



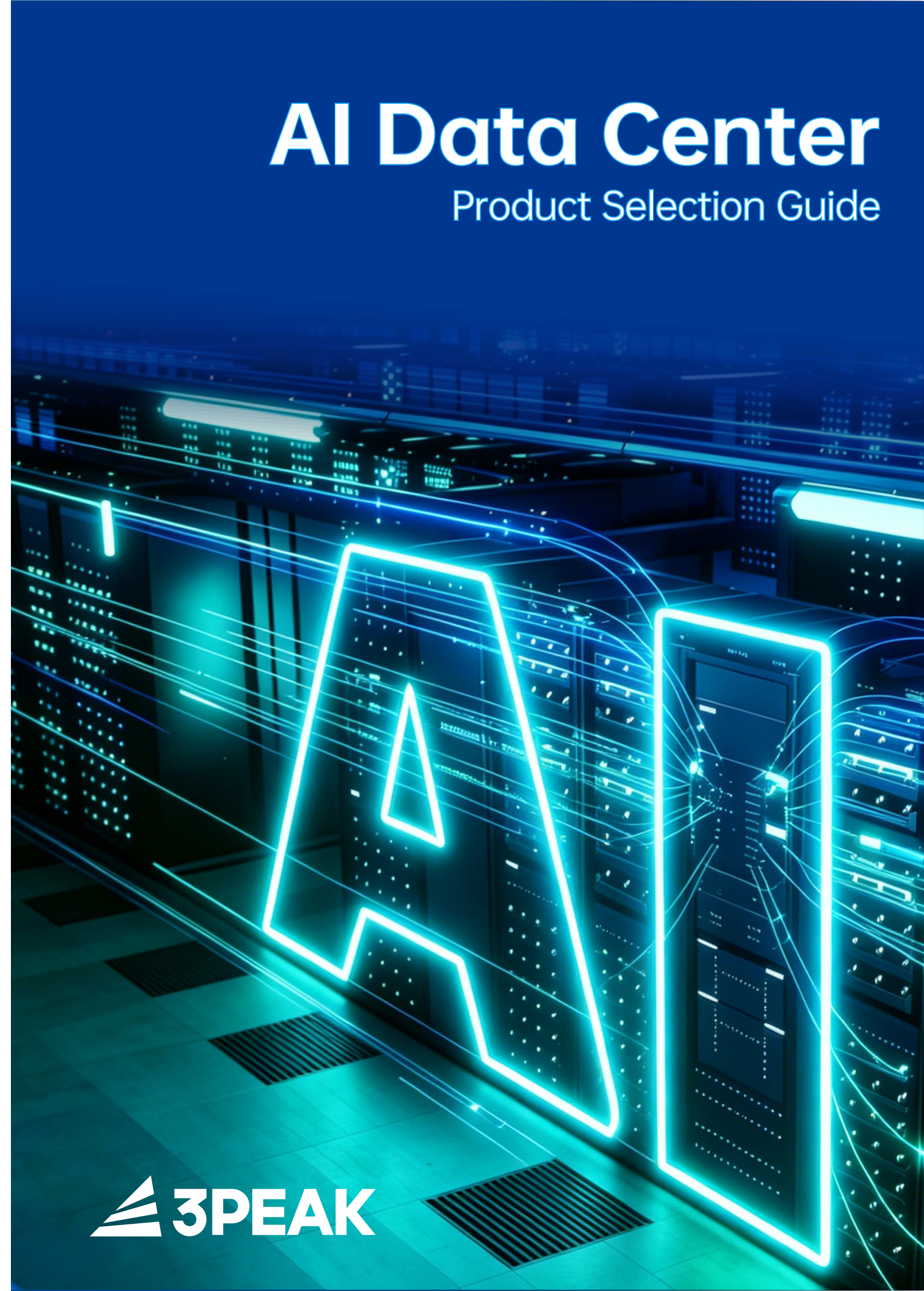
Broad-based Analog Products and Solutions Market Leader

