



Xiner Products

June 2023

深圳芯能半导体技术有限公司
Shenzhen Invsemi Technology Co., Ltd

IGBT discrete

Product features

- IGBT wafers using advanced Trench + FS technology
- 600V/650V/1200V/1800V withstand voltage
- High power density
- Low switching losses
- Low conduction loss
- $T_{jmax}=175^{\circ}C$
- V_{cesat} positive temperature coefficient
- RoHS compliant

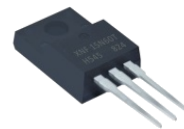
Package



TO-252



TO-263



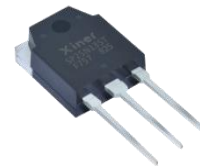
TO-220F



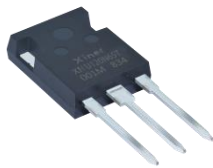
TO-220



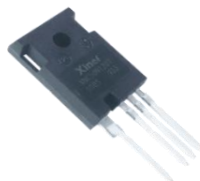
TO-247



TO-3P



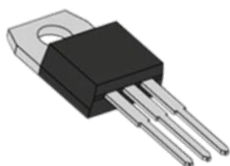
TO-247Plus



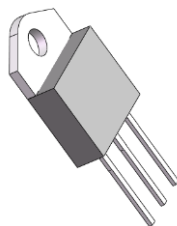
TO-247-4



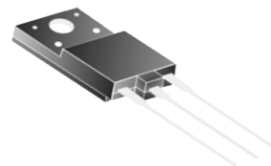
TO-264



IITO-220



IITO-3P



TO-3PF

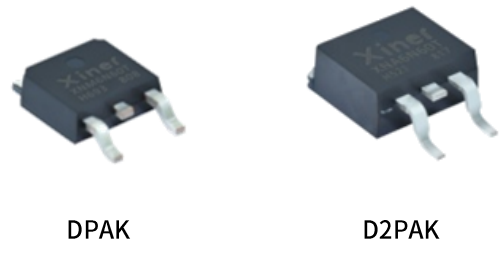
SMD Series (DPAK, D2PAK)

SMD series products, general SMD package in the industry, humidity sensitivity level up to MSL1;
 The IGBT chip adopts the Trench Field Stop technology to improve the power density of the chip and has low on-state loss and switching loss;
 The maximum current of this series of products is up to 30 A, and the follow-up plan is to achieve 40 A level to meet the needs of high power and small size.

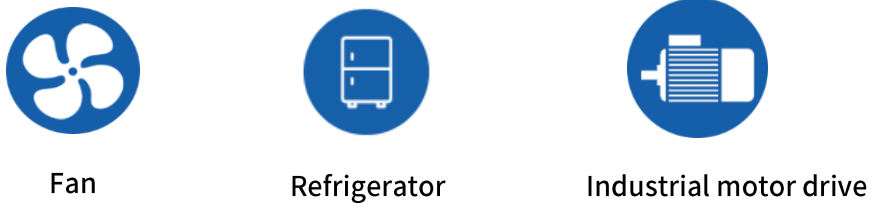
Product features

- High switching speed
- Low conduction loss
- High power

Package



Field of application



List of products

Package	Vces (V)	Ic (A)	DEVICE	Vcesat@typ. Tj=25°C	Vth@typ. Tj=25°C	tsc@Vge=15V Tj=150°C	Tjmax
DPAK	600	4	XNM4N60T	2.4V	5.9V	5us	175°C
		6	XNM6N60T	1.8V	5.9V	5us	
D2PAK		6	XNA6N60T	1.8V	5.9V	5us	
		10	XNA10N60T	1.9V	5.9V	5us	
		15	XNA15N60T	1.7V	5.5V	5us	
		20	XNA20N60T	1.7V	5.5V	10us	
		30	XNA30N60T	1.7V	5.0V	5us	

TO-220 Series

Focus on Energy Saving



TO-220 plug-in series products with various packaging forms; Customized internal insulation package combined with system application, insulation withstand voltage > 2500V; An insulating gasket between that device and the radiator is omit, and the production process flow is simplify;

The IGBT chip adopts the Trench Field Stop technology to improve the power density of the chip and has low on-state loss and switching loss;

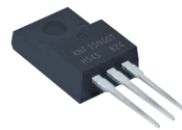
Product features

- High switching speed
- Low conduction loss
- High power density
- High short circuit withstand

Package



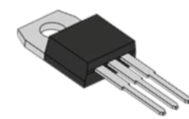
TO-220CB



TO-220F



TO-220AB



IITO-220 (internal insulation)

Field of application



Fan



Portable energy storage



Industrial motor drive

List of products

Package	Vces (V)	Ic (A)	DEVICE	Vcesat@typ. Tj=25°C	Vth@typ. Tj=25°C	tsc@Vge=15V Tj=150°C	Tjmax
TO-220F	600	6	XNF6N60T	1.8V	5.9V	5us	175°C
		15	XNF15N60T	1.7V	5.5V	5us	
		20	XNF20N60T	1.7V	5.5V	10us	
		30	XNF30N60T	1.7V	5.0V	5us	
TO-220CB	600	15	XNT15N60T	1.7V	5.5V	5us	
		20	XNT20N60T	1.7V	5.5V	10us	
		30	XNT30N60T	1.7V	5.0V	5us	
IITO-220 (Internal insulation)	600	15	XNT15N60TI	1.7V	5.5V	5us	
		24	XNT24N60TI	1.7V	5.5V	10us	
TO-220AB	1200	15	XNT15N120T	2.5V	5.9V	5us	

TO-247 Series

TO-247 series high-power products are generally packaged in the industry, and the grade is divided into industrial grade and automotive grade.

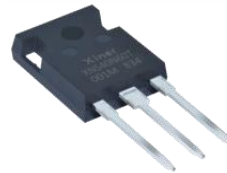
The IGBT chip adopts the Trench Field Stop technology to improve the power density of the chip and has low on-state loss and switching loss;

The maximum current of this series of products is up to 120 A, and the follow-up plan is to achieve 160 A level to meet the needs of high power and small size.

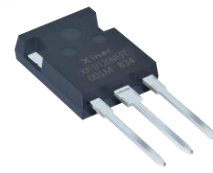
Product features

- High switching speed
- Low conduction loss
- High power density

Package



TO-247-3L



TO-247PLUS-3L

Field of application



Induction heating



Energy storage



Inverter air conditioner



Photovoltaic new energy



Charging pile



Electric car

List of products

Package	Vces (V)	Ic (A)	DEVICE	Vcesat@typ. Tj=25°C	Vth@typ. Tj=25°C	tsc@Vge=15V Tj=150°C	Tjmax
TO-247-3L	600	20	XNS20N60T	1.7V	5.5V	10us	175°C
		30	XNS30N60T	1.7V	5.0V	5us	
		40	XNS40N60T	1.8V	5.5V	10us	
			XNS40N60TH	1.65V	5.3V	5us	
		50	XNS50N60T	1.9V	5.0V	5us	
	650	40	XNS40N65T	1.65V	5.3V	5us	
		50	XNS50N65T	1.9V	5.0V	5us	
			XNS50N65TH3	1.35V	4.0V	-	
		60	XNS60N65TM	1.7V	6.0V	10us	
		75	XNS75N65TF3	1.6V	5.0V	-	
			XNS75N65TL3	1.2V	5.0V	-	
		80	XNS80N65T	1.4V	5.2V	-	
	XNS80N65TSH3	1.35V	5.0V	-			
	1200	15	XNS15N120T	1.9V	5.8V	10us	
		25	XNS25N120T	1.7V	5.8V	10us	
		40	XNS40N120T	1.7V	5.8V	10us	
			XNS40N120TH	2.0V	5.8V	-	
		50	XNS50N120T	1.7V	5.8V	10us	
1350	30	XNS30N135T	2.1V	5.8V	10us		
1800	40	XNS40N180TR	2.1V	5.0V	-		
TO-247PLUS-3L	1200	75	XNU75N120TH	2V	5.8V	-	
	650	120	XNU120A65TL3	1.5V	5.2V	5us	

TO-3P Series

Focus on Energy Saving



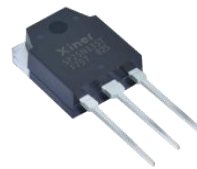
TO-3P package series products, general package in the industry; 3PF package with back insulation, insulation withstand voltage > 3500 V;

The IGBT chip adopts the Trench Field Stop technology to improve the power density of the chip and has low on-state loss and switching loss;

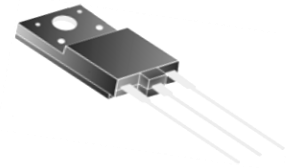
Product features

- High switching speed
- Low conduction loss
- High power density
- High short circuit withstand

Package



TO-3P



TO-3PF

Field of application



Induction heating



Inverter air conditioner



Portable energy storage

List of products

Package	Vces (V)	Ic (A)	DEVICE	Vcesat@typ. Tj=25°C	Vth@typ. Tj=25°C	tsc@Vge=15V Tj=150°C	Tjmax
TO-3P	600	40	XNP40N60TH	1.65V	5.3V	5us	175°C
		50	XNP50N60T	1.9V	5.5V	5us	
	1350	25	SP25N135T	1.9V	5.8V	5us	
TO-3PF	600	20	XNQ20N60T	1.7V	5.5V	10us	
		40	XNQ40N60TR	1.8V	5.5V	5us	

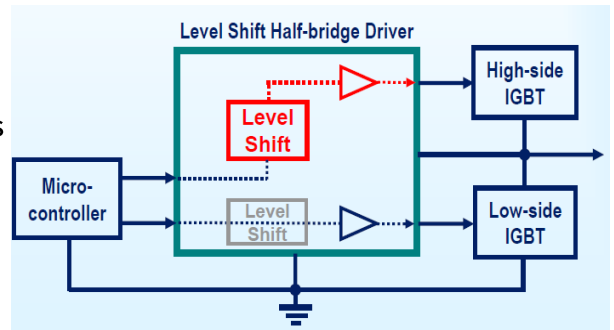
Gate driver IC

For MOSFET/IGBT drive, the core can take the lead in developing driver IC in China, which has high reliability and wide compatibility, and can meet the diversified needs of motor drive and power conversion in consumer, household appliances, industry, new energy and other fields.

