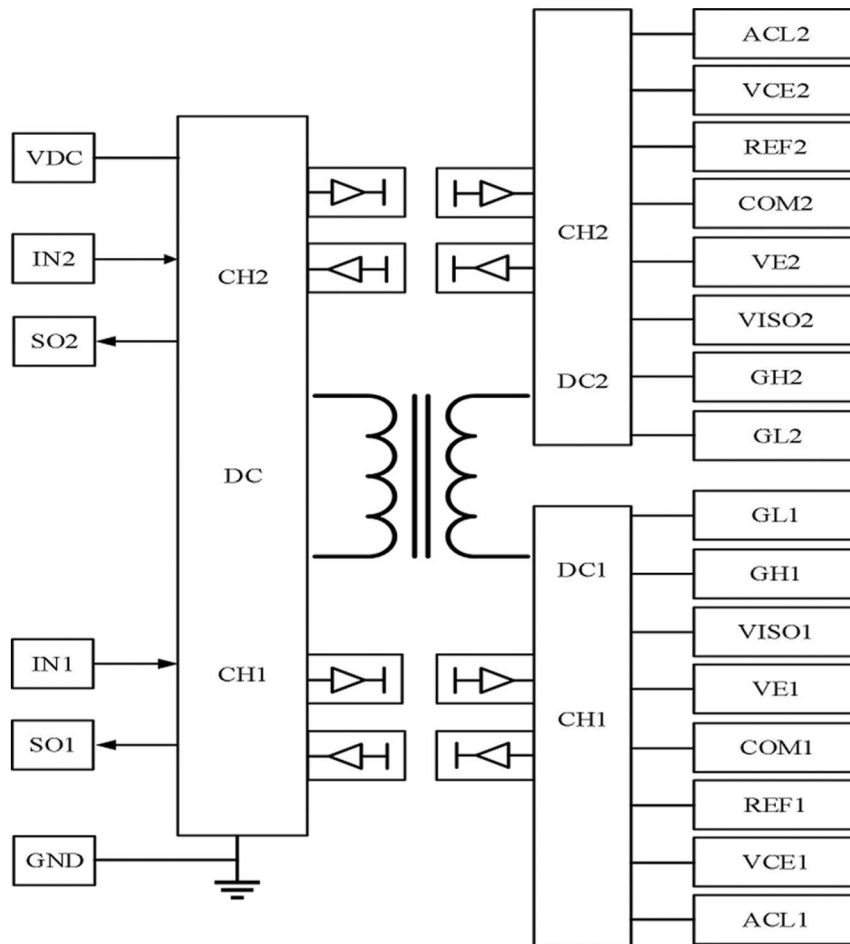
Key data overview:

Parameter	Firstack (2FHC0435)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		4			4	
Gate voltage /V		15/-8			15/-10	
Gate peak current /A	-35		+35	-35		+35
Test voltage /Vac	5000			5000		

Main features:

	Firstack (2FHC0435)	Other similar products
Isolation method	Capacitive coupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

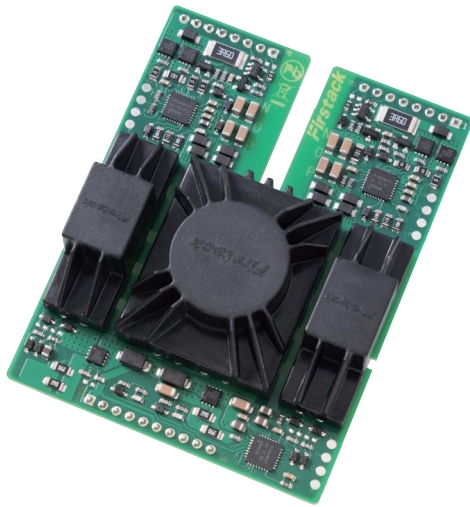
Functional block:



Ordering information:

Part number	Type	Operation mode	Operating temperature
2FHC0435C17A1	Driver core	Direct	-40°C~85°C
2FHC0435C17B1	Driver core	Half-bridge	-40°C~85°C

*More details or requirements please contact Firstack.



Overview

The 2FHC0660 is a high-performance, dual-channel gate driver core developed independently by Firstack based on intelligent chip technology, and supports up to 3300V IGBT modules. The peripheral application circuits are simple, so customers can drive IGBTs safely and reliably without extra configuration.

Highlights:

- 6W per channel, ±60A
- Support up to 30kHz application
- Short-circuit protection(soft shut down)
- Support multi-level application
- Intelligent fault management

Applications:

- Power quality
- Special power supply
- Switching power supply
- Power conversion system

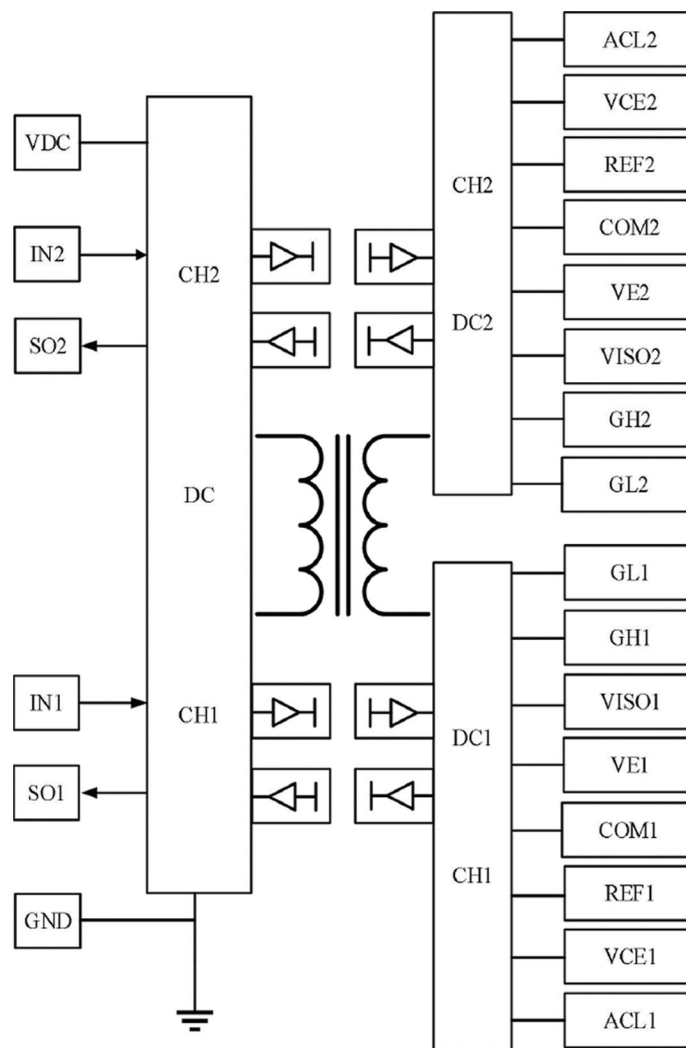
Key data overview:

Parameter	Firstack (2FHC0660)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		6			5	
Module			3300V			3300V
Gate voltage /V		15/-10.5			15/-10	
Gate peak current /A	-60		+60	-35		+35
Switching frequency /kHz	0	30		0	100	
Test voltage /Vac		9100			9100	

Main features:

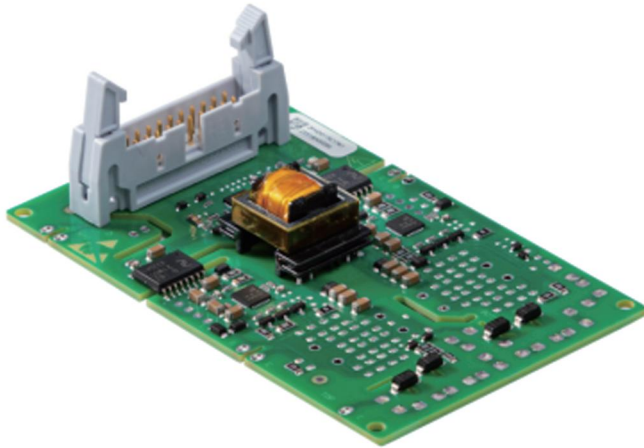
	Firstack (2FHC0660)	Other similar products
Isolation method	Pulse transformer	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

Functional block:



Ordering information:

Part number	Type	Operation mode	Operating temperature
2FHC0660	Driver core	Direct&Half-bridge	-40℃~85℃



Overview

The 2FHD0115C is a high performance, dual-channel plug-and-play gate driver developed by Firstack based on intelligent chip technology. It is designed for EconoDual™ package and supports IGBT modules up to 1700V. Plug-and-play, and can drive IGBT modules safely and reliably without other peripheral circuits.

Highlights:

- 1.2W/±20A, support up to 50kHz applications
- Support up to 1700V module
- Short-circuit protection (soft shut down)
- Intelligent fault management
- UVLO
- Advanced active clamping

Applications:

