

描述/Description

- XNS15S92F6基于Trench FS-IGBT技术，是一款先进的DIP26 IPM，为交流感应、直流无刷电机和PMSM电机提供非常全面的高性能逆变器输出平台。
XNS15S92F6 is an Advanced DIP26 IPM Based on Trench FS-IGBT Technology, Providing a Fully-featured, High-performance Inverter Output Stage for AC Induction, BLDC, and PMSM Motors.
- XNS15S92F6综合优化了IGBT的栅极驱动以最小化电磁干扰和能量损耗，同时也提供多重保护特性，包括集成欠压闭锁、过流保护、温度检测和故障报告。
XNS15S92F6 Optimized Gate Drive of the Built-in IGBTs to Minimize EMI and Losses, while also Providing Multiple Protection Features Including Under-voltage Lockouts, Over-current Shutdown, Thermal Monitoring, Fault Reporting.
- XNS15S92F6内置高速HVIC，提供无光耦单电源IGBT栅极驱动能力，进一步减小了逆变器系统设计的总体尺寸。
XNS15S92F6 Combines High Speed HVIC Provides Opto-Coupler-Less Single-Supply IGBT Gate Driving Capability that Further Reduce the Overall Size of the Inverter System Design.
- 独立的IGBT负端在每个相位均有效，可支持大量不同种类的控制算法。
Separate Negative IGBT Terminals are Available for Each Phase to Support the Widest Variety of Control Algorithms.

主要特点

- 600V-15 A三相IGBT逆变器，包含栅极驱动和保护的控制IC
- 低损耗、短路额定的IGBT
- 内置带限流电阻的自举二极管
- 低端IGBT的独立发射极开路引脚用于三相电流感测
- 内置负温度系数的电阻用于温度检测
- DIP26封装采用IMS架构，铝基板外露，散热能力更佳
- 绝缘级别2000V_{rms}/1min
- 单接地电源供电
- 无铅工艺；符合ROHS

Features

- 600V-15A 3-Phase IGBT Inverter Bridge Including Control ICs for Gate Driving and Protection
- Low-Loss, Short-Circuit Rated IGBTs
- Built-In Bootstrap Diodes with Current Limiting Resistor
- Separate Open-Emitter Pins from Low-Side IGBTs for Three-Phase Current Sensing
- Built-In NTC Thermistor for Temperature Monitoring
- DIP26 Package using IMS Structure, Al Substrate exposed, Better Heat Dissipation
- Isolation Rating: 2000 V_{rms}/min
- Single-Grounded Power Supply
- Lead-free Terminal Plating; RoHS Compliant