The core driver IC has the functions of overcurrent protection, undervoltage protection, anti-shoot-through, dead zone, etc. It has stronger driving capability and can integrate bootstrap diodes, which can help customers simplify the system and save costs.

Product features

- High breakdown voltage, 800V
- Withstand high negative pressure, -100V/50 ns
- High DV/DT, 50V/ns
- High drive capability up to 3A
- ◆ BSD can be integrated
- ◆ Low level conversion loss
- ◆ Input compatible with 3.3V/5V/15V
- ◆ VCC/VBS Power Clamp



List of products

Type	Model	Passageway	Voffset Max(V)	IO +/- (mA)	Deadtime (ns)	ton/off (ns)	BSD	Package
HVIC								
Half bridge	XN2304S	2	650	250/500	100	250/250	N/A	SOP8
	XN2101S	2	650	250/500	N/A	150/150	N/A	SOP8
	XN21011S	2	650	15/40	300	380/380	✓	SOP8
	XN21012S	2	650	50/100	300	380/380	✓	SOP8
	XN2001S	2	200	3000/3000	500	100/100	N/A	SOP8
Three phases	XN7888	6	200	350/700	500	500/500	N/A	TSSOP20
	XN21364S	6	600	200/350	N/A	600/600	✓	SOP28
Low-Side Driver								
Single Channel	XN44272L	1	25	1500/1500	N/A	50/50	N/A	SOT23
	XN44176S	1	25	800/1750	N/A	50/50	N/A	SOP8
Dual channel	XN9524S	2	25	1500/1500	N/A	50/50	N/A	SOP8

Field of application

- Frequency conversion household appliances
- Fan and water pump
- Industrial variable frequency servo
- Induction heating
- New Energy



XN2304S, 2101S, 21011S, 21012S - HVIC

Focus on Energy Saving



The XN23XX? 21XX series is a high-voltage, high-speed MOSFET/IGBT driver that provides interdependent high-side and low-side output drive signals. Robust single-chip construction using proven, reliable, latch-up resistant, high voltage CMOS technology.

Logic input levels are compatible with standard CMOS or LSTTL outputs, with a minimum support of 3.3 V logic. The output driver has a high pulse current buffer stage to reduce driver cross-conduction. The floating channel can be used to drive N-type MOSFETs/IGBTs in a high-side configuration with operating voltages up to 650 V.

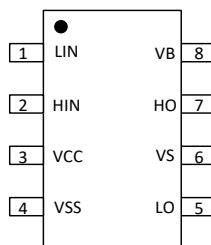
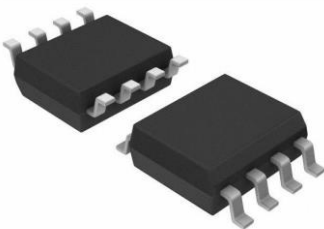
Product features

- High-side floating channel bootstrap power supply
- Operating voltage up to 650V
- Built-in bootstrap diode (XN21011S, 21012S)
- Drive voltage 10 V-20 V range
- 3.3V, 5V, and 15V logic input compatible
- Undervoltage lockout
- Anti-shoot-through logic
- Built-in dead time
- Transient negative pressure and DV/DT withstand capability

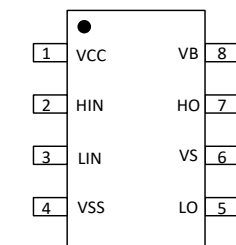
Main parameters

- Maximum working voltage: 650V
- Output drive current:
 - -250mA/500mA (XN2304S, 2101S)
 - -10mA/20mA (XN21011S)
 - -50mA/100mA (XN21012S)
- Output drive voltage: 10V-20V
- Opening and closing delay (typical):
 - -280ns/300ns (XN2304S)
 - -500ns/500ns (XN2101S)
 - -380ns/380ns (XN21011S, 21012S)
- Dead time (typical):
 - -100ns (XN2304S)
 - -350ns (XN2101S)
 - -300ns (XN21011S, 21012S)

Package

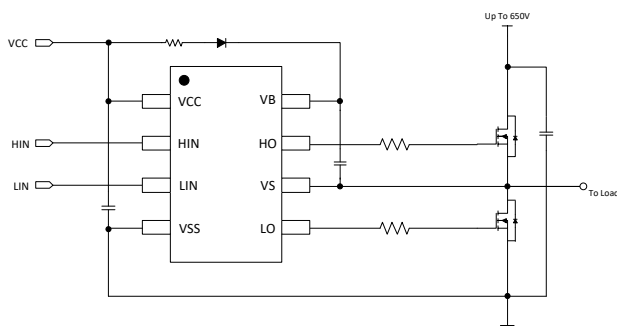


XN2304S

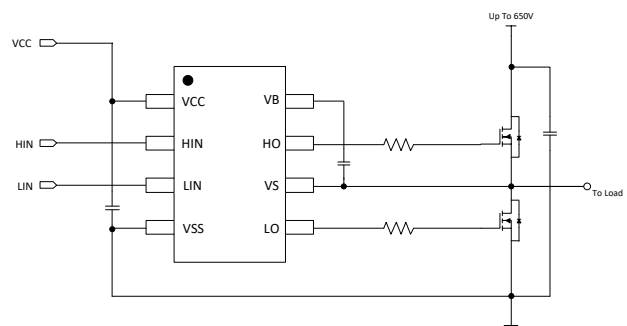


XN2101S, 21011S, 21012S

Application block diagram



XN2304S, XN2101S



XN21011S, XN21012S

XN21364S - HVIC

SOI process technology for best-in-class operational stability

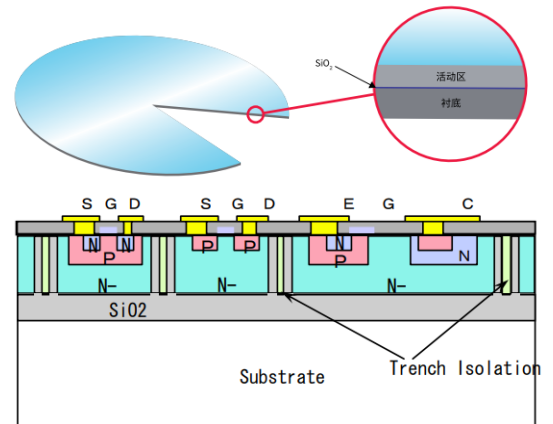
The product is based on SOI process development, which brings many advantages in design. Compared with traditional process PN isolation, SOI dielectric isolation completely eliminates parasitic PN junction, avoids latch-up effect, and improves transient negative voltage tolerance. Especially, the elimination of parasitic diode from substrate to VS greatly improves product reliability.

Focus on Energy Saving



Product overview

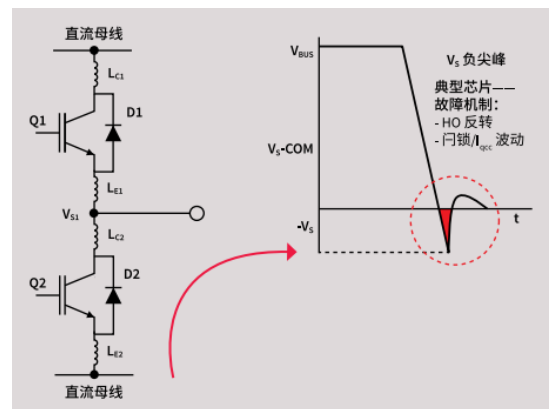
The XN21364S is a three-phase high-voltage, high-speed MOSFET/IGBT driver. The input levels are compatible with CMOS or LSTTL outputs. The overcurrent protection samples from the sense resistor and controls the six outputs to turn off. An open-drain FAULT signal is provided to indicate that a fault has occurred and is automatically cleared after an externally programmable delay. The output stage has a high pulse current buffer stage to reduce driver cross conduction. The floating channel is used to drive high-side MOSFETs/IGBTs up to 600 V.