- Motor drives
- ESS

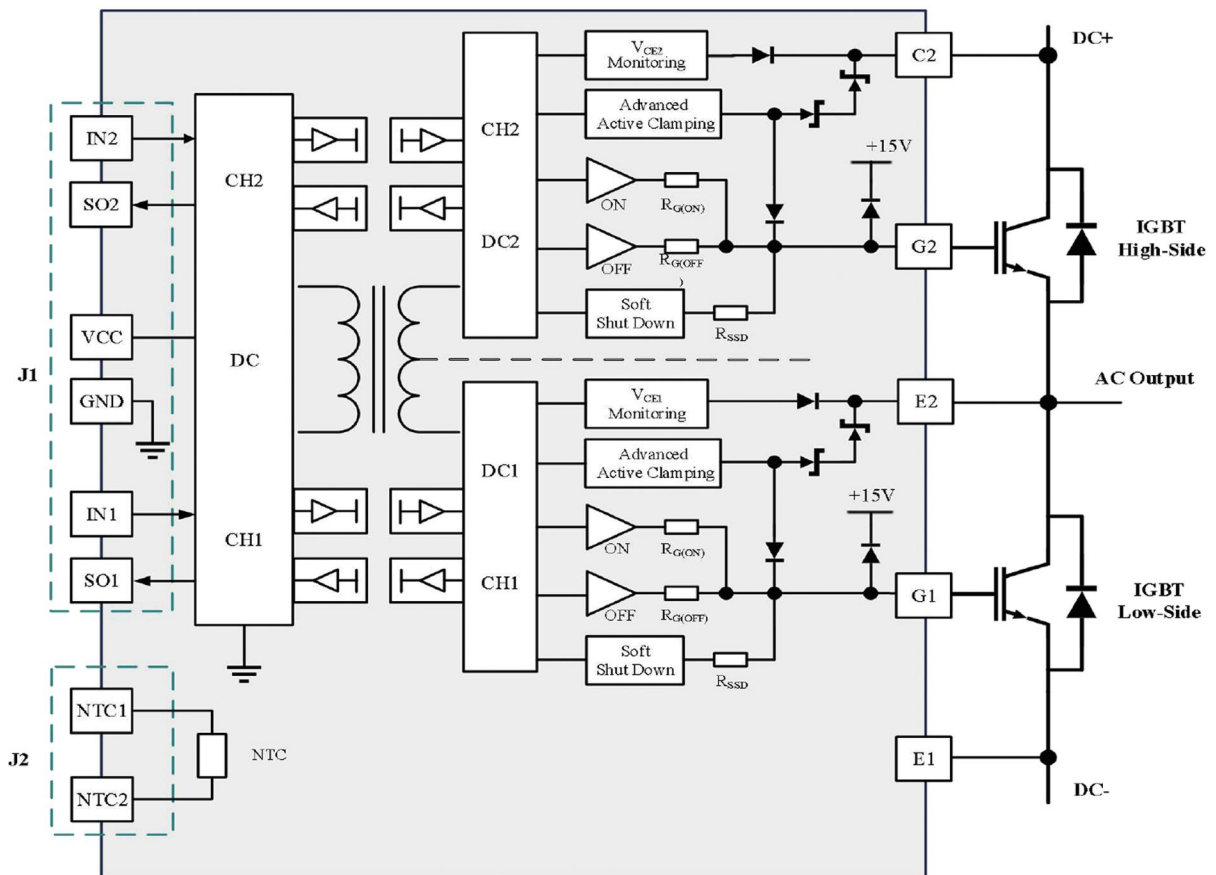
Key data overview:

Parameter	Firstack (2FHD0115C)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		1.2			1	
Gate voltage /V		15/-8.5			15/-8	
Gate peak current /A	-20		+20	-15		+15
Test voltage /Vac	5000			5000		

Main features:

	Firststack (2FHD0115C)	Other similar products
Isolation method	Capacitive coupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

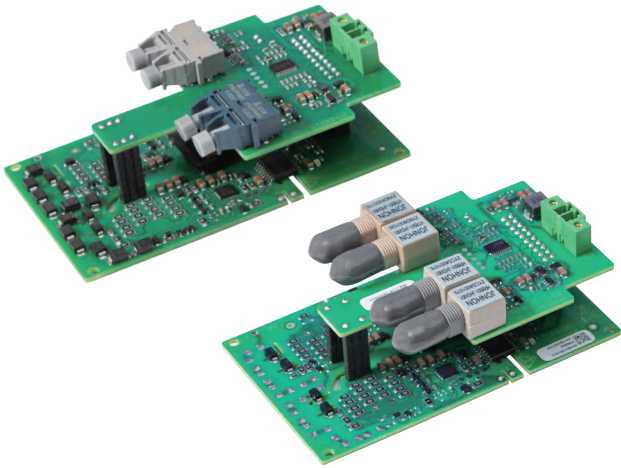
Functional block:



Ordering information:

Part number	Description	NOTE
2FHD0115C17A1	Direct mode, OD	/
2FHD0115C17B1	Direct mode, pull up to 15V	/
2FHD0115C17D1	Half-bridge mode, OD	/
2FHD0115CxxC1	Direct mode, OD, Active clamping	xx=12(1200V)/xx=17(1700V)
2FHD0115CxxF1	Direct mode, pull up to 15V, Active clamping	xx=12(1200V)/xx=17(1700V)

*More details or requirements please contact Firststack.



Overview

The 2FHD0115x is a high-performance, dual-channel, plug-and-play gate driver developed by Firstack based on intelligent chip technology for EconoDual™ packages, and can support up to 1700V IGBT modules. Plug-and-play, drive IGBT modules safely and reliably without other peripheral circuits.

Highlights:

- 1.2W/±20A, support up to 50kHz applications
- Support up to 1700V modules
- Short-circuit protection (soft shut down)
- Intelligent fault management
- UVLO
- Advanced active clamping
- Support temperature sampling

Applications:

- Motor drives
- ESS

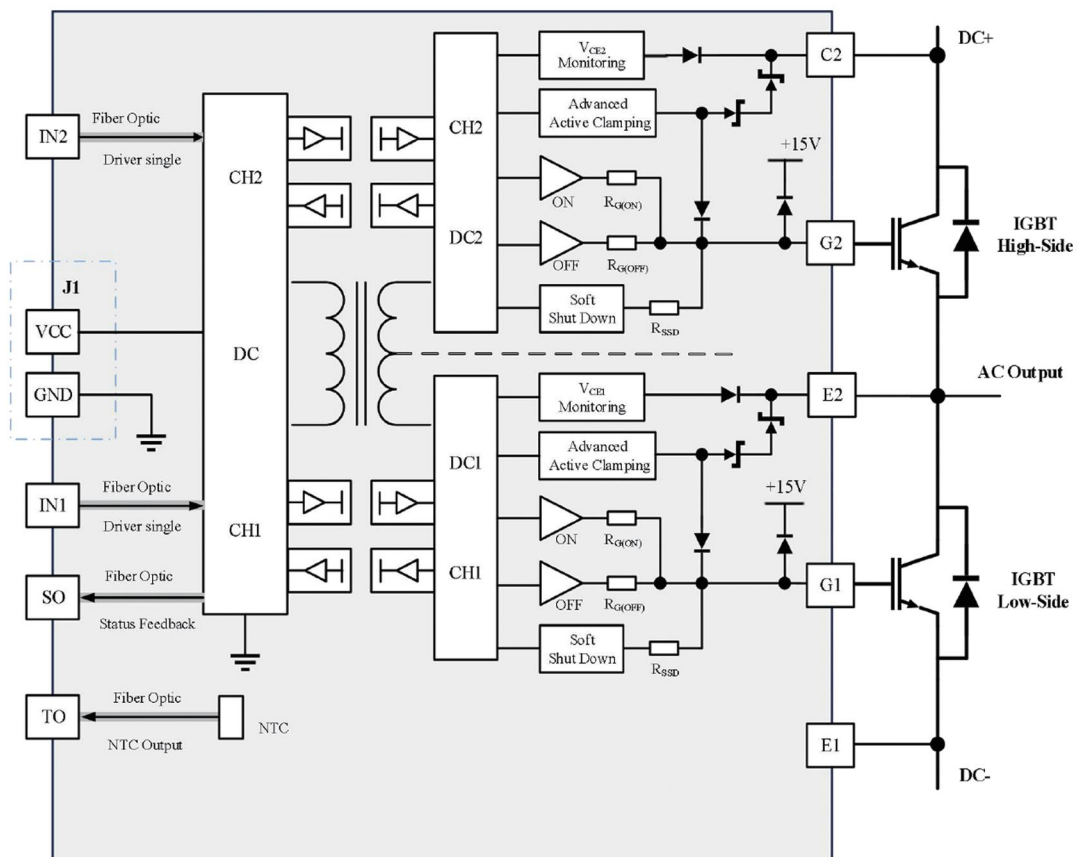
Key data overview:

Parameter	Min	Typ	Max
Supply voltage /V		24	
Output power/ channel (85°C) /W		1.2	
Gate voltage /V		15/-8.5	
Gate peak current /A	-20		+20
Test voltage /Vac	5000		
Operating temperature/°C	-40		85

Main features:

Isolation method	Capacitive coupler
UVLO	Yes
Short-circuit protection	Yes
Soft shut down	Yes
Intelligent fault management	Yes
Gate short circuit protection	Yes
NTC sample	Yes
Advanced active clamping	Yes

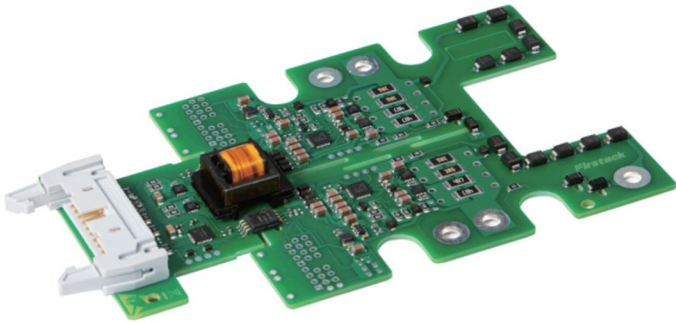
Functional block:



Ordering information:

Part number	Description	Note
2FHD0115S17A1C-xx	Glass optical fiber	xx-different versions
2FHD0115V17A1C-xx	Plastic optical fiber	

*More details or requirements please contact Firstack.



Overview

The 2FHD0320C is a high-performance, dual-channel plug-and-play gate driver developed by Firstack based on intelligent chip technology for PrimePACK™ packages, it supports IGBT modules up to 1700V. It is a plug-and-play device that can drive IGBT modules safely and reliably without other peripheral circuits.

