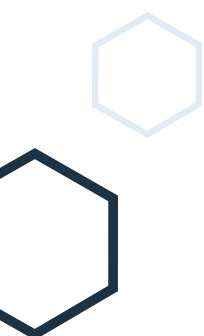


# onsemi™

系统方案指南——预览

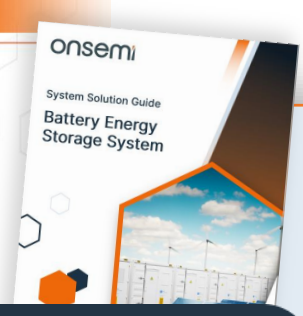
## 电池储能系统



onsemi.cn

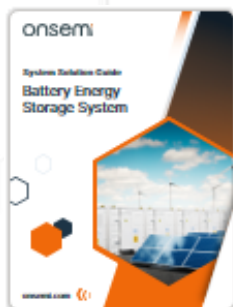


<b>概述</b>	
应用	03
系统目标	04
市场信息与趋势	05
<b>系统实现与描述</b>	
构建电池储能系统 (BESS) 的四个要素	07
双向工作	08
<b>解决方案概述</b>	
框图 - 交流耦合与直流耦合电池储能系统	09
电源模块解决方案	11
初级侧PWM QR控制器与以太网接口	12
EliteSiC M3 MOSFET与场截止7代IGBT	13
如何选择栅极驱动器	14
常见拓扑结构	15
<b>推荐产品</b>	17
<b>开发工具与资源</b>	20
<b>技术文档与评估板</b>	
技术文档	21
评估板	22