应用

- 运动控制 – 家用设备 / 工业电机

Applications

- Motion Control – Home Appliance / Industrial Motor

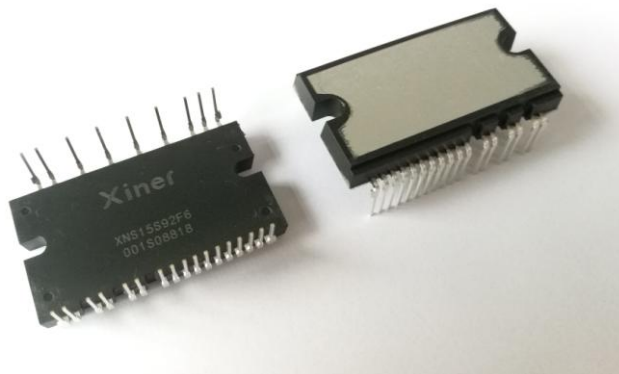
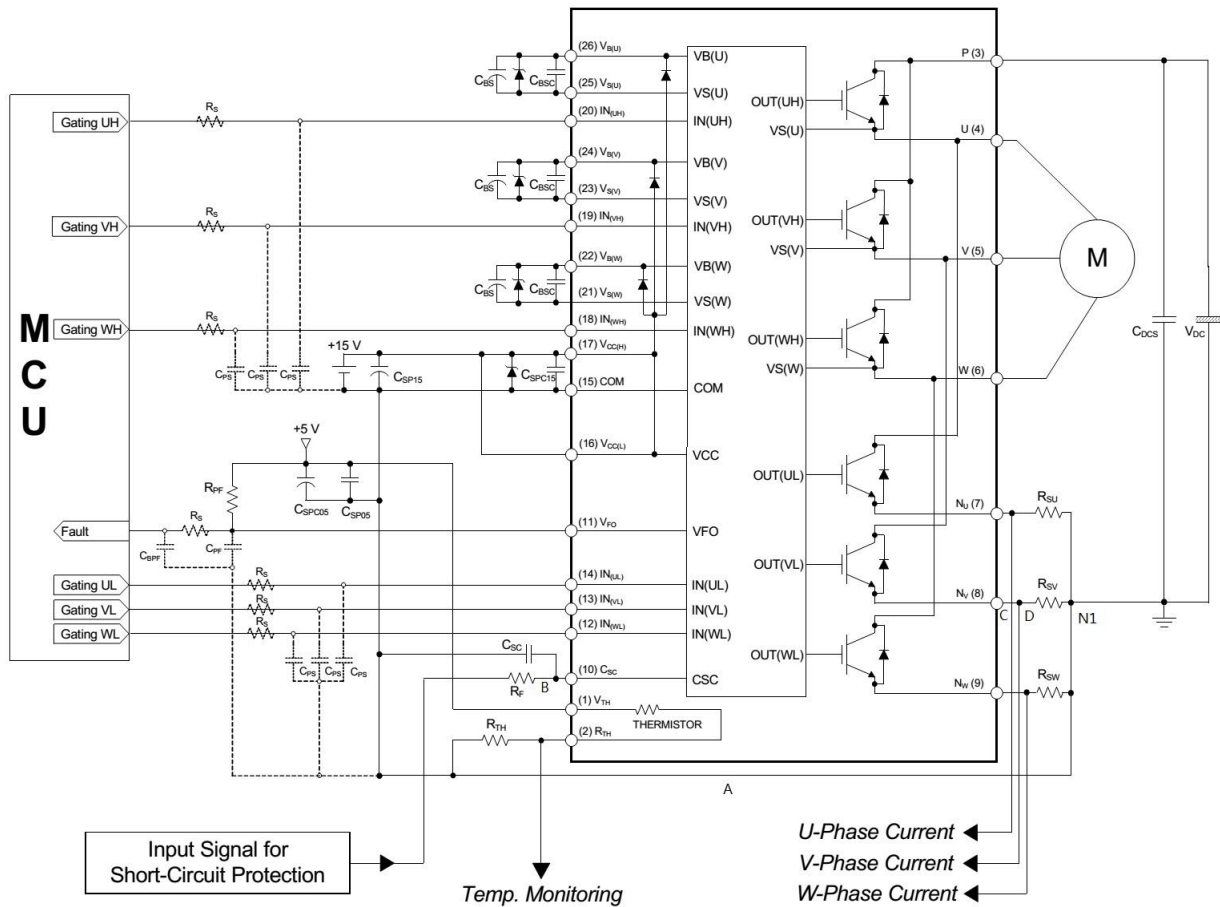


图1. 封装概览

Figure1. Package Overview

引脚号/Pin Number	引脚名/Pin Name	引脚描述/Pin Description
1	VTH	Thermistor Bias Voltage 热敏电阻偏压
2	RTH	Series Resistor for the Use of Thermistor (Temperature Detection) 用于热敏电阻（温度检测）的串联电阻
3	P	Positive DC-Link Input 直流正端
4	U	Output for U-Phase U相输出
5	V	Output for V-Phase V相输出
6	W	Output for W-Phase W相输出
7	N _U	Negative DC-Link Input for U-Phase U相的直流环节负极
8	N _V	Negative DC-Link Input for V-Phase V相的直流环节负极
9	N _W	Negative DC-Link Input for W-Phase W相的直流环节负极
10	C _{SC}	Capacitor (Low-Pass Filter) for Short-circuit Current Detection Input 短路电流感测输入电容（低通滤波器）
11	V _{FO}	Fault Output 故障输出
12	IN(WL)	Signal Input for Low-Side W-Phase 低端W相的信号输入
13	IN(VL)	Signal Input for Low-Side V-Phase 低端V相的信号输入
14	IN(UL)	Signal Input for Low-Side U-Phase 低端U相的信号输入
15	COM	Common Supply Ground 电源（公共）地
16	VCC(L)	Low-Side Common Bias Voltage for IC and IGBTs Driving IC和IGBT驱动的低端公共偏压
17	VCC(H)	High-Side Common Bias Voltage for IC and IGBTs Driving IC和IGBT驱动的高端公共偏压
18	IN(WH)	Signal Input for High-Side W-Phase 高端W相的信号输入
19	IN(VH)	Signal Input for High-Side V-Phase 高端V相的信号输入
20	IN(UH)	Signal Input for High-Side U-Phase 高端U相的信号输入
21	VS(W)	High-Side Bias Voltage Ground for W-Phase IGBT Driving W相IGBT驱动的高端偏压的地
22	VB(W)	High-Side Bias Voltage for W-Phase IGBT Driving W相IGBT驱动的高端偏压
23	VS(V)	High-Side Bias Voltage Ground for V-Phase IGBT Driving V相IGBT驱动的高端偏压的地
24	VB(V)	High-Side Bias Voltage for V-Phase IGBT Driving V相IGBT驱动的高端偏压
25	VS(U)	High-Side Bias Voltage Ground for U-Phase IGBT Driving U相IGBT驱动的高端偏压的地
26	VB(U)	High-Side Bias Voltage for U-Phase IGBT Driving U相IGBT驱动的高端偏压