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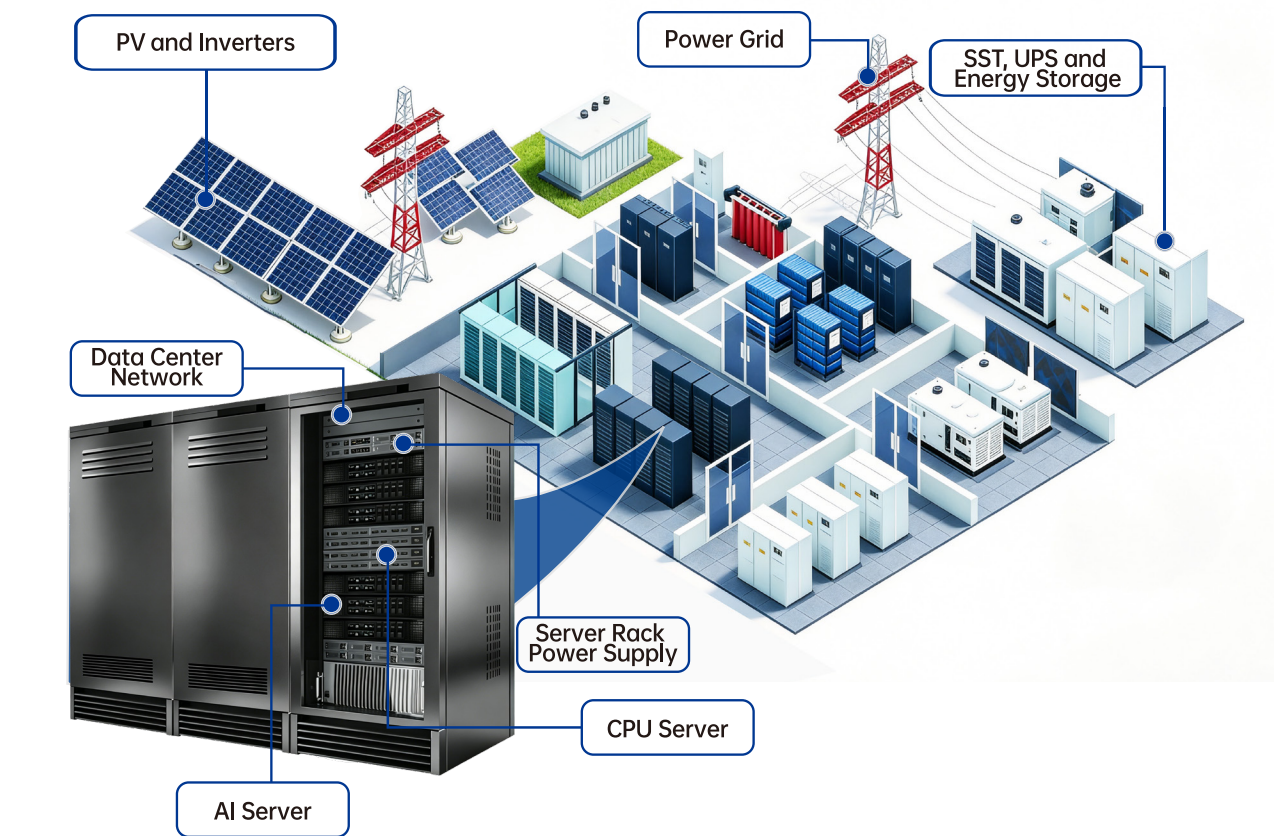


AI Data Center

Product Selection Guide



Core Components of AI Data Centers



The intense scaling of AI relies fundamentally on the underlying analog semiconductor hardware. The high-power density, 24/7 operation, high precision and reliability requirements, and complex electromagnetic environments in these AI data centers impose far more demanding requirements on full-link analog chips than traditional applications.

Leveraging deep expertise in full-category layouts in high-performance analog semiconductors, 3PEAK delivers end-to-end solutions for AI data centers spanning **computing units, data center power supply systems, and AIDC backup power battery management systems (BMS)**. We have served over 100 leading domestic and international customers across AI servers, power modules, and energy storage backup power. This success has driven rapid revenue growth in the AI and data center segments, establishing us as a leading core domestic analog chip supplier for the intelligent computing era.