Isolation in SOI process

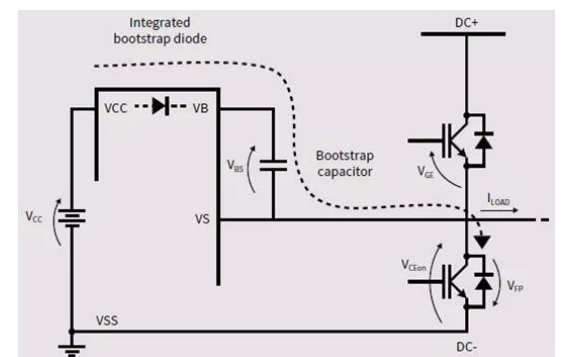
Product features

- ▶ SOP28 package, versatile 600 V gate drive
- ▶ 3-phase, 6-channel, integrated BSD
- ▶ Undervoltage lockout, EN enable, overcurrent protection, fault output, shoot-through prevention
- ▶ High transmission speed, high current output capability, transmission delay matching
- ▶ 3.3V, 5V, 15V logic input compatible, input-output positive logic
- ▶ High stability
- ▶ Best-in-class resistance to transient negative pressures to avoid latch-up and improve reliability
- ▶ Low level conversion loss, improved drive efficiency
- ▶ Resistance to high DV/DT interference
- ▶ Noise immunity
- ▶ Advanced input filter
- ▶ Separate logic ground and power ground

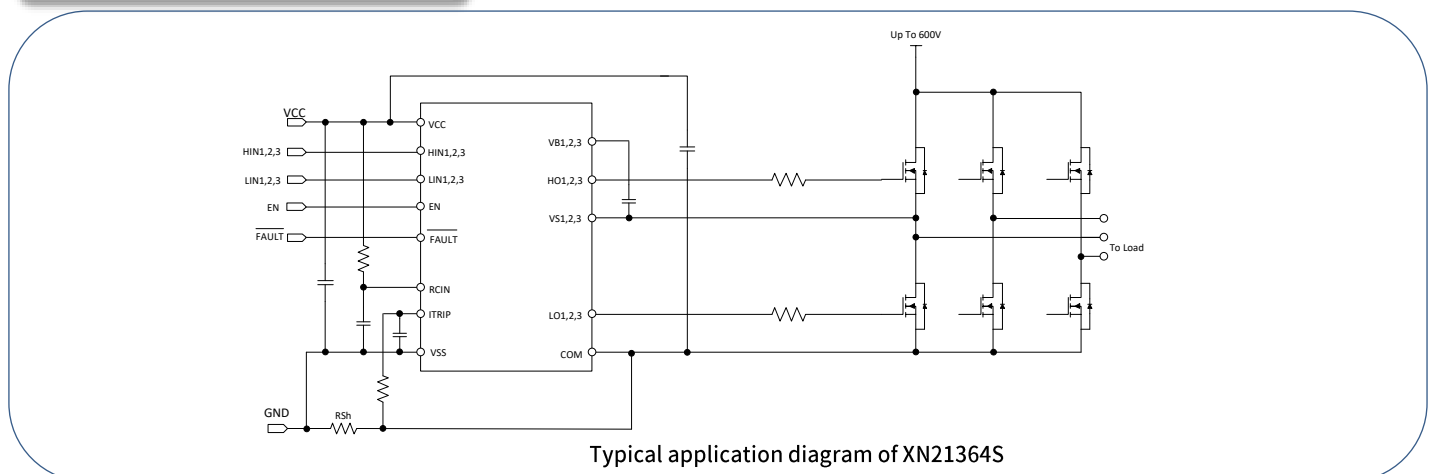


High transient negative pressure operation

Application block diagram



Integrate BSD internally



Typical application diagram of XN21364S

XN2001S - HVIC

The XN2001S is a high-voltage, high-speed MOSFET driver that provides interdependent high-side and low-side output drive signals. Robust single-chip construction using proven, reliable, latch-up resistant, high voltage CMOS technology.

Logic input levels are compatible with standard CMOS or LSTTL outputs, with a minimum support of 3.3 V logic. Output drivers are pulsed up to 3A to reduce switching losses. The floating channel can be used to drive N-type MOSFETs in a high-side configuration with operating voltages up to 200 V.

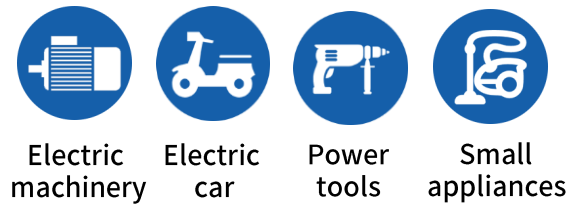
Product features

- High-side floating channel bootstrap power supply
- Operating voltage up to 200 V
- Drive voltage 10 V-20 V range
- 3.3V, 5V, and 15V logic input compatible
- Undervoltage lockout
- Anti-shoot-through logic
- Built-in dead time
- Transient negative pressure and DV/DT withstand capability
- Transmission delay matching between two channels
- High-side and low-side input and output in phase
- SOP8 package

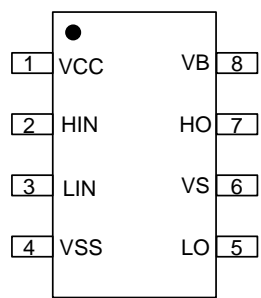
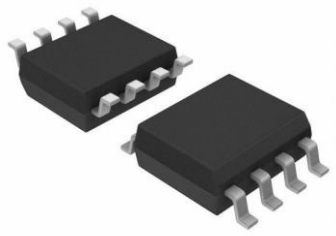
Main parameters

- Maximum working voltage: 200V
- Output drive current: 3A/3A
- Output drive voltage: 10V-20V
- Turn-on/turn-off delay (typical): 60 ns/60 ns
- Dead time (typical): 500ns

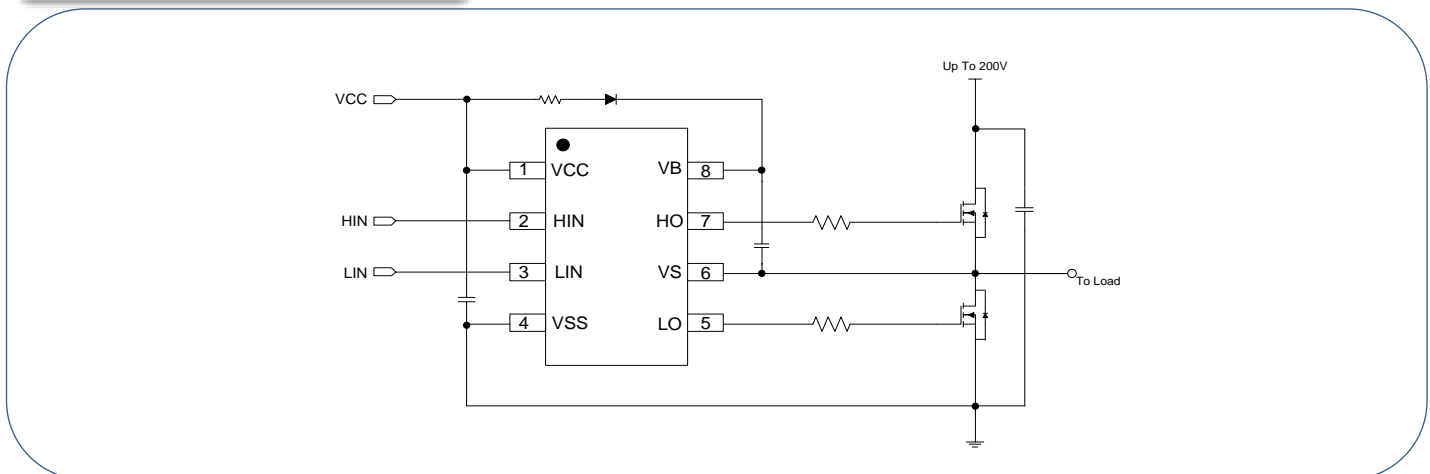
Field of application



Package



Application block diagram



XN7888 - HVIC

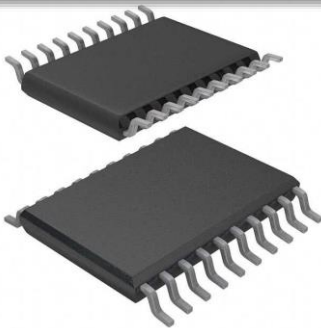
The XN7888 is a high voltage, high speed MOSFET driver that provides three sets of interdependent high-side and low-side output drive signals. Robust single-chip construction using proven, reliable, latch-up resistant, high voltage CMOS technology.

Logic input levels are compatible with standard CMOS or LSTTL outputs, with a minimum support of 3.3 V logic. The output driver has a high pulse current buffer stage to reduce driver cross-conduction. The floating channel can be used to drive N-type MOSFETs in a high-side configuration with operating voltages up to 200 V.