onsemi  
System Solution Guide  
Battery Energy  
Storage System

立即注册，解锁全部系统方案指南



1



2



3



4



5



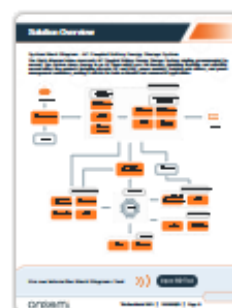
6



7



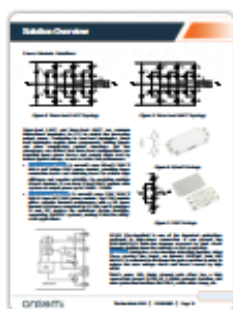
8



9



10



11



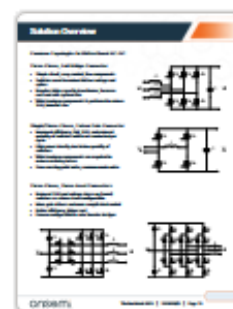
12



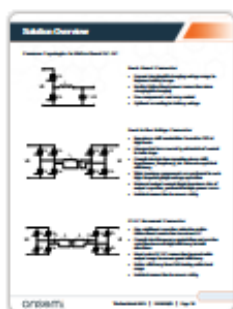
13



14



15



16



17



18



19



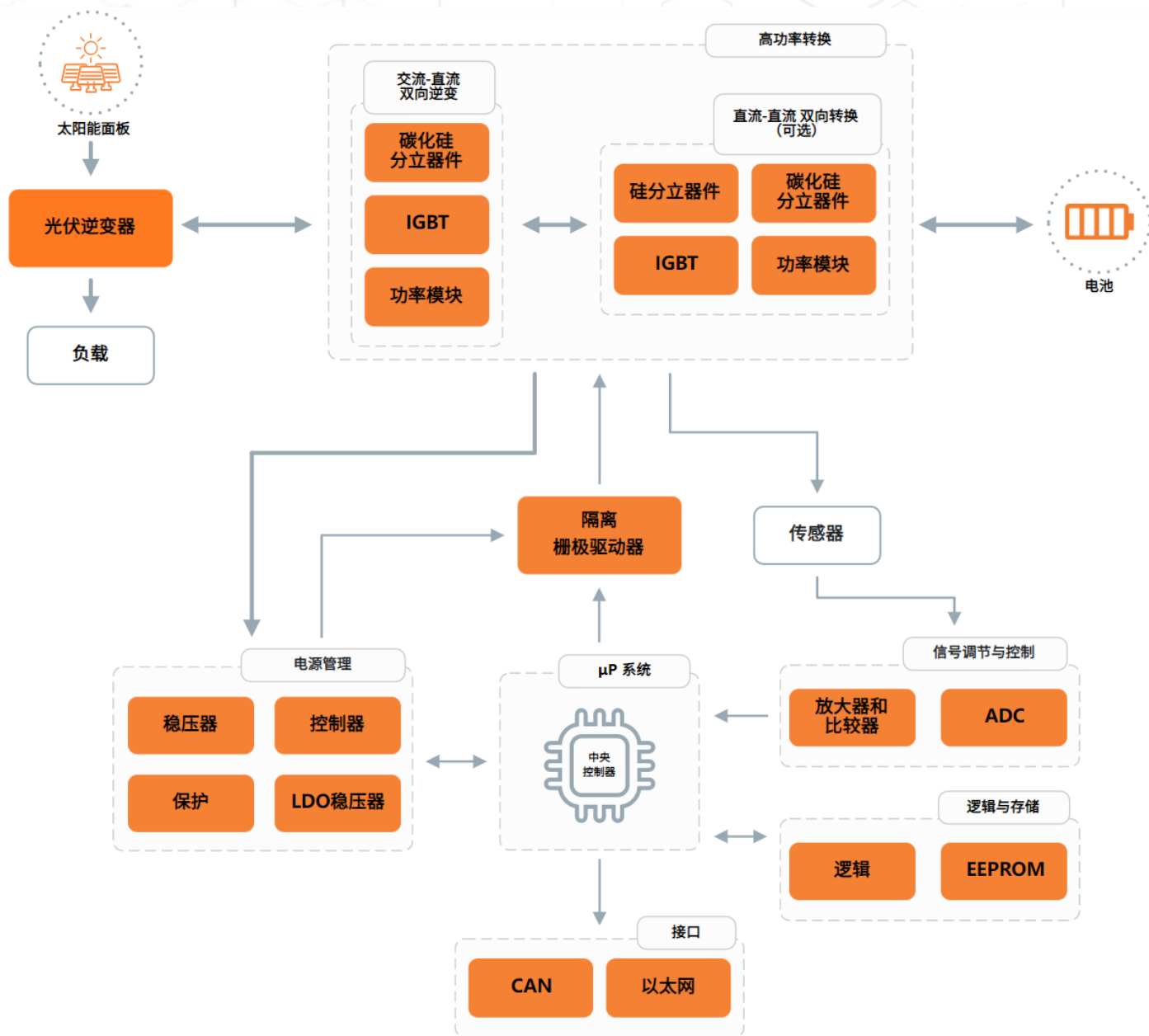
20

# 框图 - 交流耦合电池储能系统

获取最新版本

## 框图 - 交流耦合电池储能系统

下图展示了安森美 (onsemi) 推荐的交流耦合电池储能系统解决方案。该系统通过使用一个逆变器, 可实现交流电储能, 兼具灵活性和可靠性。安森美提供其中的关键产品, 包括分立式碳化硅 (SiC) 器件和 IGBT, 电源模块、隔离栅极驱动器以及电源管理控制器, 适用于住宅和商业应用。