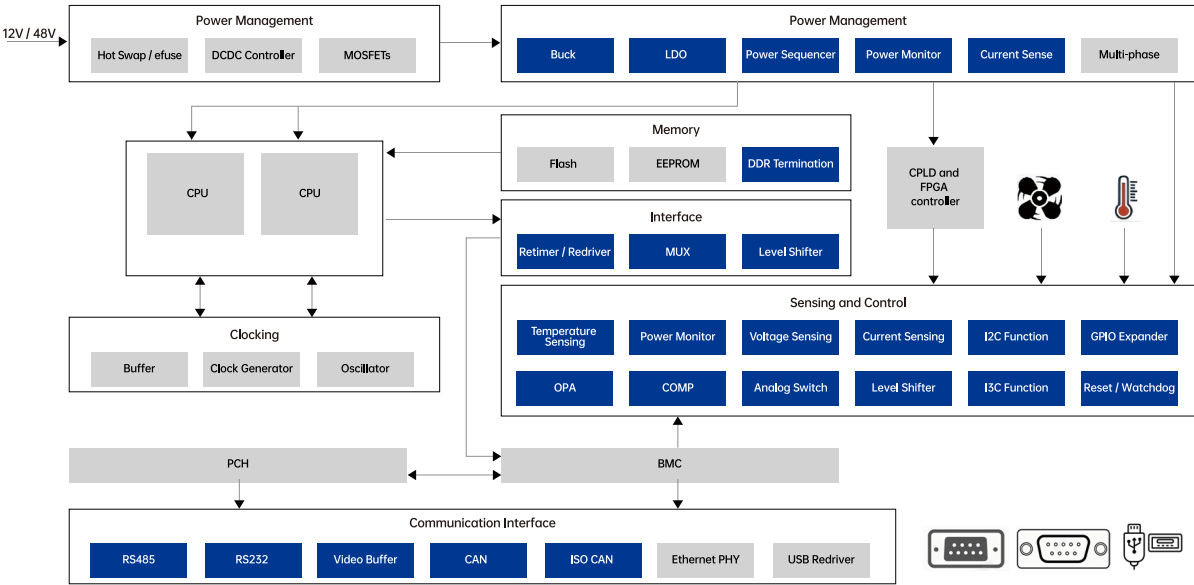
3PEAK Product Portfolio Across Core Components

Category	Product Type	Computing Units			Power Supply Systems			Backup Power BMS	
		General Server	AI Server	Accelerator Card	PSU	BBU	SST	Host-Client BMS	Daisy-Chain BMS
Sensing & Protection	Power Monitor AFE	✓	✓	✓		✓			
	ADC	✓	✓	✓			✓	✓	✓
	OPA	✓	✓	✓	✓	✓	✓		
	CSA	✓	✓	✓	✓	✓			
	COMP	✓	✓	✓	✓	✓	✓		
	Isolated Amplifier				✓	✓	✓		
	Active EMI Filter				✓	✓	✓		
	BMS AFE							✓	✓
Power Management	Temperature Sensor	✓	✓	✓	✓	✓	✓		
	DCDC	✓	✓	✓	✓	✓	✓	✓	✓
	LDO	✓	✓	✓	✓	✓	✓	✓	✓
	Voltage Reference (REF)	✓	✓	✓	✓	✓	✓	✓	✓
	eFuse	✓	✓	✓					
	OR-ing Controller				✓	✓			
	Isolated Power				✓	✓	✓	✓	✓
	Power MOSFET				✓	✓			
Interface Management	Gate Driver				✓	✓	✓		
	Isolated Gate Driver				✓	✓	✓		
	Reset IC	✓	✓	✓	✓	✓	✓		
	I2C	✓	✓	✓				✓	✓
	I3C	✓	✓	✓					
	RS485				✓	✓	✓	✓	✓
Signal Processing	RS232	✓	✓		✓	✓	✓		
	CAN				✓	✓	✓	✓	✓
	Digital Isolator				✓	✓	✓	✓	✓
	Video Buffer	✓	✓						
Signal Processing	Analog Switch	✓	✓	✓	✓	✓	✓	✓	✓
	Voltage Level Translator	✓	✓	✓					
	Logic Devices	✓	✓	✓	✓	✓	✓	✓	✓