Product features

- High-side floating channel bootstrap power supply
- Operating voltage up to 200 V
- Drive voltage 10 V-20 V range
- 3.3V, 5V, and 15V logic input compatible
- Undervoltage lockout
- Anti-shoot-through logic
- Built-in dead time
- Transient negative pressure and DV/DT withstand capability
- Transmission delay matching between two channels
- High-side and low-side input and output in phase
- TSSOP20 package

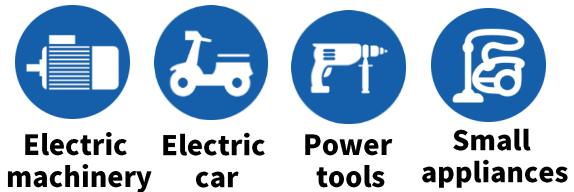
Package



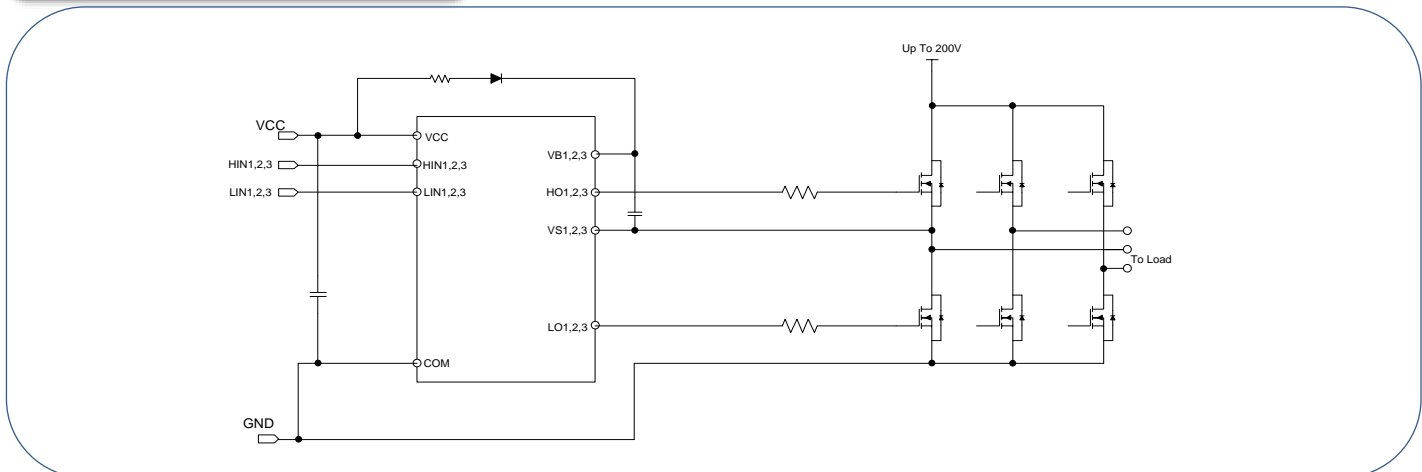
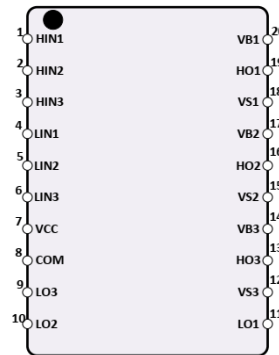
Main parameters

- Maximum working voltage: 200V
- Output drive current: 350mA/700mA
- Output drive voltage: 10V-20V
- Turn-on/turn-off delay (typical): 350ns/350ns
- Dead time (typical): 500ns

Field of application



Application block diagram



XN44272L, 9524S – Low Side Driver

Focus on Energy Saving



The XN44272L and XN9524S are single and dual high-speed low-side gate drivers that drive MOSFETs/IGBTs efficiently over a wide supply range.

Logic input levels are compatible with standard CMOS or LSTTL outputs, with a minimum support of 3.3 V logic. The output driver stage features 1.5A output current, rail-to-rail output voltage, and minimal propagation delay.

Product features

- 25 V maximum supply voltage
- 1.5A peak drive source and sink current
- Drive voltage 13 V-20 V range
- 3.3V, 5V, and 15V logic input compatible
- Undervoltage lockout
- Transmission delay matching between two channels (XN9524S)
- Enable function
- Input and output are in phase
- Encapsulation:
 - -SOT23-5L(XN44272L)
 - -SOP8(XN9524S)

Main parameters

- Output drive current: 1.5A/1.5A
- Output drive voltage: 13V-20V
- Switching delay (typical): 50 ns/50 ns
- Undervoltage value (typical): 12.1V/11.6V

Field of application



PFC



Induction heating

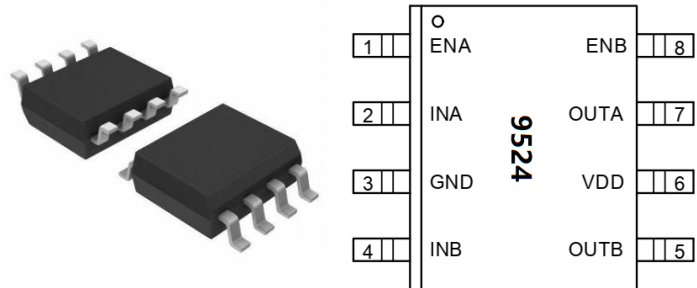
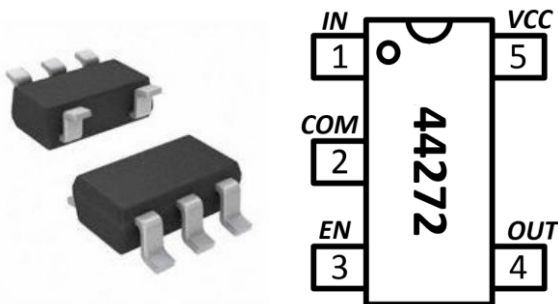


Photovoltaic new energy

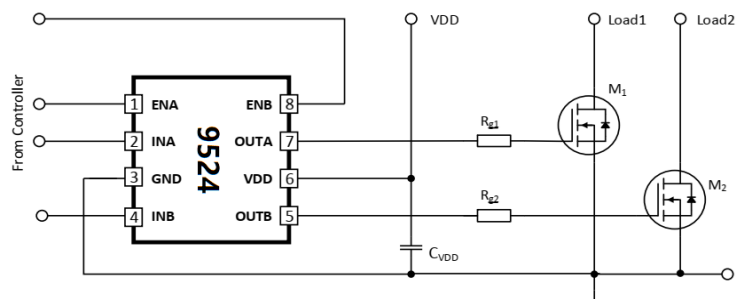
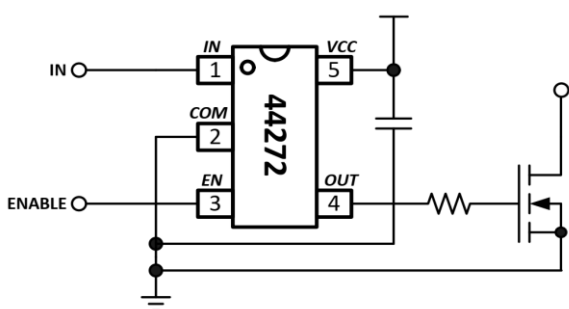


Small appliances

Package



Application block diagram



XN44176S – Low Side Driver

The XN44176S is a single-channel, high-speed, low-sided gate driver that drives MOSFETs/IGBTs efficiently over a wide power supply range with overcurrent protection, fault reporting, and enabling.

Logic input levels are compatible with standard CMOS or LSTTL outputs, with a minimum support of 3.3 V logic. The output driver stage features high output current, rail-to-rail output voltage, and minimal propagation delay.

Product features

- 25 V maximum supply voltage
- Drive Voltage 12.7 V-20 V Range
- 3.3V, 5V, and 15V logic input compatible
- Undervoltage lockout
- Overcurrent protection, 0.52 V overcurrent threshold voltage
- Programmable fault clearing time
- Enable function
- Input and output are in phase
- Independent logic ground and power ground
- SOP8 package

Main parameters

- Output drive current: 0.8 A/1.75 A
- Output drive voltage: 12.7V-20V
- Switching delay (typical): 50 ns/50 ns
- Undervoltage value (typical): 12.1V/11.6V
- Overcurrent threshold voltage: 0.52V

Field of application



PFC



Induction heating

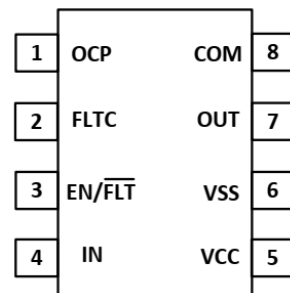
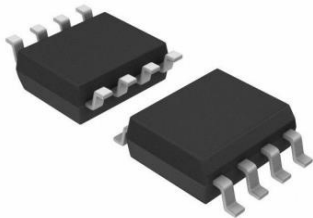