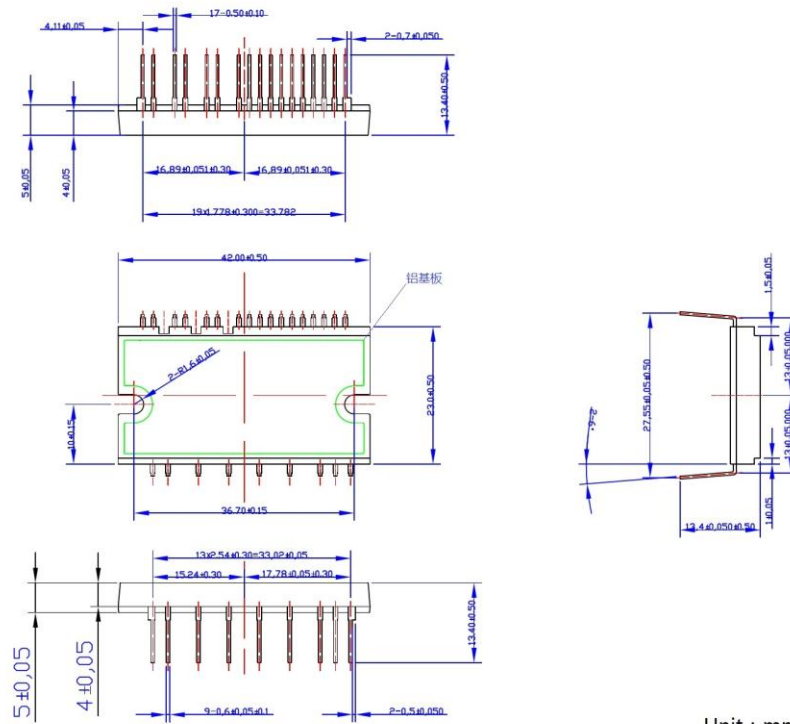


Typical Application Circuit

注/Note:

1. 推荐在电源上加稳压二极管 (24V/1W)，防止浪涌电压损坏IPM。
It is recommended to insert a Zener diode (24V/1W) between each pair of control supply terminals to prevent surge destruction.
2. 输入正逻辑，下拉电阻5.4KΩ。为了避免故障，应尽可能缩短每个输入端的连线（小于2-3 cm）。
Input logic is High-active. There is a 5.4KΩ pull down resistor. To avoid malfunction, the wiring of each input should be as short as possible (less than 2-3cm).
3. 为避免保护功能出错，应尽可能缩短R_F和C_{SC}周围的连线。
To prevent errors of the protection function, the wiring of B, C and D point should be as short as possible.
4. 在短路保护电路中，R_FC_{SC}的时间常数应在1.5 ~ 2.0 μs 的范围内进行选择。
In the short-circuit protection circuit, please select the R_FC_{SC} time constant in the range 1.5 ~ 2.0 μs.
5. 每个电容都应尽可能地靠近产品的引脚安装。(C_{SPO5}: 温度特性好，频率特性好; C_{SP05}: 0.22u-2uF, 温度特性好，频率特性好)
Each capacitor should be mounted as close to the pins of the product as possible. (C_{SPO5}: good temperature, frequency characteristic electrolytic type and C_{SP05}: 0.22u-2uF, good temperature, frequency and DC bias characteristic ceramic type are recommended.)
6. 为防止浪涌的破坏，应尽可能缩短滤波电容和P & GND 引脚间的连线。推荐在P & GND 引脚间使用0.1 ~ 0.22 μF 的高频无感电容C_{DCCS}。
To prevent surge destruction, the wiring between the smoothing capacitor and the P & GND pins should be as short as possible. The use of a high-frequency non-inductive C_{DCCS} capacitor of around 0.1 ~ 0.22 μF between the P & GND pins is recommended.

轮廓封装详图 / Detailed Package Outline Drawings



Unit : mm

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