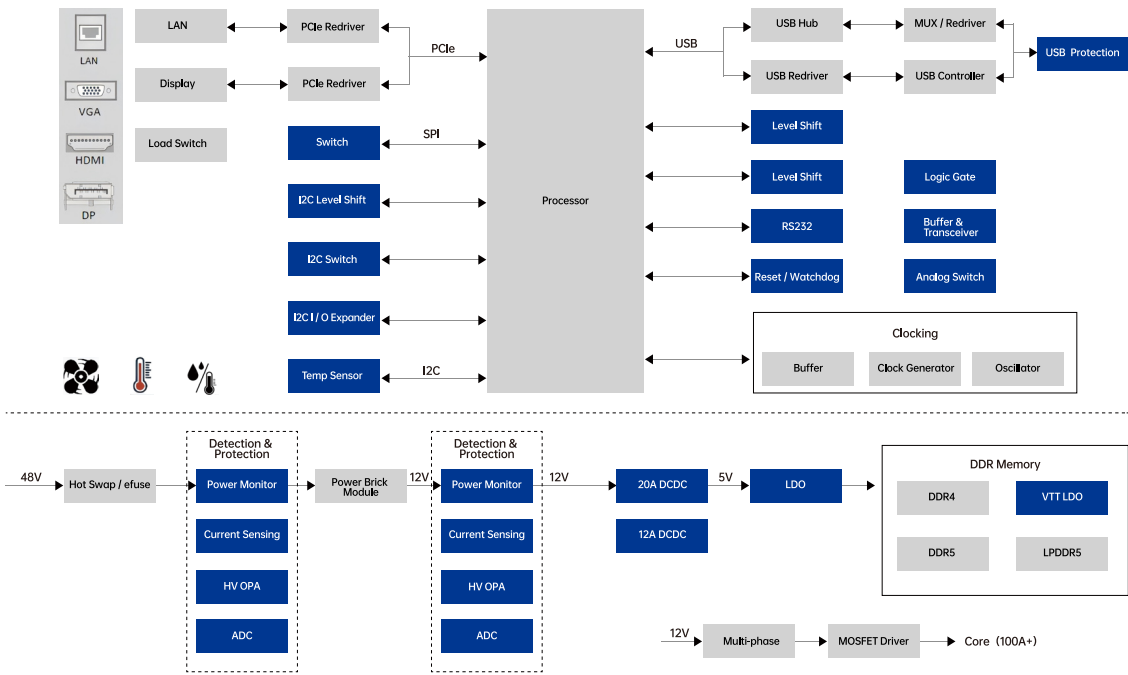
Computing Units

The operational engine of an AI data center, the computing core encompasses CPU/GPU/AI accelerator chip clusters, memory peripherals, board-level signal processing, and power supply networks. To maximize computing efficiency, this application imposes extremely strict demands on analog chips, requiring ultra-high precision power supply monitoring, microsecond-scale signal response, ultra-low noise interference, and long-term stability 24/7 under full-load operation. Even millivolt-level power supply fluctuations may cause computing chip frequency throttling, calculation errors, or even system downtime.