Photovoltaic new energy

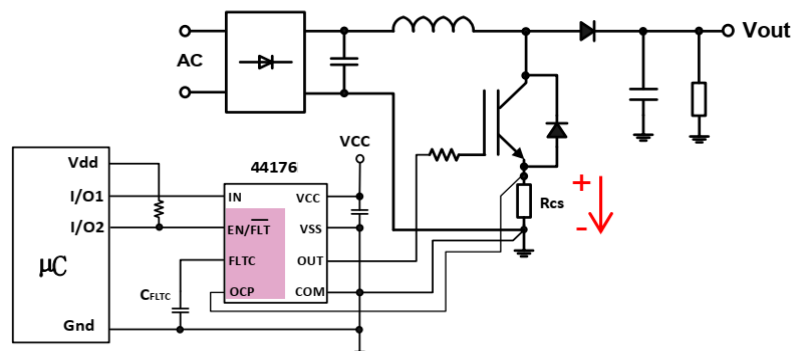


Small appliances

Package

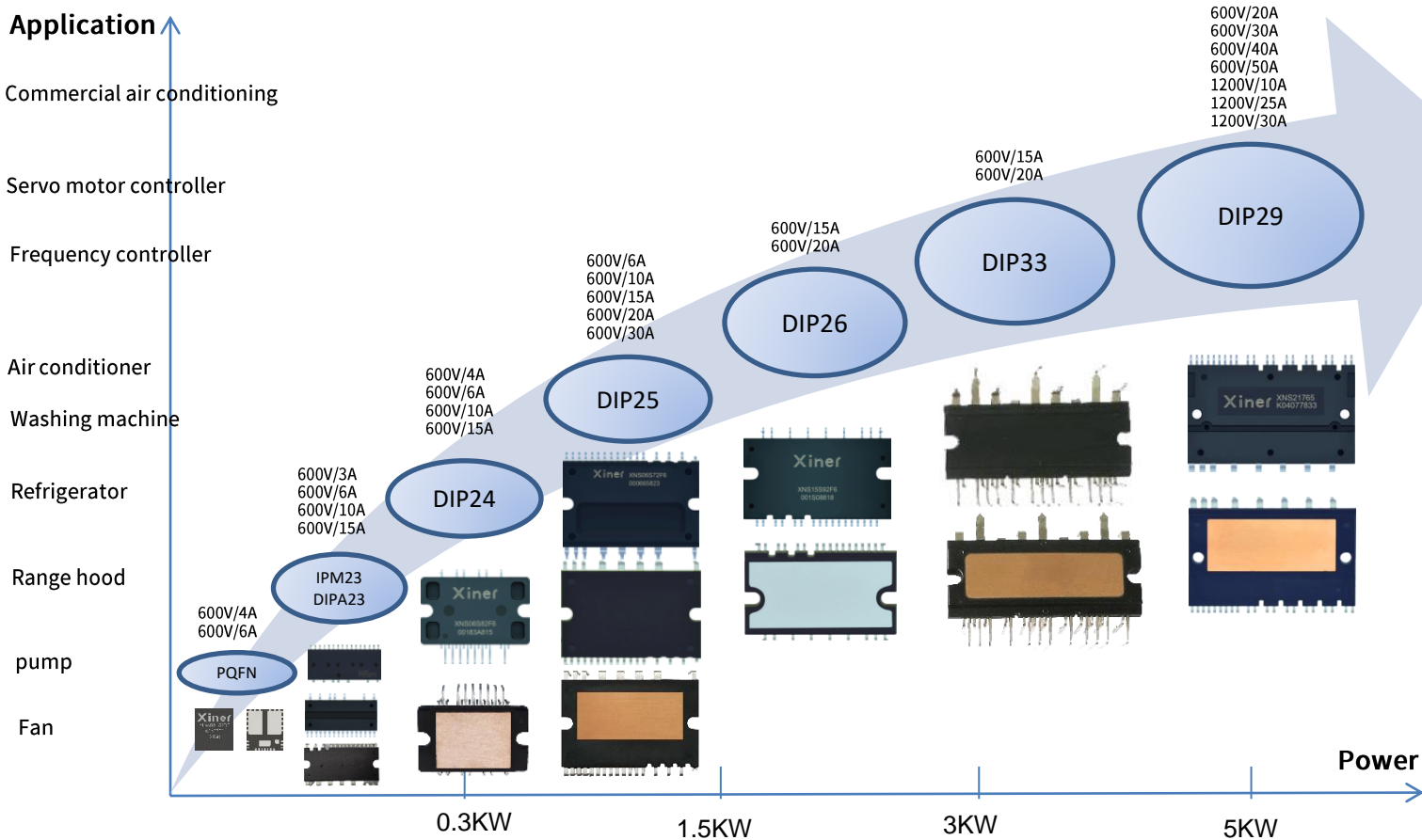
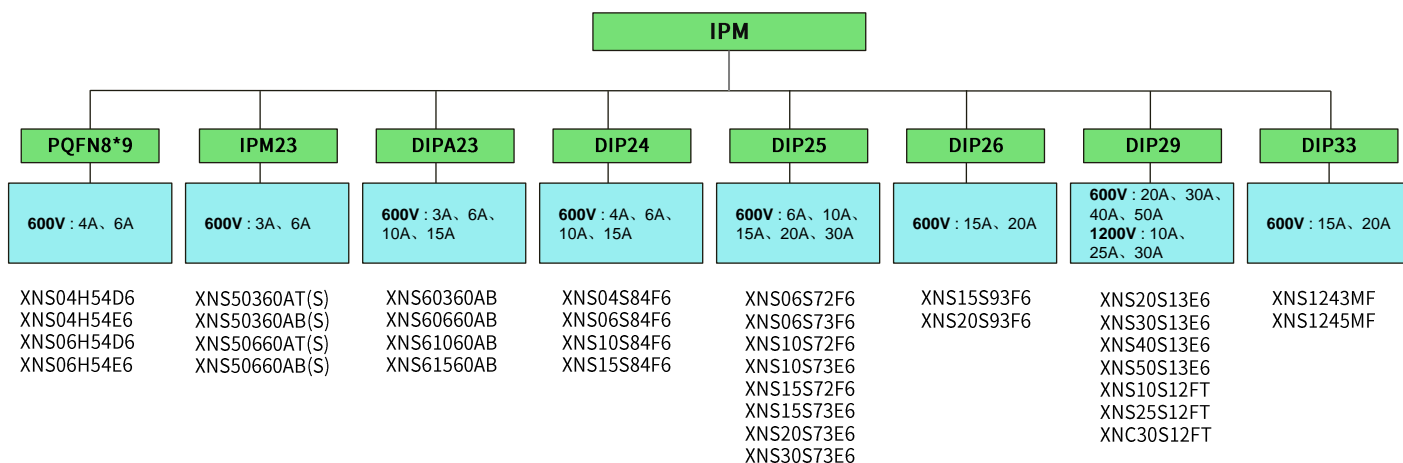


Application block diagram



Intelligent Power Module-IPM

Focus on Energy Saving





Intelligent Power Modules-PQFN Series

Ultra-small half-bridge intelligent power module

PQFN series intelligent power module series is a highly integrated and ultra-compact intelligent power module for high-efficiency electrical appliances and light industrial applications, which adopts the new generation of Xiner driver IC. Motor drivers for applications such as hair dryers, air purifiers, ceiling fans, circulating pumps, and ventilators.

Offering a new solution for integration through new packaging and efficient integration, the PQFN series provides a new platform in terms of device size, with up to 60% less board area than existing three-phase motor controls.

The PQFN series consists of integrated half-bridge drivers and power devices. Packages utilize PCB copper foil for heat dissipation, saving costs through smaller package designs and even eliminating the need for external heat sinks.

Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in undervoltage protection
- Built-in HVIC integrated temperature voltage output for temperature sampling
- Current from 4 A to 6 A
- Ultra-compact and highly integrated package
- Heat dissipation through PCB copper foil to support heatsinkless design
- The same PCB area can meet more application scenarios.
- Half-bridge structure, flexible application
- Optimized and low EMI design

Package



PQFN 8*9(8*9*0.9mm)

Field of application



Fan



Hair dryer



Pump



Industrial motor drive



Vacuum cleaner



Indoor unit of air conditioner

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recommend Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)
											NTC	VOT	
PQFN (8*9)	600	4	XNS04H54D6	80	IGBT	PCB	●	●	●				1.5
		6	XNS06H54D6	150	IGBT	PCB	●	●	●				
		4	XNS04H54E6	80	IGBT	PCB	●	●	●			●	
		6	XNS06H54E6	150	IGBT	PCB	●	●	●			●	



Intelligent Power Modules-IPM23 Series

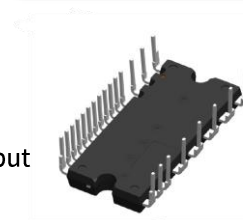
Achieve compact frequency conversion solutions

The IPM23 is a small IPM family featuring a new generation of drive ICs for low-power motor drive applications, including ventilation fans, washing machine and dishwasher pumps, louvers, air purifiers, and refrigerator fan drives. The IPM23 series provides a cost-effective solution utilizing industry-standard footprints and processes that are compatible with a variety of PCB substrates. This series features highly reliable and efficient high voltage IGBTs with matching driver ICs for variable frequency drive applications rated from 250 to 600 V.

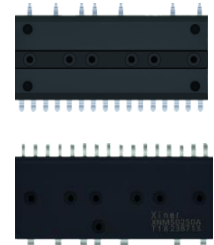
Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Various modules for 110 VAC or 230 VAC applications
- Temperature sampling with built-in thermistor or voltage output
- Built-in undervoltage protection
- Current from 3 A to 15 A
- Built-in 6 high-voltage power devices
- Lower losses than comparable modules on the market
- Optimized and low EMI design

Package



DIPA23 (33.4*15*3.6mm)



SOP23 (29*17*3.15mm)

Field of application



Fan



Hair dryer



Pump



Refrigerator



Vacuum cleaner



External fan of air conditioner

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recommend Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)	
											NTC	VOT		
SOP23 /DIP23	600	3	XNS50360AT(S)	150	IGBT	Plastic	●	●	●		●		1.5	
		6	XNS50660AT(S)	200	IGBT	Plastic	●	●	●		●			
		3	XNS50360AB(S)	150	IGBT	Plastic	●	●	●			●		
		6	XNS50660AB(S)	200	IGBT	Plastic	●	●	●			●		
DIPA23		3	XNS60360AB	150	IGBT	Plastic	●		●			●		
		6	XNS60660AB	250	IGBT	Plastic	●		●	●		●		
		10	XNS61060AB	500	IGBT	Plastic	●		●	●		●		
		15	XNS61560AB	1000	IGBT	Plastic	●		●	●		●		



Intelligent Power Modules-DIP24 Series

Solutions for Low Power Motor Drive Applications

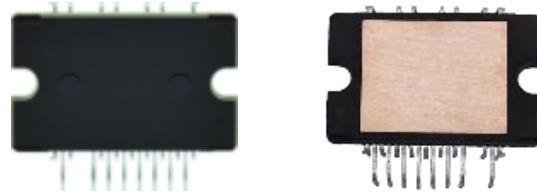
DIP24 intelligent power module series adopts a new generation of Xiner driver IC, which is an ideal choice for advanced household appliances motor drive. This includes applications such as washing machines, air conditioners, refrigerators and industrial drives, with current requirements ranging from 4 A to 15 A.