使用我们的交互式框图工具



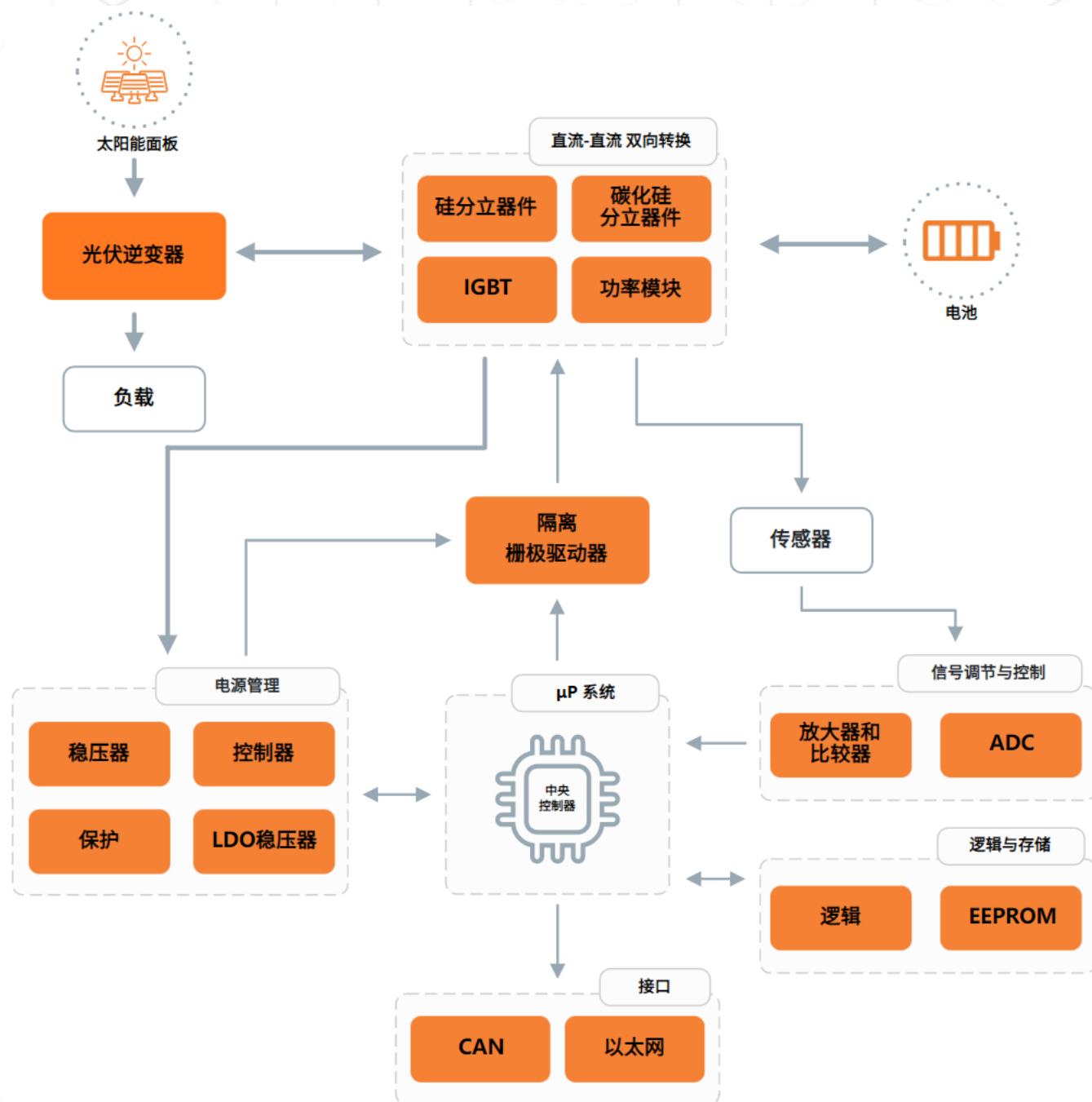
打开交互式框图工具

# 框图 - 直流耦合电池储能系统

获取最新版本

## 框图 - 直流耦合电池储能系统

下图展示了**安森美**推荐的直流耦合电池储能系统解决方案。该系统直接从光伏组件存储电能，最大程度降低转换损耗，保障系统效率。**安森美**提供的关键产品包括分立式碳化硅（SiC）器件和IGBT，电源模块、隔离型栅极驱动器以及电源管理控制器，适用于住宅、商业和公用事业应用。