Highlights:

- 3W/±20A, support up to 50kHz applications
- Support up to 1700V module
- Short-circuit protection (soft shut down)
- Intelligent fault management
- UVLO
- Advanced active clamping

Applications:

- Motor drives
- ESS

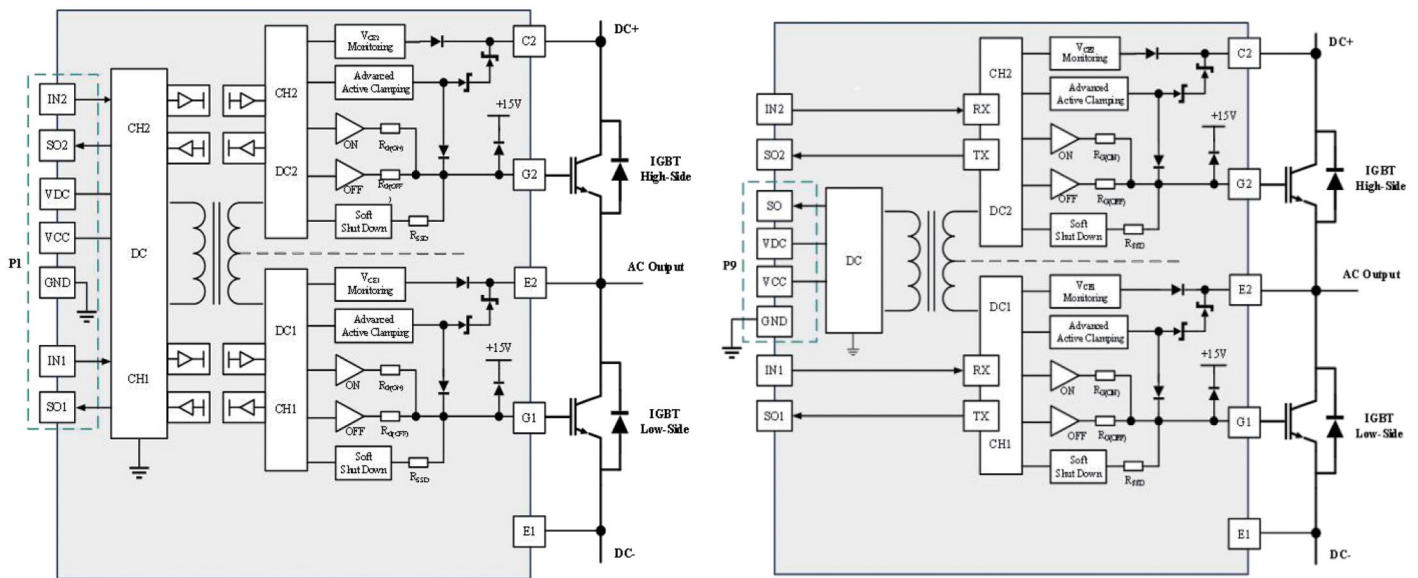
Key data overview:

Parameter	Firstack (2FHD0320)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		3			3	
Gate voltage /V		15/-8			15/-10	
Gate peak current /A	-20		+20	-20		+20
Test voltage /Vac	5000			5000		

Main features:

	Firststack (2FHD0320)	Other similar products
Isolation method	Capacitive coupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

Functional block:



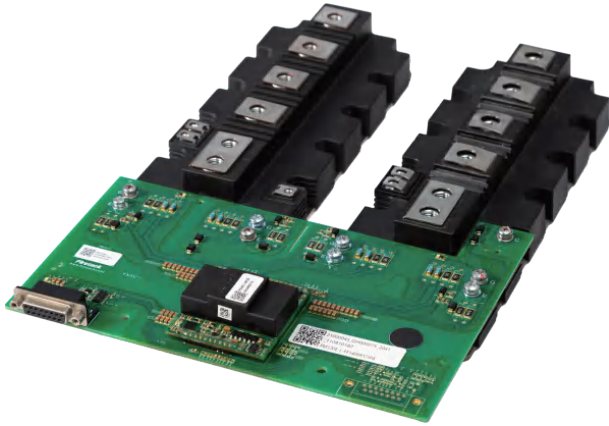
2FHD0320C

2FHD0320V

Ordering information:

Part number	Description	Note
2FHD0320CxxA1	Direct mode, Active clamping	xx=12(1200V)/xx=17(1700V)
2FHD0320CxxD1	Half-bridge mode, Active	xx=12(1200V)/xx=17(1700V)
2FHD0320VxxA1	Plastic optical fiber, Active	xx=12(1200V)/xx=17(1700V)
2FHD0320V17B1C-xx	Plastic optical fiber	xx-different versions

*More details or requirements please contact Firststack.



Overview

The PM120E is a plug-and-play gate driver developed for the PrimePACK™ module with two parallel mirror symmetry heatsink structure based on the Firstack digital intelligent IGBT gate driver. The PM120E is designed based on the Firstack digital driver core 2FSC0435+, which has the characteristics of powerful function and high reliability.

Highlights:

- Support up to 1700V module
- Short-circuit protection(soft shut down)
- Digital control

Applications:

- Motor drives
- ESS
- Wind power converter

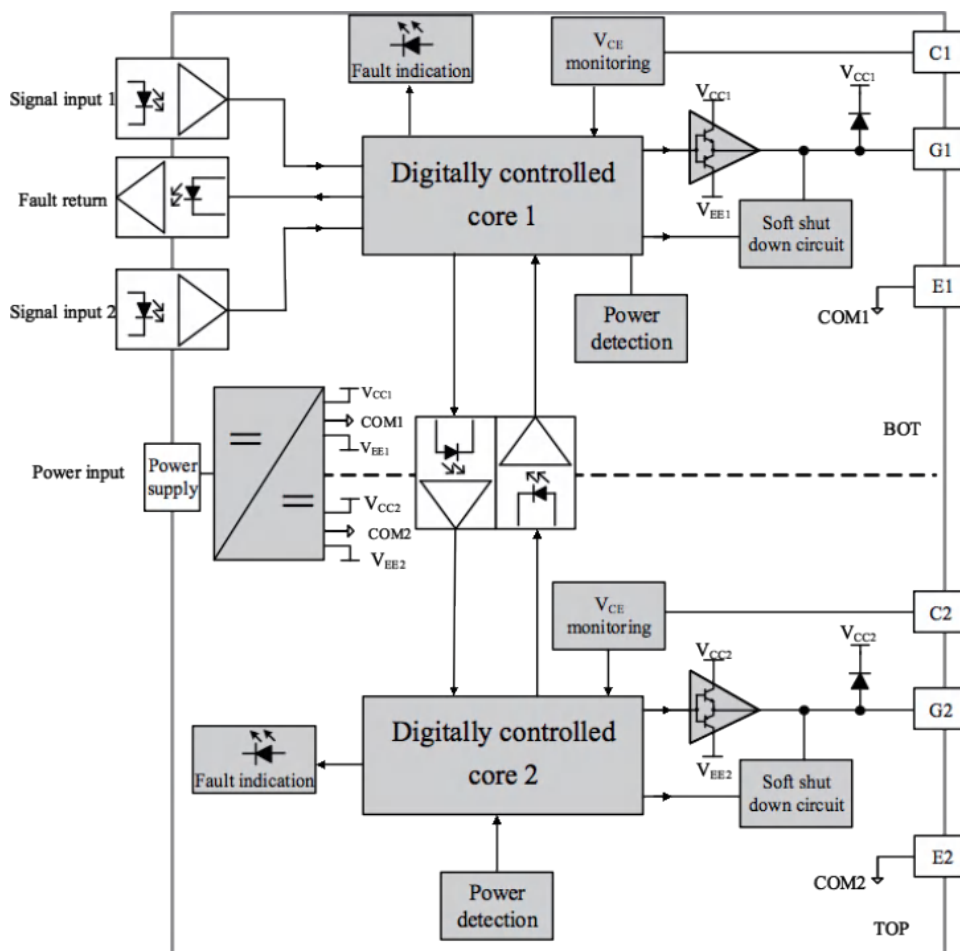
Key data overview:

Parameter	PM120E		
	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		4	
Module			1700V
Gate voltage /V		15/-8	
Gate peak current /A	-38		+38
Test voltage /Vac		5000	

Main features:

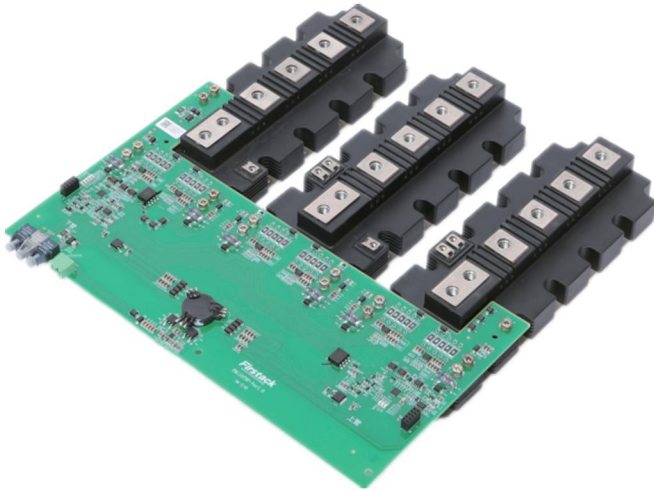
	Firstack (PM120E)	Other similar products
Isolation method	Optocoupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	No	No

Functional block:



Ordering information:

Part number	Type	Operation mode	Operating temperature
PM120E-L-FF1000R17IE4	Plug&Play	Direct	-40°C~85°C
PM120E-L-FF1400R17IE4	Plug&Play	Direct	-40°C~85°C



Overview

Firstack digital intelligent IGBT gate driver is specially developed for high power, high voltage IGBTs with powerful features and high reliability, suitable for 2-level converters, and its applications cover renewable energy, rail, industrial drivers and smart grid.

The PM110TRP is a 3 in parallel plug-and-play gate driver for PrimePACK™ modules based on the Firstack digital intelligent IGBT gate driver.

Highlights:

- Support up to 1700V module
- Short-circuit protection(soft shut down)
- Digital control

Applications:

- Motor drives
- ESS
- Wind power converter

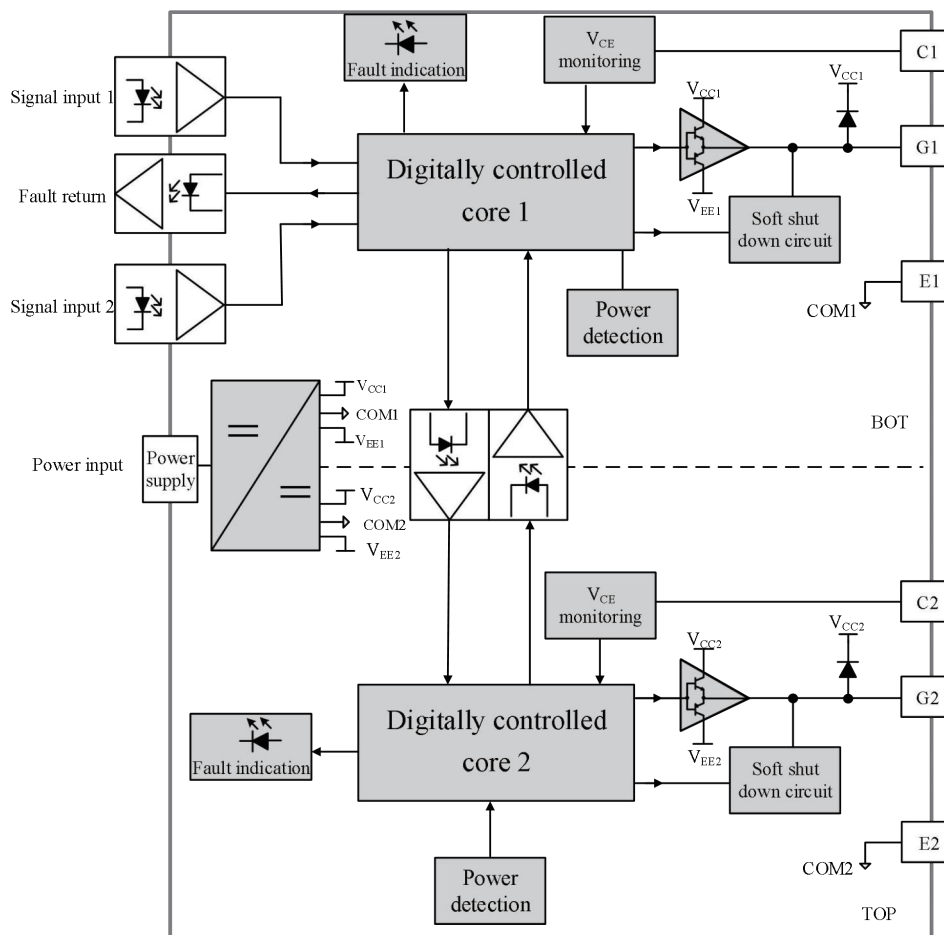
Key data overview:

Parameter	PM110TRP		
	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85℃) /W		4	
Module			1700V
Gate voltage /V		15/-15	
Gate peak current /A	-38		+38
Test voltage /Vac		5000	

Main features:

	Firstack (PM110TRP)	Other similar products
Isolation method	Optocoupler	Pulse transformer
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	No	No

Functional block:



Ordering information:

Part number	Type	Operation mode	Operating temperature
PM110TRP	Plug&Play	Direct	-40°C~85°C



Overview

The 1FSD08110 is a high-performance digital gate driver with optical fiber interface developed for high-voltage and high-power IGBT, which is suitable for 2-level and multi-level converters. The digital can optimize the switching performance of IGBTs, which provides optimal protection for IGBTs. Its good EMC characteristics is suitable for harsh electromagnetic field environment. Now it has been widely used in various fields such as new energy, rail, industrial transmission and smart grid.

The 1FSD08110 is a plug-and-play gate driver developed for modules in 140×190mm and 140×130mm IGBT packages, such as Infineon IHM and ABB HiPak. It is suitable for IGBTs in the same package from different manufacturers.

Highlights:

- 4W/110A, support applications up to 20kHz
- Support up to 1700V/3300V module
- Short-circuit protection(soft shut down)
- Digitally dynamic advanced active clamping
- Support multi-level applications
- Intelligent fault management

Applications:

- Rail Traffic
- Smart Grid
- Mine Frequency Conversion
- Special Power Supply
- Ship Propulsion

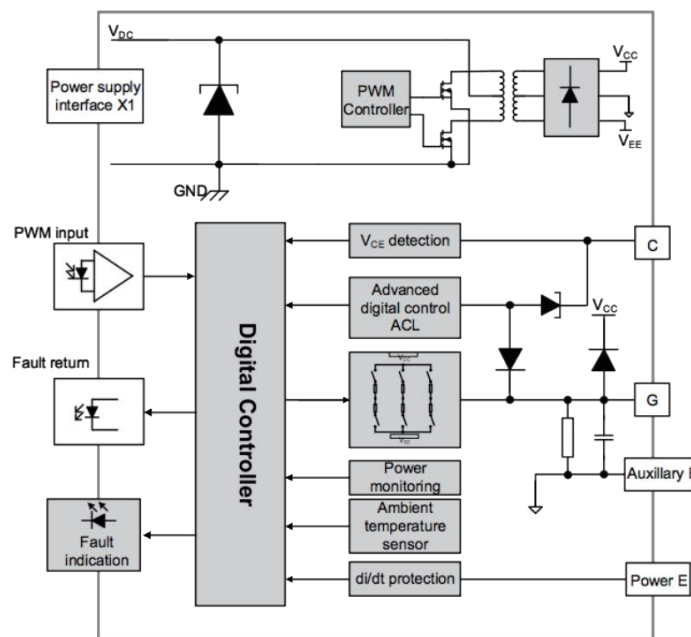
Key data overview:

Parameter	Firstack (1FSD08110)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		4			2.2	
Gate voltage /V		15/-10			15/-8	
Gate peak current /A	-110		+110	-35		+35
Test voltage /Vac	6000					5000

Main features:

	Firstack(1FSD08110)	Other similar products
Isolation method	optical fiber	optical fiber
Advanced active clamping	Yes	Yes
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

Functional block:

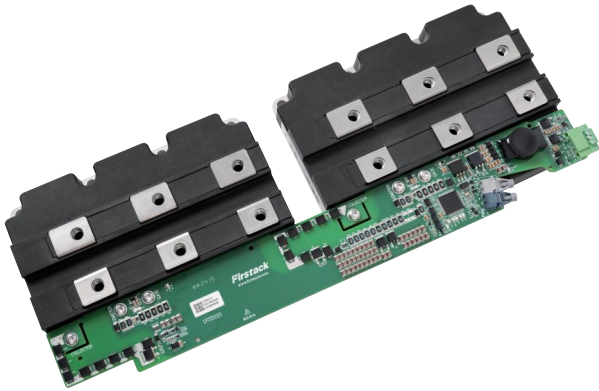


Ordering information:

Part number	C _{ge} (nF)	R _{gon} (Ω)	R _{goff} (Ω)	Operating temperature
1FSD08110-17-A1	NC	NC	NC	-40°C ~85°C
1FSD08110-33-A2	NC	NC	NC	-40°C ~85°C
1FSD08110Y01	NC	0.8	1.7	-40°C ~85°C
1FSD08110Y02	NC	2	2.2	-40°C ~85°C
1FSD08110-5SNA1200E330100	330	1.5	≈3*	-40°C ~85°C
1FSD08110-FZ1200R33HE3	330	1.5	≈4*	-40°C ~85°C
1FSD08110-FZ1500R33HE3	330	1.5	≈5*	-40°C ~85°C
1FSD08110-CM1200HC-66H	330	1.5	≈4*	-40°C ~85°C
1FSD08110-TIM1000NSM33	330	1.5	≈4*	-40°C ~85°C
1FSD08110-TIM1500ESM33-PSA012	330	1.5	≈5*	-40°C ~85°C

Note:

* is equivalent gate turn-off resistance, these drive models use multi-level turn-off technology, the specific turn-off characteristics are subject to actual testing.



Overview

Firstack digital intelligent IGBT gate driver is specially developed for high power, high voltage IGBT with powerful features and high reliability, which can be applied to both 2-level and multi-level converters, and cover various fields such as renewable energy, rail, industrial driver and smart grids.

The 1FSD215 is a plug-and-play gate driver developed for Infineon IHM modules based on the Firstack digital intelligent IGBT gate driver.

Highlights:

- 8W/110A, support applications up to 10kHz
- Support up to 1700V/3300V module
- Short-circuit protection(soft shut down)
- Digitally dynamic advanced active clamping
- Support multi-level applications
- Intelligent fault management

Applications:

- Ship propulsion
- High voltage frequency conversion
- Special power supply
- Smart grid
- Rail traffic

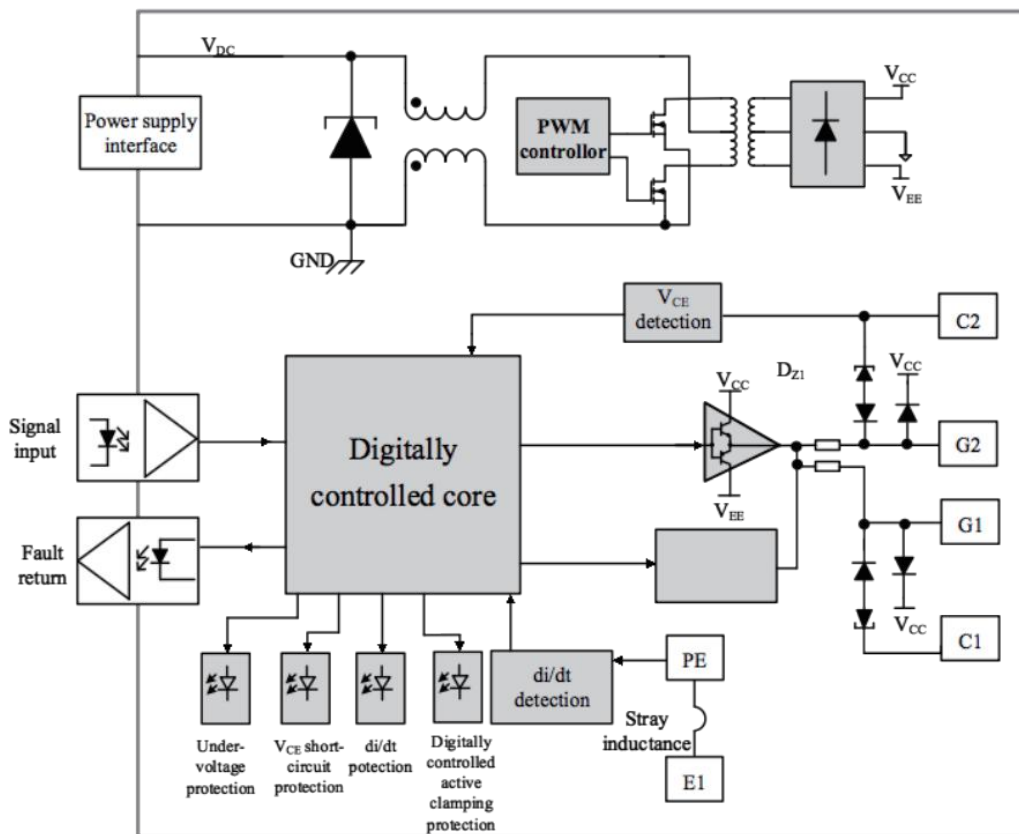
Key data overview:

Parameter	1FSD215		
	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		8	
Gate voltage /V		15/-10	
Gate peak current /A	-110		+110
Test voltage /Vac	5000		

Main features:

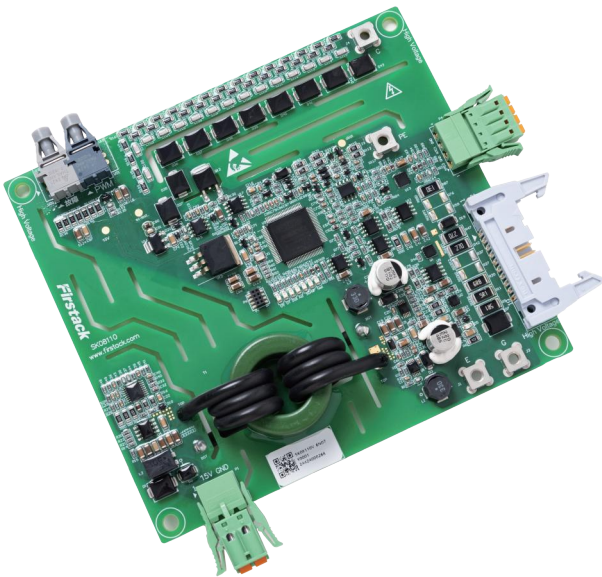
	1FSD215
Isolation method	optical fiber
Advanced Active Clamping	Yes
V _{CE} Short-circuit Protection	Yes
Soft shut down	Yes
Intelligent fault management	Yes
Gate short circuit protection	Yes

Functional block:



Ordering information:

Part number	C _{ge} (nF)	R _{gon} (Ω)	R _{goff} (Ω)	Operating temperature
1FSD215-17-A1	NC	NC	NC	-40°C~85°C
1FSD215-33-A1	NC	NC	NC	-40°C~85°C
1FSD215-FZ2400R17HE4	220	2	5.2	-40°C~85°C
1FSD215-5SNA1800E330400	NC	3.4	8.6	-40°C~85°C



Overview

The SK08110 is a plug-and-play driver developed by Firstack specifically for press-pack IGBT modules rated at 6500V/4500V. It can also be connected with an adapter board via wiring harness to form a complete drive solution for welded IGBT modules.

Highlights:

- 2.5W/110A per channel
- Single channel, optical interface
- Digital Dynamic Advanced Active Clamping (D²A²C)
- SC Protection (SSD)

Applications:

- HVDC
- AFC
- Rail Transit

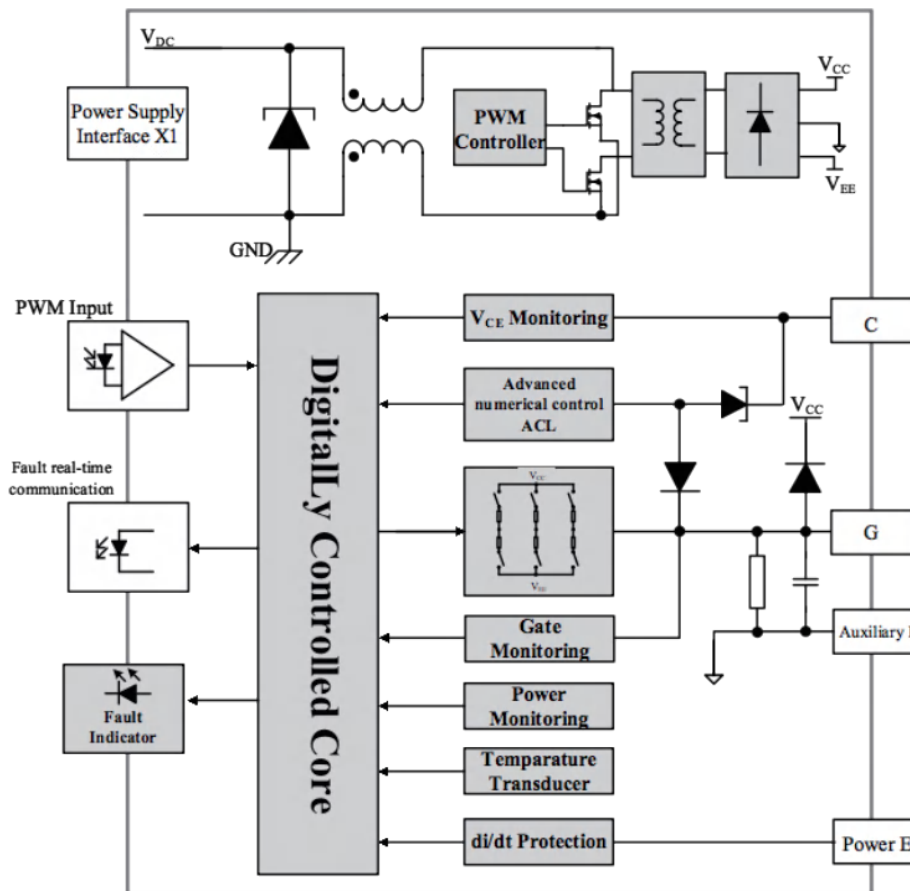
Key data overview:

Parameter	Firstack (SK08110)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15			15	
Output power/ channel (85°C) /W		2.5				1.8
Gate voltage /V		15/-10			15/-9.4	
Gate peak current /A	-110		+110	-50		+50
Switching frequency /kHz	0	5		0	2	
Test voltage /Vac		10500			10200	

Main features:

	Firstack (SK08110)	Other similar products
Isolation method	optical fiber	optical fiber
Soft shut down	Yes	No
Intelligent fault management	Yes	No

Functional block:



Ordering information:

Gate driver model selection	Cge(nF)	Rgon(Ω)	Rgoff(Ω)	IGBT model
SK08110V-Y0001	330	1.85	13.5	TG3000SW45ZC-P200, TG2000SW45ZC-P200, TG1500SW45YB-P200, TG5000SG45ZC-P200, 5SNA3000K452300, 5SNA2000K452300.



Overview

The HV1027P series gate drivers are plug-and-play drivers based on Firstack digital intelligent IGBT gate drivers, which are specially developed for IHV package. They are suitable for 4500V and 6500V IGBT modules, and have the advantages of powerful functions, high reliability and good EMC characteristics. They apply for 2-level and multi-level converters, covering various fields such as military industry, rail, traction, HVDC, smart grid and so on.

Highlights:

- 3W/27A, support applications up to 20kHz
- Support up to 4500V module
- Short-circuit protection(soft shut down)
- Digitally dynamic advanced active clamping
- Support multi-level applications
- Intelligent fault management

Applications:

- HVDC
- Traction
- Rail
- Medium-voltage converters
- Research
- FACTS

Key data overview:

Parameter	Firstack (HV1027P)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V		15/-9.5		23.5	25	26.5
Output power/ channel (85°C) /W		3			2.3	
Gate voltage /V		15/-9.5			15/-10	
Gate peak current /A	-30		+27	-35		+35

Main features:

	Firstack(HV1027P)	Other similar products
Isolation method	Optical fiber	Optical fiber
Advanced Active Clamping	Yes	Yes
Soft shut down	Yes	No
Intelligent fault management	Yes	No
Gate short circuit protection	Yes	No

Ordering information:

Part number	C _{ge} (nF)	R _{gon} (Ω)	R _{goff} (Ω)	Operating temperature
HV1027P-2V-45-A1	NC	NC	NC	-40°C ~85°C
HV1027P-2V-65-A1	NC	NC	NC	-40°C ~85°C
HV1027P-2V-FZ1200R45KL3	NC	1.8	≈6*	-40°C ~85°C
HV1027P-2V-5SNA1200G450300	220	1.8	≈5*	-40°C ~85°C
HV1027P-2V-MBN1200H45E2-H	NC	5	≈6*	-40°C ~85°C
HV1027P-2V-MBN1500FH45F-H	NC	5	≈10*	-40°C ~85°C
HV1027P-2V-TIM1500A2SM45-TSA000	220	1.8	≈6*	-40°C ~85°C
HV1027P-2V-FZ800R45KL3_B5	220	1.8	≈6*	-40°C ~85°C
HV1027P-2V-CM800HG-90R	NC	5	≈20*	-40°C ~85°C
HV1027P-2V-DIM1200ASM45-TF001	220	3.1	≈6*	-40°C ~85°C

Note:

* is equivalent gate turn-off resistance, these drive models use multi-level turn-off technology, the specific turn-off characteristics are subject to actual testing.



Overview

The FPS08-15K is a dual-channel, high-insulation DC/DC power supply for 3.3kV, 4.5kV and 6.5kV IGBT gate driver power sources. The output voltage is +15V and -10V, and the maximum power is 8W. The FPS08-15K can provide power supply for the high-voltage gate driver core HV1027P, or other gate drivers with the same voltage.

Highlights:

- Primary and secondary side isolation 15kV_{RMS}
- Primary and secondary side creepage distance 60mm
- Output power 8W
- 14~25V wide range of input voltage
- Output power supply overload protection
- Primary and secondary side coupling capacitance 5pF

Applications:

- HVDC
- Traction
- Rail
- Medium-voltage converters
- Research
- FACTS

Key data overview:

Parameter	Firstack (FPS08-15K)			Other similar products		
	Min	Typ	Max	Min	Typ	Max
Supply voltage /V	14	15/24	25	14.5	15	15.5
Output power/ channel (65°C) /W		8			5	
Output voltage / V	14.6/-9.2	15.2/-9.6	16/-10.4		32	
Coupling Capacitance/pF			5		4	
Creepage distance/mm	60			60		
Dielectric test voltage /kV _{RMS}			15			15.2

Ordering information:

Part number	IGBT voltage class	Operating temperature
FPS08-15K	6500V Multi-level	-40°C~85°C



Overview

The FPS08-35K is a dual-channel, high-insulation DC/DC power supply for 3.3kV, 4.5kV and 6.5kV IGBT gate driver power sources. The output voltage is +15V and -10V, and the maximum power is 8W. The FPS08-35K can provide power supply for the high-voltage gate driver core HV1027P, or other gate drivers with the same voltage.