The DIP24 intelligent power module is a fully reliable mass-produced product, consisting of a high-voltage driver IC developed by Xiner, six IGBTs and thermistors. The IGBT configuration bridge uses a separate transmitter connection to achieve maximum flexibility in control algorithm selection. The power part has completed a full set of protection functions, including upper and lower bridge interlock protection, undervoltage, overcurrent, protection locking functions, etc.

Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in thermistor temperature sampling
- Built-in undervoltage protection
- Built-in upper and lower bridge interlocking function
- Overcurrent protection
- Alarm signal locking function
- Optimized and low EMI design
- Isolation class: 2000 Vrms/min

Package



DIP24 DBC (29.3*18*3.4mm)

Field of application



Washing machine



Refrigerator



Pump



Industrial motor drive



Servo motor controller



Outdoor unit of air conditioner

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recom Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Protection	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)
												NTC	VOT	
DIP24	600	4	XNS04S84F6	250	IGBT	DBC	●	●	●	●	●			2.0
		6	XNS06S84F6	400	IGBT	DBC	●	●	●	●	●			
		10	XNS10S84F6	800	IGBT	DBC	●	●	●	●	●			
		15	XNS15S84F6	1200	IGBT	DBC	●	●	●	●	●			

Intelligent Power Modules-DIP25 Series

Focus on Energy Saving



Achieve compact frequency conversion solutions

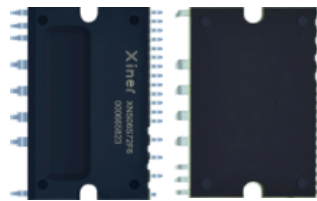
The DIP25 intelligent power module family uses a new generation of IC drivers for applications such as washing machines, air conditioners, refrigerators and industrial frequency converters, with current requirements ranging from 6 A to 30 A.

The DIP25 intelligent power module consists of a high-voltage driver IC developed by Xiner, six IGBTs and thermistors. The lower bridge of the IGBT configuration is connected by a separate transmitter, which allows maximum flexibility in the selection of control algorithms. The power part has completed a full set of protection functions, including upper and lower bridge interlock protection, undervoltage, overcurrent, protection locking functions, etc.

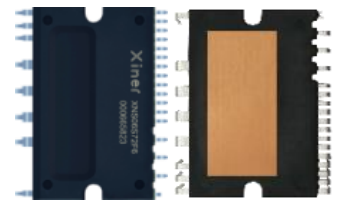
Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in thermistor temperature sampling
- Built-in undervoltage protection
- Built-in upper and lower bridge interlocking function
- Overcurrent protection
- Alarm signal locking function
- Optimized and low EMI design

Package



DIP25 FP (38*29*3mm)



DIP25 DBC (38*29*3mm)

Field of application



Washing machine



Refrigerator



Industrial frequency controller



motor drive



High-power fan



Air conditioner

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recom mend Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	protection	Undervolt protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)
												NTC	VOT	
DIP25-FP	600	6	XNS06S72F6	400	IGBT	Plastic	●	●	●	●	●			1.5
		10	XNS10S72F6	800	IGBT	Plastic	●	●	●	●	●			
		15	XNS15S72F6	1200	IGBT	Plastic	●	●	●	●	●			
DIP25-DBC		6	XNS06S73E6	600	IGBT	DBC	●			●	●		●	
		10	XNS10S73E6	1000	IGBT	DBC	●			●	●		●	
		15	XNS15S73E6	1500	IGBT	DBC	●			●	●		●	
	20	XNS20S73E6	2000	IGBT	DBC	●			●	●		●		
	30	XNS30S73E6	3000	IGBT	DBC	●			●	●		●		

Intelligent Power Modules-DIP26 Series

Focus on Energy Saving



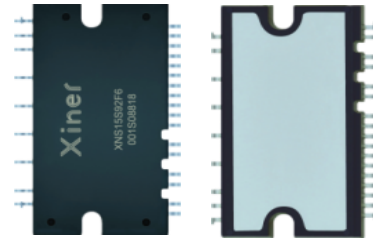
Aluminum substrate for low thermal resistance and high power density

DIP26 intelligent power module series adopts a new generation of Xiner driver IC, adopts a large-area aluminum substrate for heat dissipation, with large heat dissipation area and good flatness. It is mainly used for compressors and fan motors carried in household and commercial air conditioners, and is also used for small frequency converters and servo controllers.

Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in thermistor temperature sampling
- Built-in undervoltage protection
- Built-in upper and lower bridge interlocking function
- Overcurrent protection
- Alarm signal locking function
- Optimized and low EMI design

Package



DIP26 (32.8*18.8*3.6mm)

Field of application



Frequency controller



Servo motor controller



Commercial air conditioning

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recommend Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)
											NTC	VOT	
DIP26	600	15	XNS15S93F6	1500	IGBT	Aluminum substrate	●		●	●	●		2
		20	XNS20S93F6	2000	IGBT	Aluminum substrate	●		●	●	●		



Intelligent Power Modules-DIP29 Series

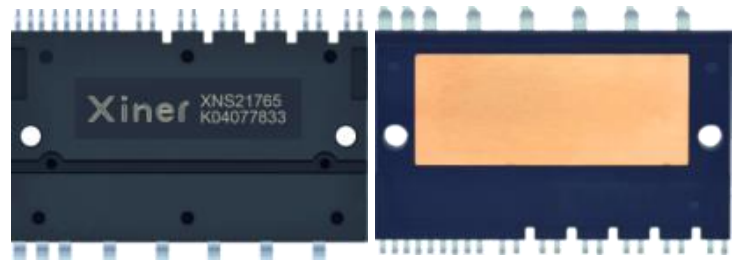
Realize high performance high power frequency conversion solution

The DIP29 family of intelligent power modules uses a new generation of driver ICs for applications such as central air conditioning, servo controllers and industrial frequency converters, with current requirements ranging from 20 A to 50 A. The power part has completed a full set of protection functions, including upper and lower bridge interlock protection, undervoltage, overcurrent, protection locking functions, etc.

Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in voltage type temperature sampling
- Built-in undervoltage protection
- Built-in upper and lower bridge interlocking function
- Overcurrent protection
- Alarm signal locking function
- Adopt DBC heat dissipation structures
- Optimized and low EMI design
- The XNC30S12FT product uses a SiC chip process

Package



DIP29 DBC (52.5*31*5.6mm)

Field of application



Frequency controller



Servo motor controller



Commercial air conditioning

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recom mend Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)	
											NTC	VOT		
DIP29	600	20	XNS20S12E6	2500	IGBT	DBC	●	●	●	●		●	2.5	
		30	XNS30S12E6	3000	IGBT	DBC	●	●	●	●		●		
		40	XNS40S12E6	4000	IGBT	DBC	●	●	●	●		●		
		50	XNS50S12E6	5000	IGBT	DBC	●	●	●	●		●		
	1200	10	XNS10S12FT	2000	IGBT	DBC	●	●	●	●	●			
		25	XNS25S12FT	4000	IGBT	DBC	●	●	●	●	●			
		30	XNC30S12FT	5000	SiC	DBC	●	●	●	●	●			

Intelligent Power Modules-DIP33 Series

Focus on Energy Saving



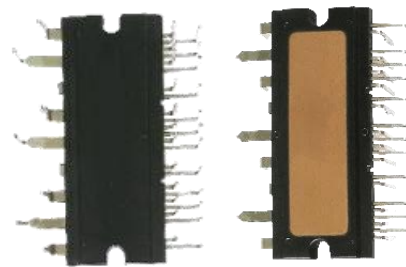
Achieve high performance compact frequency conversion solution

The DIP33 intelligent power module series is driven by an independent half-bridge and consists of six IGBTs and thermistors. The lower bridge of the IGBT configuration is connected by a separate transmitter, which allows maximum flexibility in the selection of control algorithms. The power part has completed a full set of protection functions, including undervoltage, overcurrent, protection locking functions, etc.