Server Block Diagram



Accelerator Card Block Diagram



Computing Unit Product List

Category	3PEAK PN	Description	Package	Competition
Power Monitor	TPA626	36V 16-bit Input Current/Power Monitor with I2C Interface	MSOP10	INA226
Power Monitor	TPA6270	36V 16-bit Input Current/Power Monitor with I2C Interface	MSOP10	INA226
Power Monitor	TPA630	36V 16-bit Input Current/Power Monitor with I2C Interface	QFN3X3-16	INA230
Power Monitor	TPA631	36V 16-bit Input Current/Power Monitor with I2C Interface	WLCSP-12	INA231
Power Monitor	TPA6190	36V 12-bit Input Current/Power Monitor with I2C Interface	SOP8, SOT23-8	INA219
Power Monitor	TPA6290	36V 3-ch Input Current/Power Monitor with I2C Interface	QFN4X4-16	INA3221
Power Monitor	TPA6271	120V 16-bit Input Current/Power Monitor with I2C Interface	MSOP10	INA237, INA238
ADC	TPAFE0808	8-ch ADC+8ch DAC+GPIO in Small Package with I2C Interfac	QFN3X3-16, WLCSP-16	AD5593
ADC	TPC5022	8-ch 12-bit SAR ADC with I2C	TSSOP-16	ADS7828
Amplifier	LMV321X, LMV358X, LMV324X	5V 1-ch/2-ch/4-ch Rail-to-Rail Input/Output 1.5-MHz Op Amp	SOT353, SOT23-5, SOP8, MSOP8, SOP14, TSSOP14	LMV321B, LMV358B, LMV324B
Amplifier	TPA5561, TPA5562	5V 1-ch/2-ch Zero-Drift Rail-to-Rail Input/Output 3.5-MHz Op Amp	SOT353, SOT23-5, SOP8, MSOP8, TSSOP8	LMP2021, LMP2022
CSA	TPA183	30V Zero-Drift, Precision Current-Sense Amplifier	SOT23-5	INA183, INA210, INA213, INA214
CSA	TPA191	36V Current-Sense Amplifier	SOT363	INA199, INA181, INA191
CSA	TPA132	80V Bidirectional, Current-Sense Amplifier with PWM Rejection	SOP8, TSSOP8	INA240, INA241
CSA	TPA133	95V Bidirectional, Current-Sense Amplifier with PWM Rejection	MSOP8, SOT23-8	INA241
CSA	TPA158	150V VCM, 1 MHz, High-Precision, Current-Sense Amplifier	SOT23-5	INA281, INA293
CSA	TPA2295C	70V High-Side Current-Sense Amplifier with Internal Comparator	MSOP8	INA301, INA281
CSA	TPA1285	76V High Precision, High Voltage, 2-ch Current-Sense Amplifier	MSOP8	INA218x, INA2290
Comparator	TPCMP271, TPCMP272	5V 1-ch/2-ch High-Speed Comparators with Push-pull Output	SOT23-5, SOT353, SOP8, MSOP8	TLV3511, TLV3512
Comparator	LMV331X, LMV393X	5V 1-ch/2-ch Low-Power Comparators with Open-Drain Output	SOT353, SOT23-5, SOP8, MSOP8	LMV331, LMV393
Comparator	LM2903	36V High Voltage, Low Cost, Comparators with Open-Drain Output	SOP8, MSOP8, TSSOP8	LM2903
Temperature Sensor	TPTMP75	Digital Output Temperature Sensor with I2C and SMBus Interface	SOP8, MSOP8	TMP75, LM75
I2C IO Expander	TPT29555A	16-bit I2C to GPIO Expander	TSSOP24, QFN4X4-24	PCA9555, TCA9555
I2C IO Expander	TPT29554A	8-bit I2C to GPIO Expander	TSSOP16	PCA9554, TCA9554
I2C IO Expander	TPT29508	8-bit I2C to GPIO Expander with Voltage-Level Translation	QFN1.8X2.6-16	TCA6408A
I2C Arbiter	TPT29641	2-Channel I2C-Bus Host Arbiter	TSSOP16, QFN3X3-16	PCA9641
I2C Switch	TPT29545	4-Channel I2C Switch with Interrupt and Reset	TSSOP20	PCA9545, TCA9545
I2C Switch	TPT29546L	4-Channel I2C Switch with Reset, VCC = 1.65V - 5.5V	SOP16, TSSOP16	PCA9546, TCA9546
I2C Switch	TPT29548L	8-Channel I2C Switch with Reset, VCC = 1.65V - 5.5V	TSSOP24, QFN4X4-24	PCA9548, TCA9548
I2C Hotswap Buffer	TPT29511H	Hot-Swap I2C-Bus Buffer	SOP8, MSOP8	PCA9511A, TCA9511A, TCA4311A
I2C Level Shifter	TPT29617A	Dual-Channel Bidirectional I2C Bus Level Shift and Repeater	SOP8, MSOP8	PCA9617A, TCA9617A
I2C Level Shifter	TPT29306	Dual-Channel Bidirectional I2C Bus and SMBus Voltage-Level Translator	MSOP8, VSSOP8, DFN1.4X1-8, DFN3X4-8	PCA9306