Highlights:

- Primary and secondary side isolation 35KV_{RMS}
- Primary and secondary side creepage distance 150mm
- Output power 8W
- 14~25V wide range of input voltage
- Output power supply overload protection
- Primary and secondary side coupling capacitance 5pF

Applications:

- HVDC
- Traction
- Rail
- Medium-voltage converters
- Research
- FACTS

Key data overview:

Parameter	Firstack (FPS08-35K)		
	Min	Typ	Max
Supply voltage /V	14	15/24	25
Output power/ channel (65°C) /W		8	
Output voltage / V	14.7/-9.2	15.2/-9.6	15.8/-10.4
Coupling Capacitance/pF			5
Creepage distance/mm	150		
Dielectric test voltage /kV _{RMS}	35		

Ordering information:

Part number	IGBT voltage class	Operating temperature
FPS08-35K	6500V multi-level	-40°C~85°C

High-performance dual-channel SiC gate driver for EconoDual modules — compatible with plug-and-play & paralleling with high flexibility



2FHD0620



A1EDB1V

Highlights:

- Support max. 4 in paralleling
- Design for blocking voltage up to 1700V
- Distributed NTC Sample
- SC Protection (SSD)
- Miller Clamping
- Configurable Gate Voltage
- Intelligent Fault Management
- UVLO

Applications:

- ESS
- Rail
- Motor drives

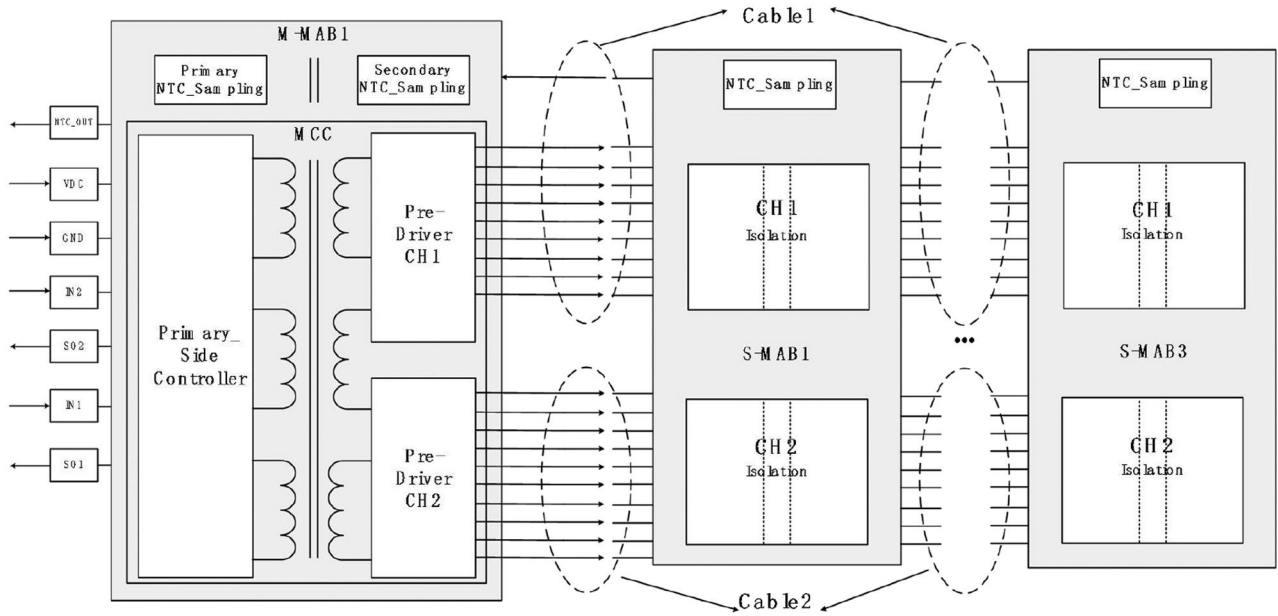
Key data overview:

Parameter	Min.	Typical	Max.	Unit
Supply Voltage	14.5	15	15.5	V
Supply Current@f = 0kHz	Depends on parallel number			A
Output Power/Channel@85°C -Non Parallel	0	1		W
Output Power/ Channel @85°C -Parallel	0	/	6	W
Gate Voltage	19.5	22	24.5	V
Gate Positive Voltage	14.5	18	19.5	V
Gate Negative Voltage	-9.5	-4	-0.5	V
Gate peak current	-15	/	20	A
Switching Frequency ¹	0	/	100	kHz
Test voltage		5000		V
Distributed NTC ²	Default: Changing Duty Cycle			

1:The switching frequency depends on the module gate charge, please check the datasheet for suitable parameters

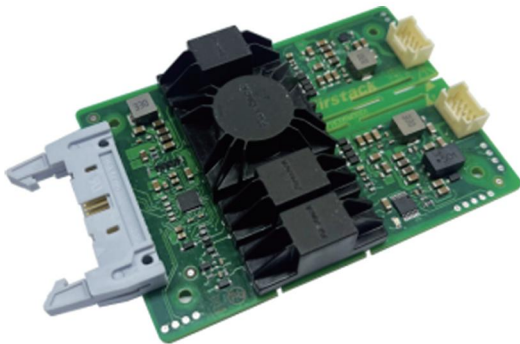
2:More Information can be found in the corresponded product datasheet or NTC application note

Functional block:



Ordering information :

Part Number	Coating	Description
2FHD0620M17B1C-Y0001	Yes	Plug-and-Play GDU
2FHD0620M17B1-Y0001	No	Plug-and-Play GDU
A1EDB1V-S0002	Yes	Adaptor Board for Paralleling
A1EDB1V-S0003	No	Adaptor Board for Paralleling



High-performance dual-channel SiC gate driver for Linpak, XHP and equivalent housing modules
 — support paralleling with high flexibility

Highlights:

- Support max. 4 in Paralleling
- Design for blocking voltage up to 3300V
- Distributed NTC Sample
- SC Protection (SSD)
- Miller Clamping
- Configurable Gate Voltage
- Intelligent Fault Management
- UVLO

Applications:

- ESS
- Rail
- Motor drives

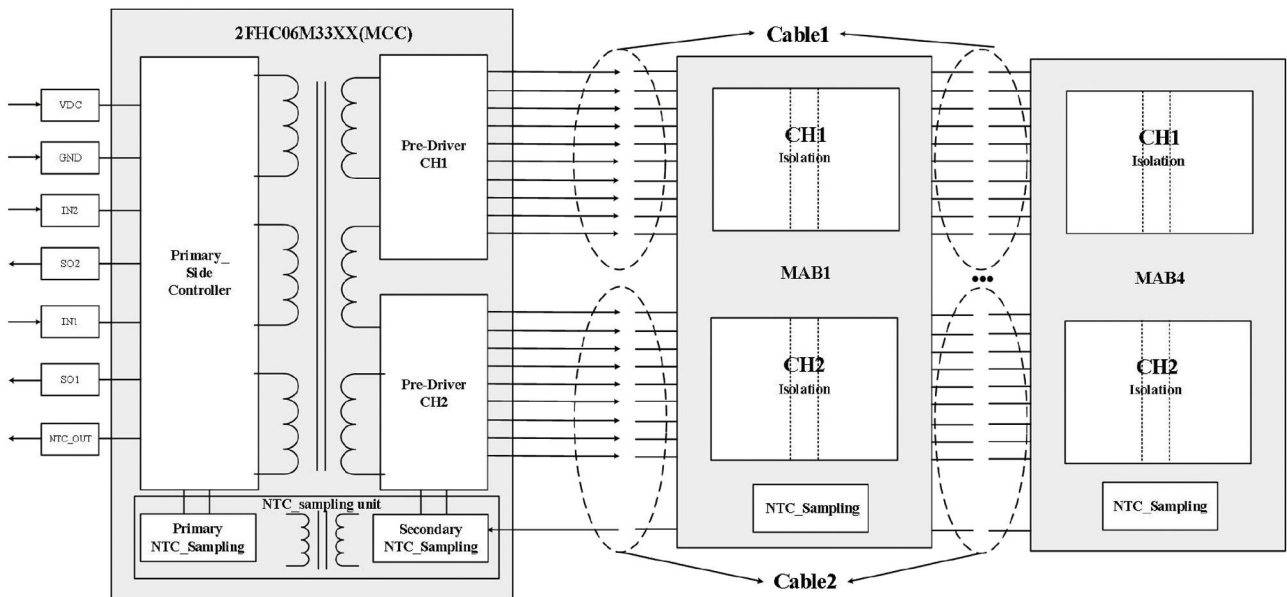
Key data overview:

Parameter	Min.	Typical	Max.	Unit
Supply Voltage ¹	14.5	15	15.5	V
	23.5	24	24.5	
Supply Current@f = 0kHz	Depends on parallel number			A
Output Power/ Channel @85°C -Non-Paralleling	0	1		W
Output Power/ Channel @85°C -Paralleling	0	/	6	W
Gate Voltage	20.5	22	24.5	V
Gate Positive Voltage	14.5	18	19.5	V
Gate Negative Voltage	-9.5	-4	-0.5	V
Switching Frequency ¹	0	/	100	kHz
Test voltage		9000		V
Distributed NTC ²	Default: Changing Duty Cycle			

1:Only one input voltage is possible, 15V or 24V, one board can not accept both of them simultaneously

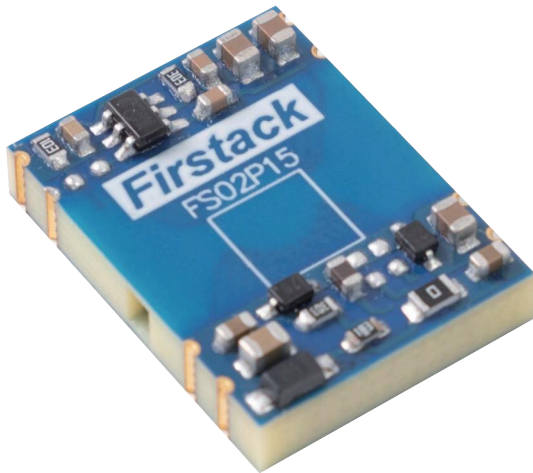
2:More Information can be found in the corresponded product Datasheet or NTC application note

Functional block:



Ordering information:

Part Number	Input Voltage	Output Voltage	Module	Description
2FHC06M33E1-151505	15V	15V/-5V	All	Driver Core
2FHC06M33E1-151804	15V	18V/-4V	All	Driver Core
A1LPA1V-S0002	/	/	Linpak	Adaptor Board
A1XHPA1V-S0001	/	/	XHP	Adaptor Board



High-Performance Isolated DC/DC Converter

FS02P series is a DC-DC converter dedicated to drive IGBT/SiC & MOSFET in bridge circuit. With the ability to output a wide range of asymmetrical voltages, the FS02P series provides the best drive efficiency for the system and is characterized for high isolation requirement, operating temperature, and efficiency, is suitable for industrial grade motor drives, inverter circuits, and energy storage systems.