Product features

- Built-in high-voltage gate driver circuit (HVIC)
- Built-in BSD circuit for higher integration
- Built-in thermistor temperature sampling
- Built-in undervoltage protection
- Overcurrent protection
- Adopt DBC heat dissipation structures
- Optimized and low EMI design

Package



DIP33 DBC (47*19.5*5.5mm)

Field of application



Washing machine



Pump



Frequency controller



Servo motor controller



High-power fan



Commercial air conditioning

List of products

Package	Vces (V)	Ic (A)	DEVICE	Recommen d Power (W)	Device Type	Thermal interface	Bootstrap circuit	Interlock	Undervoltage protection	Overcurrent protection	Temperature output type		Insulation withstand voltage (KV)
											NTC	VOT	
DIP33	600V	15	XNS1243MF	1500	IGBT	DBC	●		●	●		●	2.5
		20	XNS1245MF	2000	IGBT	DBC		●	●	●		●	

IGBT Power Module

Product features

- Advanced Trench + FS IGBT wafer process technology
- 600V/1200V/1700V withstand voltage
- Highly integrated
- Low switching losses
- Low conduction loss
- $T_{vjop}=150^{\circ}\text{C}$
- V_{cesat} has a positive temperature coefficient
- Integrated NTC temperature sensor
- RoHS compliant

Package



L1



L2



C1



C2



C3



C4



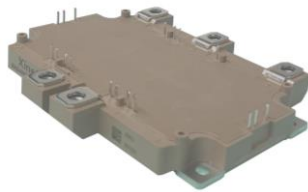
C5



S1



S2



H4



H5

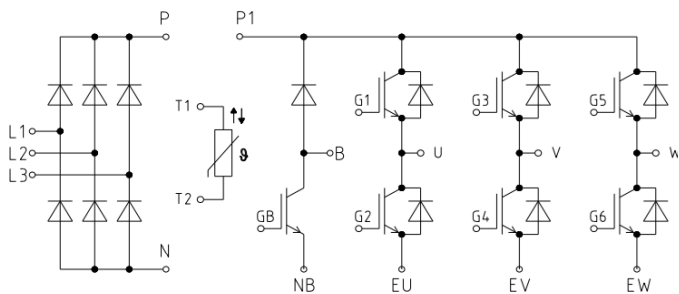


H6

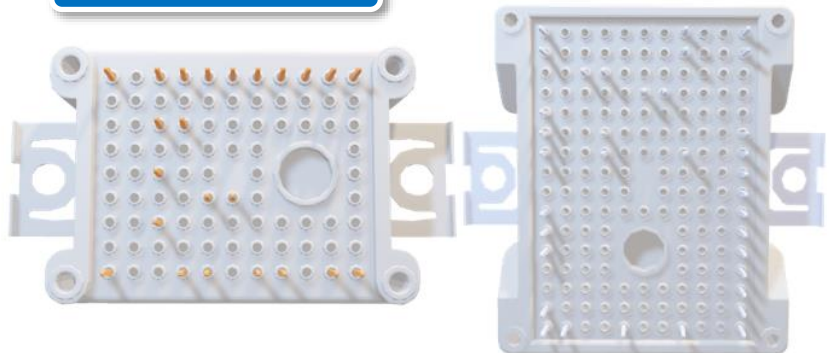
L Series (Small PIM) Modules

The L-Series is a highly integrated, compact power module for appliance and industrial applications. The module topology circuit comprises a rectifier unit, a brake unit and an inverter unit, and is mainly used for motor drivers of low-power industrial frequency converters, servo controllers, industrial fans, industrial heat pumps, air conditioning systems and other applications. The L series consists of two voltage levels, 600 V and 1200 V.

Topology



Package



L1 package (33.8 X 48 X 12 mm)

L2 package (56.7 X 62.8 X 12mm)

Field of application



Air conditioning system



Servo motor controller



Industrial Fan



Industrial Frequency controller

List of products

Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
600	20	XNG20PI12TL1S3	IGBT	PIM	2.5	< 20	L1
	30	XNG30PI12TL1S3	IGBT	PIM	2.5	< 20	L1
	50	XNG50PI12TL2S3	IGBT	PIM	2.5	< 20	L2
1200	15	XNG15PI24TL1S3	IGBT	PIM	2.5	< 20	L1
	25	XNG25PI24TL1S3	IGBT	PIM	2.5	< 20	L1
	25	XNG25PI24TL2S3	IGBT	PIM	2.5	< 20	L2
	40	XNG40PI24TL2S3	IGBT	PIM	2.5	< 20	L2

C1/C2 High Frequency Series (Half Bridge) Module

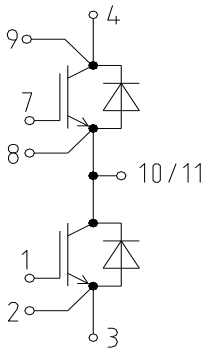
Focus on Energy Saving



Half-bridge module products are compatible with C1 and C2 general packages in the market; IGBT chip adopts advanced planar gate IGBT technology and anti-parallel fast recovery diode, which has the advantages of high switching speed, low on-state loss, strong impact resistance and high reliability.

Products are mainly used in industrial power supply, induction heating, welding machines and other fields.

Topology



Package



C1 package (94 × 34 × 30 mm)



C2 package (106 × 62 × 30 mm)

Field of application



Induction heating



Industrial Power Supply



Electric welding machine

List of products

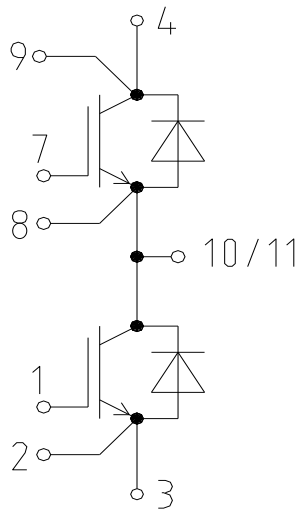
Vces (V)	Ic (A)	K Series DEVICE	U Series DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
1200V	50	XNG50B24KC1S	XNG50B24UC1S	IGBT	Half Bridge	2.5	>20	C1
	75	XNG75B24KC2S	XNG75B24UC2S	IGBT	Half Bridge	2.5	>20	C1
	100	XNG100B24KC1S	XNG100B24UC1S	IGBT	Half Bridge	2.5	>20	C1
	150	XNG150B24KC1S	XNG150B24UC1S	IGBT	Half Bridge	2.5	>20	C1
	150	XNG150B24KC2S	XNG150B24UC2S	IGBT	Half Bridge	2.5	>20	C2
	200	XNG200B24KC2S	XNG200B24UC2S	IGBT	Half Bridge	2.5	>20	C2
	300	XNG300B24KC2S	XNG300B24UC2S	IGBT	Half Bridge	2.5	>20	C2
	450	XNG450B24KC2S	XNG450B24UC2S	IGBT	Half Bridge	2.5	>20	C2

C2 Series (Half Bridge) Module

The C2 series is a high power, low point sensing power module for commercial, industrial and photovoltaic applications.

The module topology is mainly half-bridge, which is mainly used for motor drivers of industrial frequency converters, servo controllers, industrial fans, industrial water pumps, commercial air conditioners and other applications with power above 55 Kw. C2 is mainly 1200 V.

Topology



Package



C2 package (61.4 X 106.4 X 30 mm)

Field of application



Photovoltaic new energy



Induction heating



Industrial Fan



Industrial Frequency controller

List of products

Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
1200	200	XNG200B24KC2S5	IGBT	Half Bridge	2.5	< 20	C2
	300	XNG300B24KC2S5	IGBT	Half Bridge	2.5	< 20	C2
	450	XNG450B24KC2S	IGBT	Half Bridge	2.5	< 20	C2
1700	300	XNG300B34KC2S8	IGBT	Half Bridge	2.5	< 10	C2

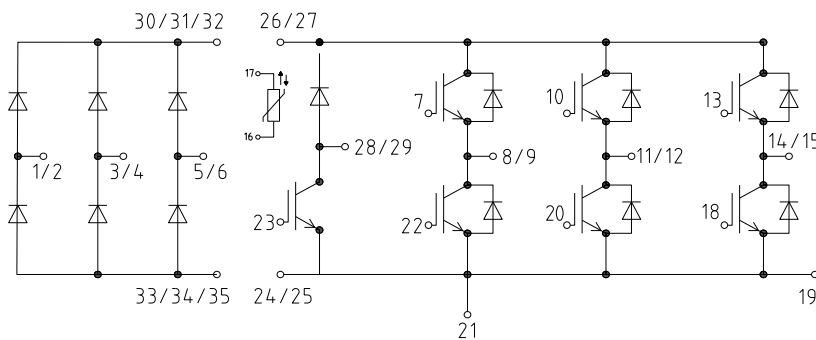
C3/C4 Series (Small Medium PIM) Modules

Focus on Energy Saving



The C3/C4 series is a highly integrated, relatively compact power module for commercial and industrial applications. The module topology circuit includes rectifier unit, brake unit and inverter unit, and is mainly used for motor drivers of industrial frequency converters, servo controllers, industrial fans, industrial water pumps, commercial air conditioners and other applications with power below 37 Kw. C3/C4 is dominated by 1200 V.

Topology



Package



C3 package (38 X 107.5 X 17 mm)



C4 package (62 X 122 X 17 mm)

Field of application



Air conditioning system



Water pump



Industrial Fan



Industrial Frequency controller

List of products

Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
1200	25	XNG25PI24TC3AS3	IGBT	PIM	2.5	< 20	C3
	25	XNG25PI24TC3	IGBT	PIM	2.5	< 20	C3
	35	XNG35PI24TC3	IGBT	PIM	2.5	< 20	C3
	50	XNG50PI24TC3	IGBT	PIM	2.5	< 20	C3
	50	XNG50PI24TC4S5	IGBT	PIM	2.5	< 20	C4
	50	XNG50PI24TC4AS5	IGBT	PIM	2.5	< 20	C4
	75	XNG75PI24TC4AS5	IGBT	PIM	2.5	< 20	C4
	75	XNG75PI24TC4S5	IGBT	PIM	2.5	< 20	C4
	100	XNG100PI24TC4S5	IGBT	PIM	2.5	< 20	C4
	150	XNG150PI24KC4S	IGBT	PIM	2.5	< 20	C4

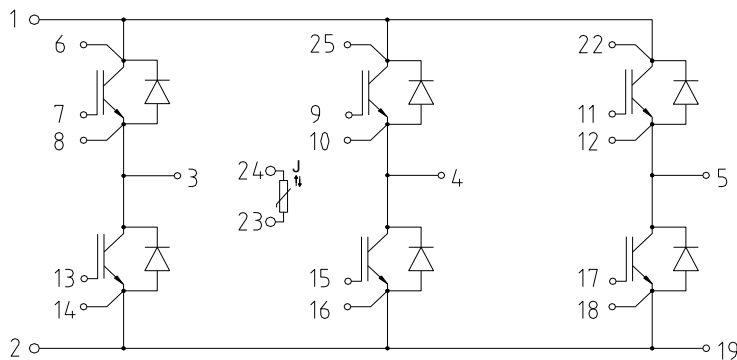
C3/C4 Series (Small Medium Six Pack) Modules

Focus on Energy Saving



The C3/C4 series is a highly integrated, relatively compact power module for industrial applications. The topological circuit of the module comprises an inverter unit, and C3 is mainly used for motor drivers of industrial frequency converters, high-power servo controllers, automobile air conditioners and the like with the power within 7.5Kw to 18.5Kw. C4 is mainly used for motor drivers of industrial frequency converters, lifting systems, automotive air conditioners and other applications with power ranging from 30 Kw to 55 Kw. C3/C4 is dominated by 1200 V.