使用我们的交互式框图工具



打开交互式框图工具

## 电源模块解决方案

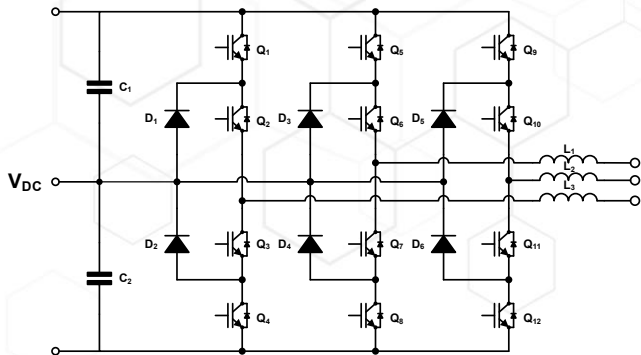


图 4: 三电平 I-NPC 拓扑

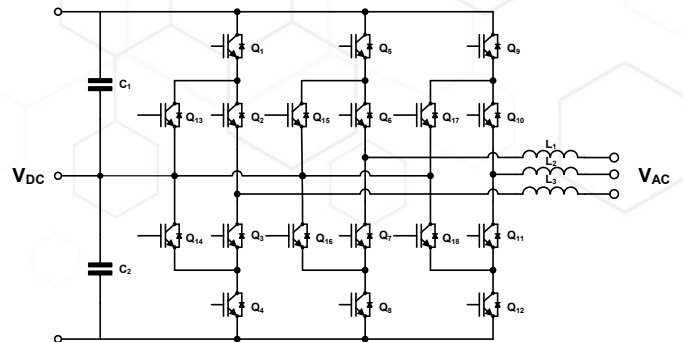


图 5: 三电平 ANPC 拓扑

三电平 I-NPC 和三电平 ANPC 是电源转换系统 (PCS) 中常见的双向拓扑结构, 可满足输出功率不断增长的需求。与两电平拓扑相比, 三电平拓扑需要更多的元器件、驱动信号以及更复杂的控制结构。但其优势也十分明显: 三电平结构能够有效降低功率损耗和电流纹波 (由于所承受电压减半), 并具有更好的抗电磁干扰 (EMI) 性能。

- [NXH800H120L7QDSG](#) 是安森美最新推出的 QDual3 系列 1200V 800A 半桥 IGBT 电源模块, 具有更低的导通损耗和开关损耗, 从而实现高效率 and 卓越的可靠性。通过并联多个 QDual3 模块, 可以构成三电平 ANPC 模块, 系统的设定输出功率可高达 1.6MW 至 1.8MW。
- [NXH600N105L7F5S1HG](#) 是安森美最新推出的 F5BP 系列 1050V 600A I-NPC IGBT 电源模块。该 F5BP 模块在热性能方面表现出色, 其热阻比 F5-PIM 模块低 9%。它结合了硅 (Si) 和碳化硅 (SiC) 器件, 优化了设计灵活性, 支持 1500V DC 系统, 是公用事业级应用的理想之选。

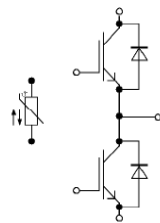


图 6: QDual3 封装

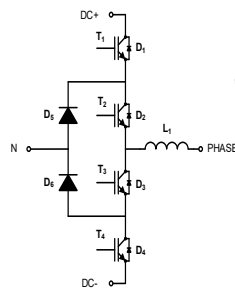
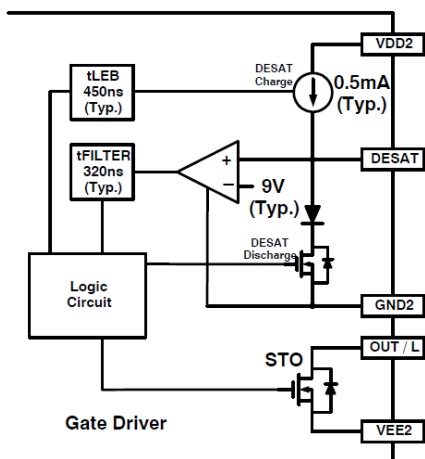


图 7: F5BP 封装



DESAT (去饱和) 是大功率转换中首选的重要保护措施之一。它可以通过尽快关断开关器件来防止 IGBT/MOSFET 因短路而损坏。

[NCD57000](#) 集成了去饱和检测功能, 当  $V_{CESAT}$  达到设定阈值时, 内部的 STO (软关断) MOSFET 会被激活, 对栅极电容放电, 以降低因高  $dV/dt$  引起的过压应力和损耗。

此外, 这款单通道栅极驱动器还具有高达 4A/6A 的拉灌电流能力, 5 kVrms 的电气隔离, 以及其它保护功能, 如欠压锁定 (UVLO)、有源米勒钳位等。

# onsemi™

## Intelligent Technology. Better Future.

立即注册，解锁所有系统方案指南并获得更多独家优惠！

- 加入社区论坛讨论。
- 使用Elite Power仿真工具和其他开发工具。
- 观看独家网络研讨会和讲座。

浏览完整的系统方案指南



onsemi, the onsemi logo, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use onsemi products for any such unintended or unauthorized application, Buyer shall indemnify and hold onsemi and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that onsemi was negligent regarding the design or manufacture of the part. onsemi is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.