Highlights:

- Max. Output 2W
- 12V/15V Input Voltage
- Configurable Output for IGBT, SiC and MOSFET
- Dielectric Test Voltage up to 6.5kVDC
- Complete In/Output Protection
- Outstanding Coupling Capacitance 4pF
- Surface mount package style

Applications:

- ESS
- Railway System
- Industrial Motor Drives
- PV/Wind Power Plant
- Inverter

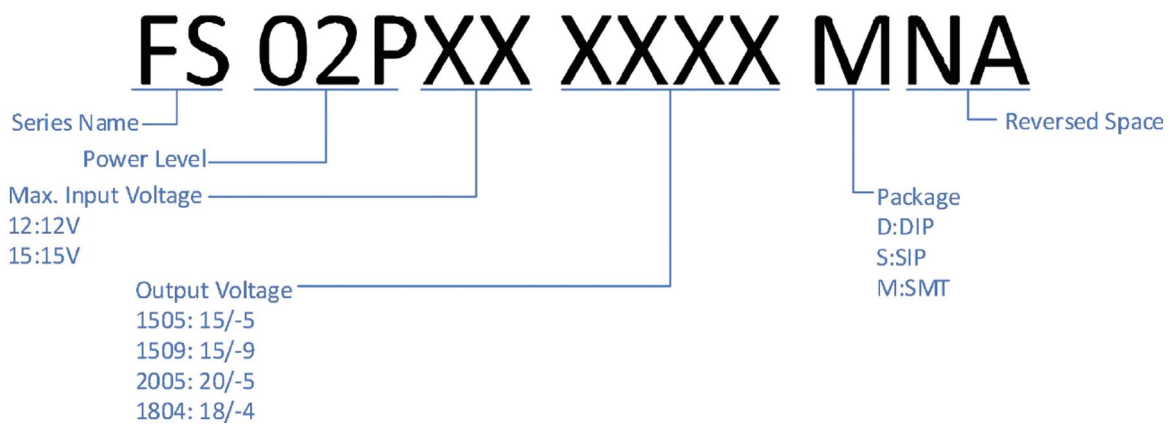
Input Characteristics :

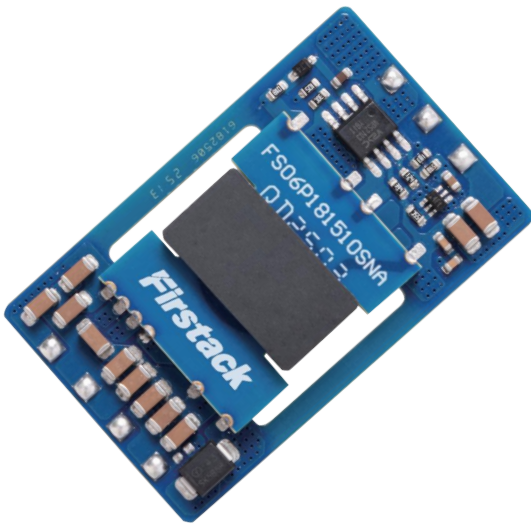
Parameter	Conditions	Min	Typ	Max	Unit
Voltage Range	Continuous Operation, 12V input types	10.8	12	13.2	V
	Continuous Operation, 15V input types	13.5	15	16.5	

Output Characteristics :

Parameter	Conditions	Mi	Typ	Max	Unit
Rated Power	TA = -40°C to 100°C			2.0	W
Voltage Accuracy	See output voltage tolerance curve in datasheet				
Line Regulation	FS02P121505MNA		13		
	FS02P121509MNA		12		
	FS02P122005MNA		12		
	FS02P121804MNA		12		
	FS02P151505MNA		12		
	FS02P151509MNA		12		
	FS02P152005MNA		12		
	FS02P151804MNA		12		

Ordering Information:





High-Performance Isolated DC/DC Converter

FS06P18GPSNA provide configurable dual output voltage of various voltage combinations, typically provides 15/-5, 15/-10 and 20/-5 for MOSFET, IGBT and SiC respectively in bridge circuit. Input UVLO and OVLO, output over-current protection, SC protection and over-temperature protection are integrated.

Highlights:

- Max. Output 6W
- 9V-18V Wide Range Input Voltage
- Configurable Output for IGBT, SiC and MOSFET
- Dielectric Test Voltage up to 10kVDC
- Complete In/Output Protection
- Outstanding Coupling Capacitance 8pF

Applications:

- ESS
- Rail
- Motor drives
- PV

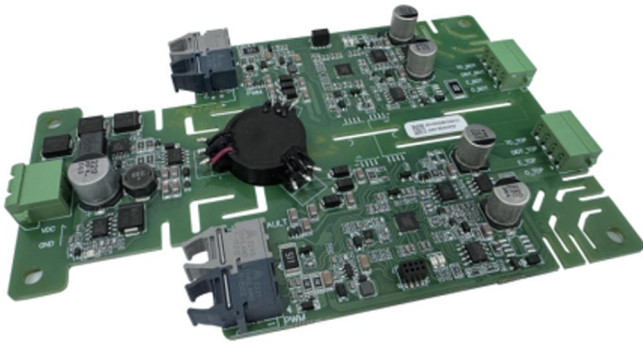
Input Characteristics:

Parameter	Description	Min.	Typical	Max.	Unit
Input Voltage	Recommended Voltage	9	12	18	V
Input Ripple	100% Load		170		mA
VEN1	VEN in low level		0.5		mA
	High Level Input	2		60	V
	Low Level Input	-1	0	0.5	V

1.VEN1 is TTL input with high impedance, Attention should be paid to the layout to avoid the impact of noise when using.

Output Characteristics :

Parameter	Description	Min.	Typical	Max.	Unit
Min. Load	15V and 5V are clamped to 15.2V and 6.0V respectively without load	1			%
Voltage Accuracy	Output 1		1		%
	Output 2		4		%
Line Regulation	9Vin→18Vin, 50% Load			2	%
Load Regulation	1% Load→100% Load			5	%
Transient Response	50%-100% Load peak deviation		3		%
	Settling time		0.3		ms



Overview

The 2FSS0338 is a 2-channel gate driver core board developed for 3300V/1700V IGBT power modules. It can be connected with an adapter board via wiring harnesses to form a complete drive solution.

By pairing with various adaptor boards, this product is compatible with multiple IGBT package types. Additionally, different wiring harness lengths can be selected to flexibly adapt to complex application scenarios, meeting diverse usage requirements.

Highlights:

- 3W/38A per channel
- Dual channel, optical interface
- Up to 3300V module
- SC Protection (SSD)

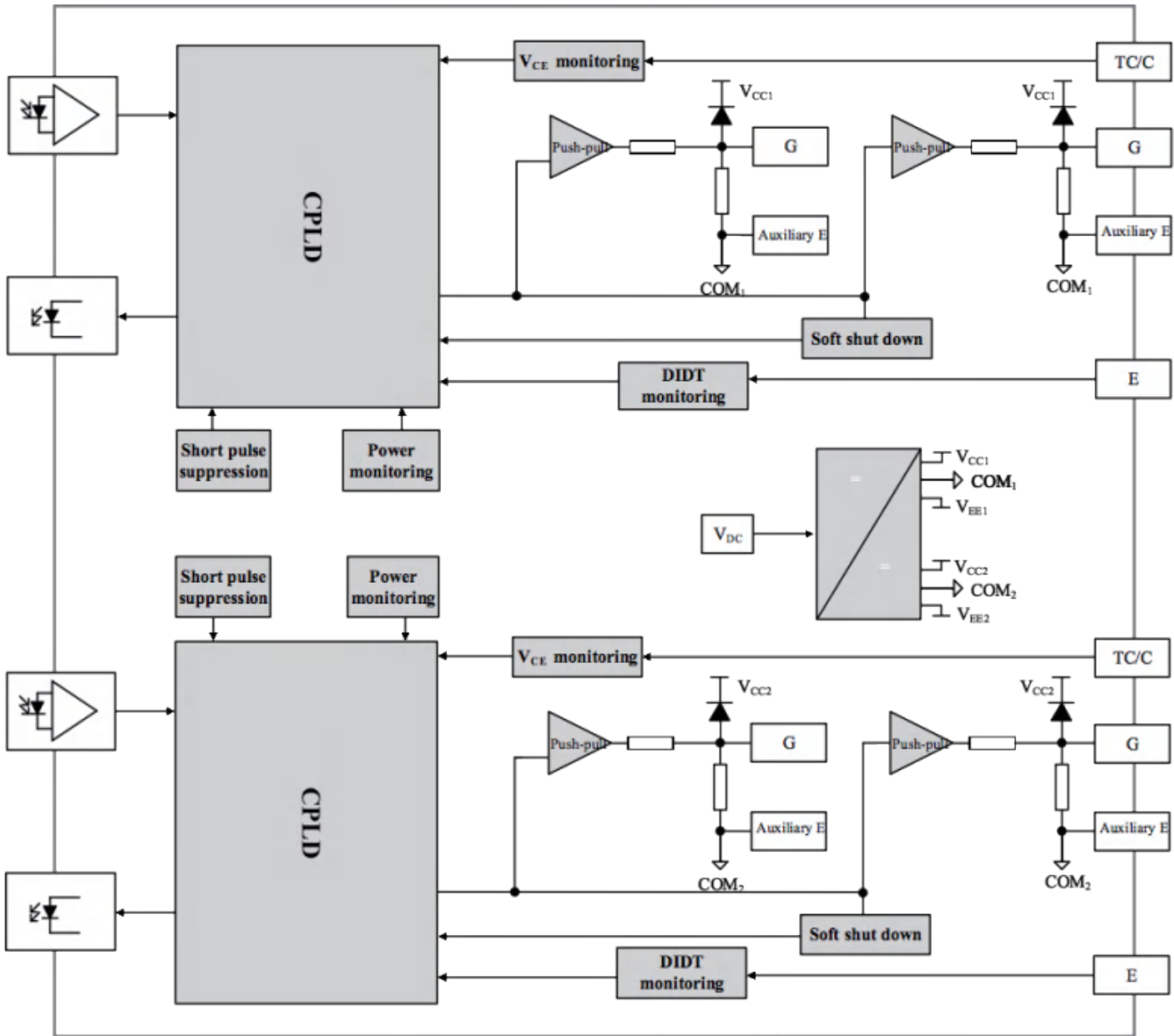
Applications:

- Rail Transit
- AFC

Key data overview:

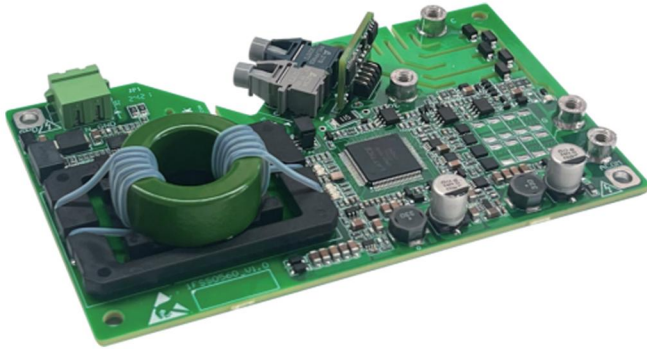
Parameter	2FSS0338		
	Min	Typ	Max
Supply voltage /V	0	15	30
Output power/ channel (85°C) /W		3	
Gate voltage /V		15/-8	
Gate peak current /A	-38		+38
Switching frequency /kHz	0		30
Test voltage /Vac		6000	

Functional block:



Ordering information:

Part number	Type	Optical fiber	Operating temperature
2FSS0388V33A1C	Core board	Plastic optical fiber	-40°C~85°C



Overview

The 1FSS0560 is designed for both welded and press-pack IGBT modules rated at 3300V/4500V/6500V. When connected with an adapter board via wiring harness, it forms a complete drive solution.