Topology



Package



C3 package (38 X 107.5 X 17 mm)



C4 package (62 X 122 X 17 mm)

Field of application



Car Air Conditioner



Water pump



Industrial Fan



Industrial Frequency controller

List of products

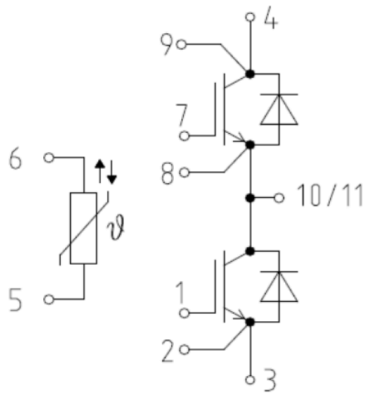
Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
1200	50	XNG50D24TC3S	IGBT	Six Pack	2.5	< 20	C3
	75	XNG75D24TC3S	IGBT	Six Pack	2.5	< 20	C3
	150	XNG150D24KC4A5	IGBT	Six Pack	2.5	< 20	C4
	150	XNG150D24KC4SD	IGBT	Six Pack	2.5	< 20	C4
	200	XNG200D24KC4S	IGBT	Six Pack	2.5	< 20	C4

C5 Series (Half Bridge) Module

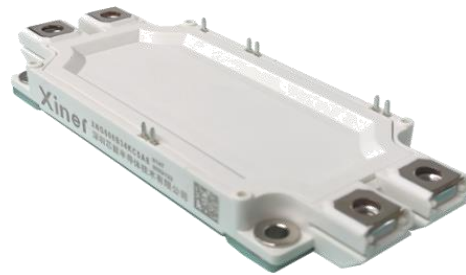
C5 half-bridge module product packaging is compatible with general packaging in the market; The IGBT chip has the advantages of Trench Field Stop IGBT technology, high power density, low switching loss, low on-state voltage drop, high reliability and the like;

Products are mainly used in photovoltaic, energy storage, wind power, motor drive and other fields.

Topology



Package



C5 package (152 × 62 × 17 mm)

Field of application



Photovoltaic new energy



Energy storage



Wind power



Motor drive

List of products

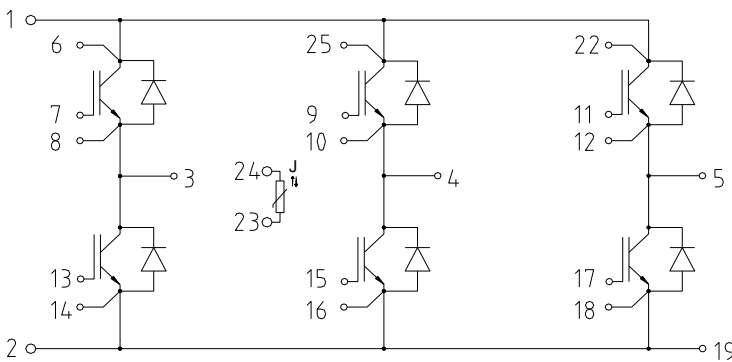
Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package
1200V	300	XNG300B24LC5E	IGBT	Half Bridge	4	< 20	C5
	450	XNG450B24LC5E	IGBT	Half Bridge	4	<20	C5
	450	XNG450B24KC5A	IGBT	Half Bridge	4	< 20	C5
	600	XNG600B24LC5E	IGBT	Half Bridge	4	<20	C5
	800	XNG800B24LC5E	IGBT	Half Bridge	4	< 20	C5
1700V	300	XNG300B34LC5E	IGBT	Half Bridge	4	<10	C5
	450	XNG450B34LC5E	IGBT	Half Bridge	4	<10	C5
	600	XNG600B34LC5E	IGBT	Half Bridge	4	<10	C5



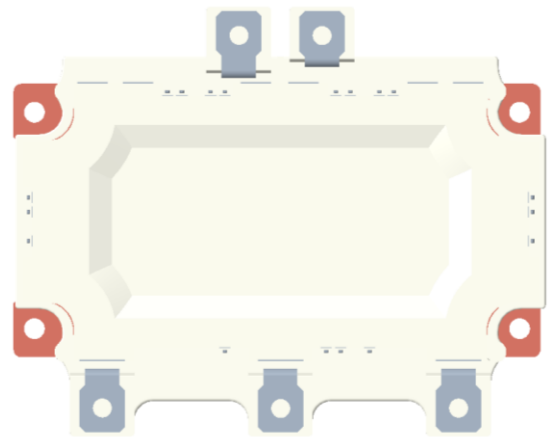
H4 Series (Medium Six Pack) Module

The H4 series is an automotive universal power module for passenger car and commercial vehicle applications. The module topology circuit inverter unit is mainly used for motor drivers with rated power of 30 Kw ~ 55 Kw. H4 is mainly of 750V voltage level, including PinFin substrate and planar substrate. The module pin to pin is compatible with the mainstream models on the market, meeting the needs of A0 models, express vans and other models.

Topology



Package



H4 package
 Flat (140 X 72 X 17.5mm)
 Pinfin(140 x 72 x 25.4mm)

Field of application



Electric car

List of products

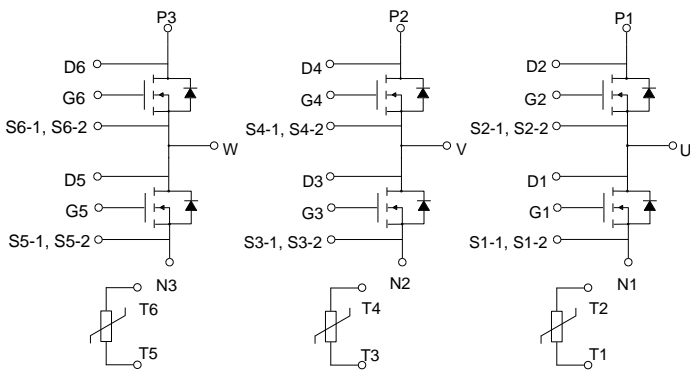
Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package	Structural form
750	250	XNG250D24TH4AH	IGBT	Six Pack	2.5	< 20	H4	Pinfin
	400	XNG400D15TH4A	IGBT	Six Pack	2.5	< 20	H4	Flat plate
	400	XNG400D15TH4AH	IGBT	Six Pack	2.5	< 20	H4	Pinfin



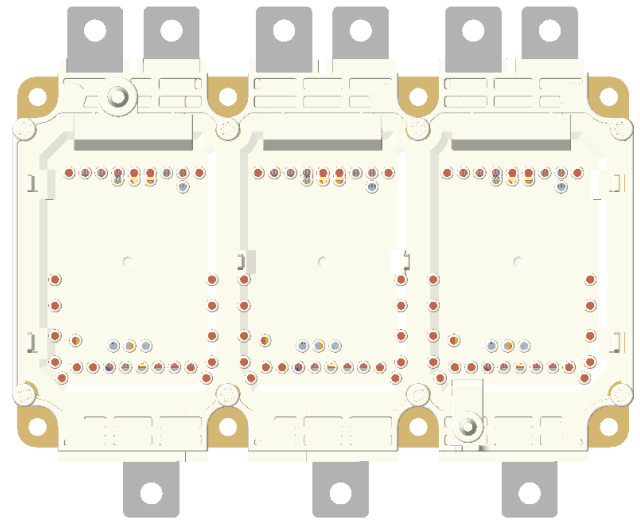
H5/H7 Series (High Power Six Pack) Modules

H5/H7 series is a universal power module for automobiles, including Si-based IGBT and SiC MOS, which is used in passenger cars and commercial vehicles. The module topology circuit inverter unit is mainly used for motor drivers with rated power of 132Kw ~ 185Kw. H5/H7 includes 750V and 1200V voltage levels. The module is mainly based on PinFin substrate. The pin to pin is compatible with the mainstream models in the market, meeting the needs of A-class models, SUV and other models.

Topology



Package



H5/H7 package
Pinfin(92 x 154.5 x 22mm)

Field of application



Electric car

List of products

Vces (V)	Ic (A)	DEVICE	Device type	Topology	Insulation withstand voltage (Kv)	Switching frequency (KHz)	Package	Structural form
1200	600	XNC600D24KH5AH	SiC	Six Pack	2.5	< 20	H5	Pinfin
	600	XNC600D24KH7AH	SiC	Six Pack	2.5	< 20	H7	Pinfin
	800	XNC800D24KH5S7	SiC	Six Pack	2.5	< 20	H5	Pinfin
750	820	XNG820D15KH7AH	IGBT	Six Pack	2.5	< 20	H7	Pinfin

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