By pairing with various adapter boards, this product is compatible with multiple IGBT package types. Additionally, different wiring harness lengths can be selected to flexibly adapt to complex application scenarios, meeting diverse usage requirements.

Highlights:

- 5W/60A per channel
- Single channel, optical interface
- Up to 6500V module
- SC protection (SSD)

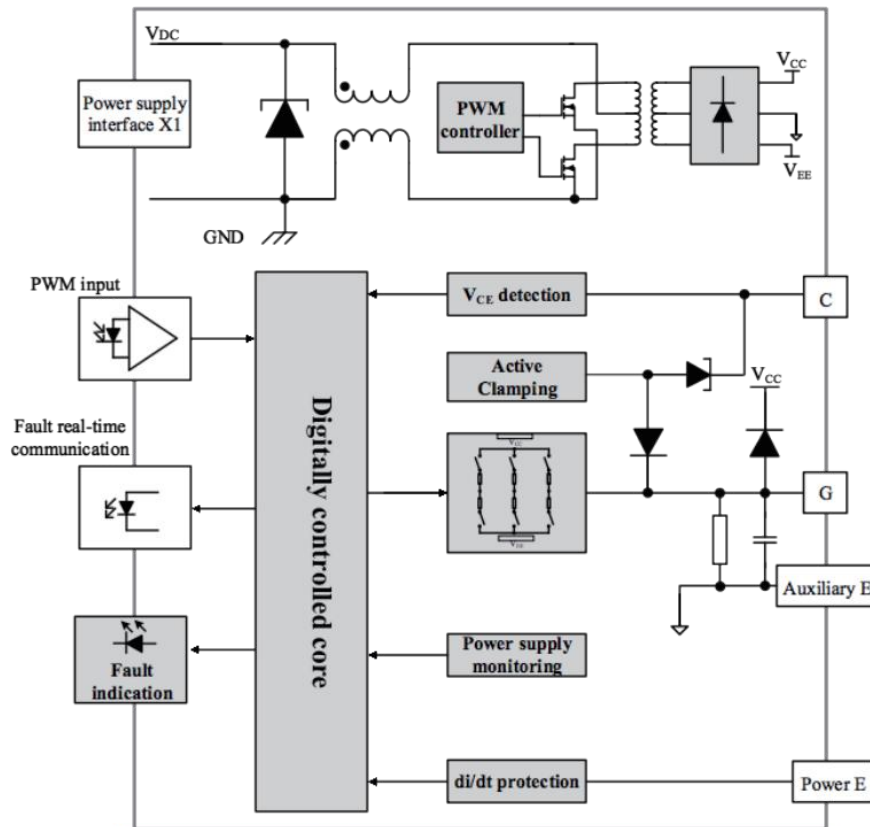
Applications:

- Grid
- AFC
- Rail Transit

Key data overview:

Parameter	1FSS0560		
	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		5	
Gate voltage /V		15/-10	
Gate peak current /A	-60		+60
Switching frequency /kHz	0		10
Test voltage /Vac		10500	

Functional block:



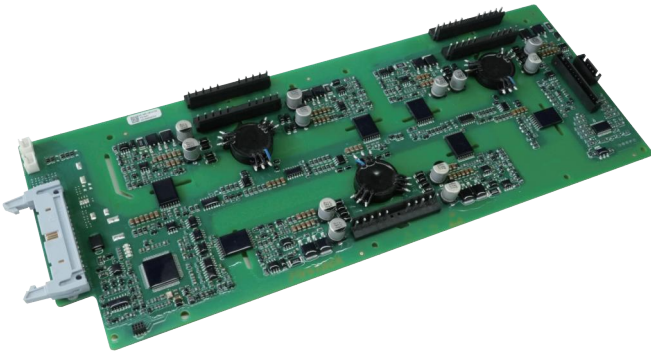
Ordering information:

IGBT model	Part number	optical fiber	R _{GON}	R _{G_{OFF}}	C _{GE}
FZ1200R45HL3	Core board: 1FSS0560V45A3C-Y0100	Plastic optical fiber	2.55Ω	8Ω	/
	Adapter board: HMV10126-Adapter-45-V1.0	/	/	/	100nF
FZ1200R33HE3	Core board: 1FSS0560V33E4C-Y02A01	Plastic optical fiber	1Ω	≈2*Ω	/
	Adapter board: A-HMV-33-FZ1200R33HE3	/	/	/	220nF
FF450R33T3E3_B5	Core board: 1FSS0560V45A1C-Y0001	Plastic optical fiber	0Ω	0Ω	/
	Adapter board: A-XHPC10126-45-Y0000	/	/	/	/

Note: “*” means that the GDU uses multi-level turn-off technology to optimize the turn off process of IGBT, including delay, loss, peak, etc., representing equivalent on/off resistance values. The actual turn off characteristics need to be evaluated based on the actual module and application conditions.

Overview

ED-WP-CB is a high-performance digital gate driver core developed by Firststack for NPC/ANPC 3-level system. The gate driver adopts CPLD as the digitally controlled core, with complete protection functions and built-in fault management system, which uploads the converter's operating state to the master computer in real time, providing support for "big data management" for the failed converter site. Perfectly solving the two major problems of "turn-off timing" and "large conversion circuit turn-off spike" in NPC/ANPC topology, the reliability of NPC/ANPC topology can be comparable to 2-level, allowing customers to use NPC/ANPC 3-level as same as 2-level.



Highlights :

- Multi-parallel of NPC/ANPC topology
- Rated voltage range:690-1250VAC
- Power range:1MW-10MW
- Digital control
- Intelligent fault management

Applications

- PV inverter
- ESS
- Wind power converter

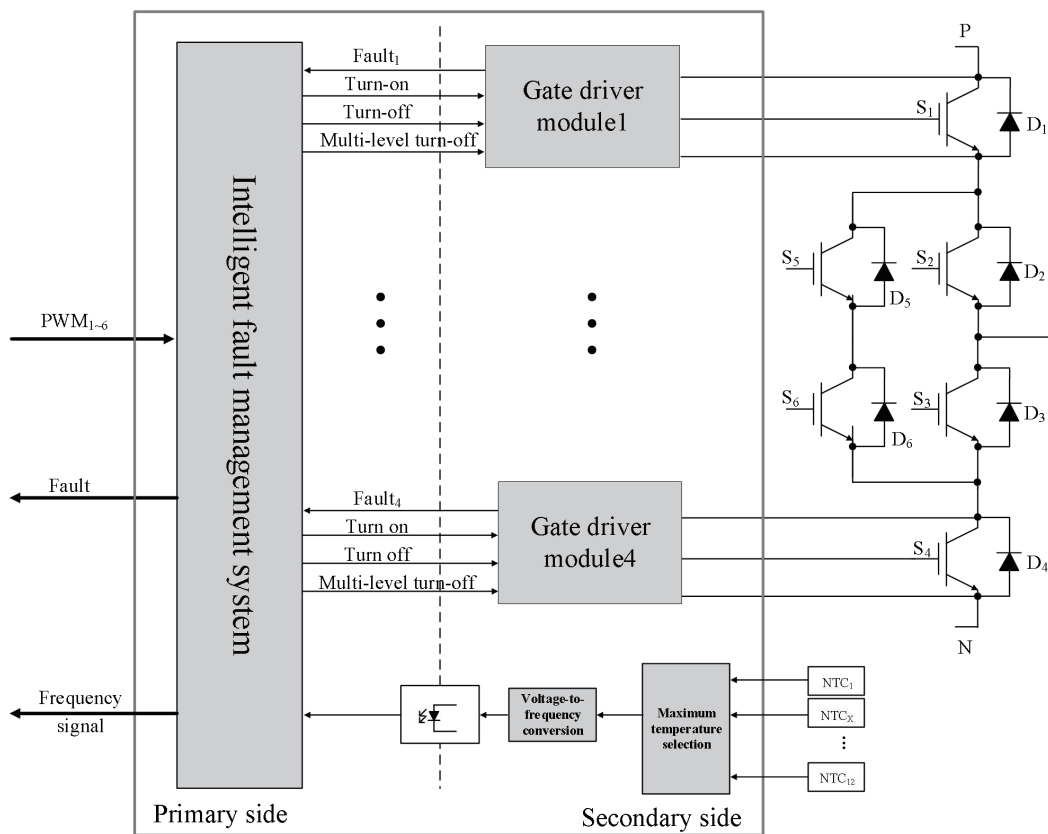
Key data overview :

Parameter	Firststack (ED-WP-CB)		
	Min	Typ	Max
Supply voltage /V		15	
Output power/ channel (85°C) /W		4	
Module			1700V
Gate voltage /V		15/-15	
Gate peak current /A		108	
Test voltage /VAC		5700	

Main function :

	ED-WP-CB
Isolation method	Capacitive coupler
Soft shut down	Yes
Intelligent fault management	Yes

Functional block :



Ordering information :

Part number	Type	Operation mode	Operating temperature
ED-WP-CB	Driver core	Direct	-40°C~85°C