Computing Unit Product List

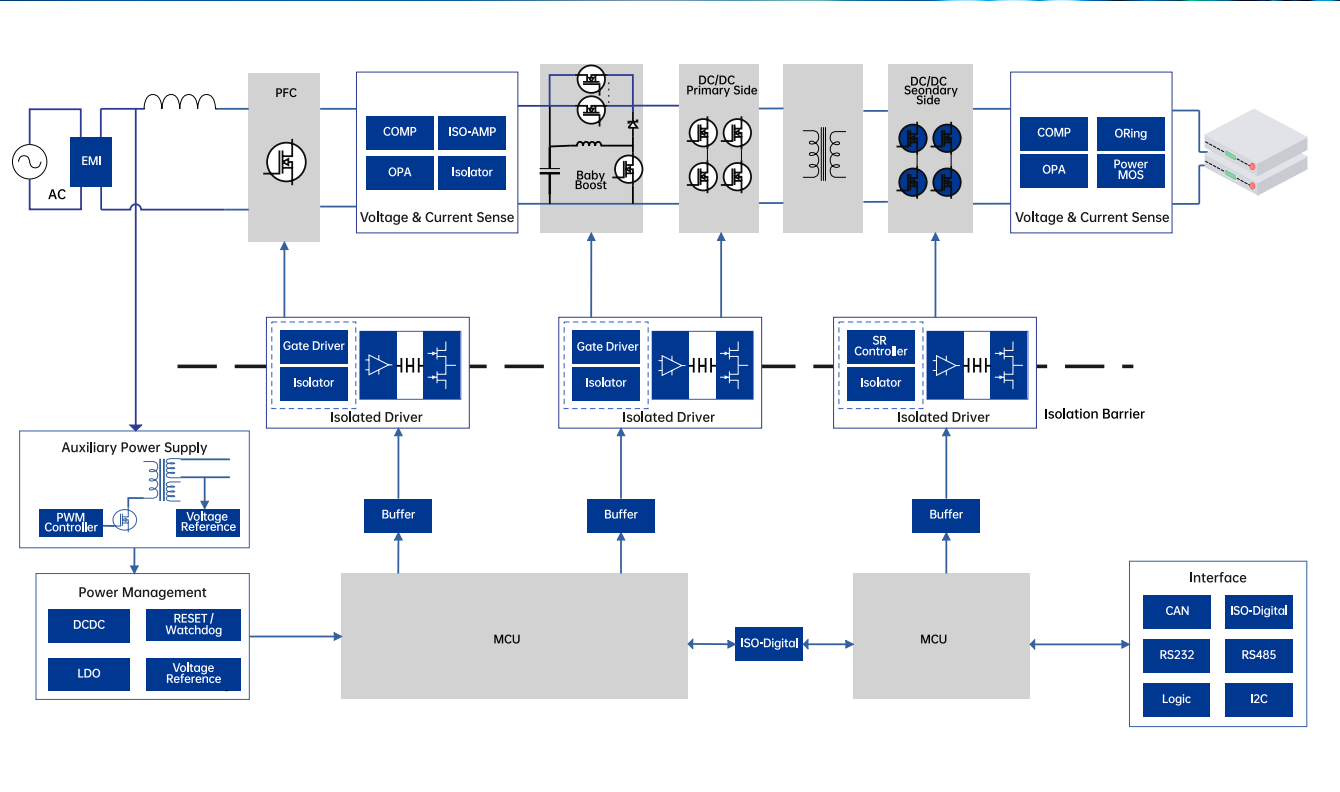
Category	3PEAK PN	Description	Package	Competition
I3C Level Shifter	TPT29336	Dual-Channel Bidirectional I3C-Bus and SMBus Voltage-Level Translator	SOP8, VSSOP8	PCA9306, TCA39306
I3C Level Shifter	TPT29606	Dual-Channel Bidirectional I3C/I2C-Bus and SPI Voltage-Level Translator	SOT23-8, DFN1.4X1-8	P3A9606, TCA39416
I3C Hub	TPT23H87/88/89	I3C Hub with 2:8 Ports	QFN4X4-28	RG3MB87B12, RG3MB88B12, RG3MB89B12
I3C Hub	TPT23H47/48/49	I3C Hub with 2:4 Ports	QFN4X4-28	RG3MB47B12, RG3MB48B12, RG3MB49B12
Level Shifter	TPT20104	4-ch Bidirectional 80-Mbps Level Shifter with OD and Push-Pull Output	TSSOP14, QFN3.5X3.5-14, QFN1.7X2-12	TXS0104, NXS0104
Level Shifter	TPT20108	8-ch Bidirectional 80-Mbps Level Shifter with OD and Push-Pull Output	TSSOP20, QFN3.5X4.5-14, QFN1.7X2-12	TXS0108, NXS0108
Level Shifter	TPT20204	4-ch Bidirectional 100-Mbps Level Shifter with Push-Pull Output	QFN1.7X2-12	TXB0204, NXB0204
Level Shifter	TPT20208	8-ch Bidirectional 100-Mbps Level Shifter with Push-Pull Output	TSSOP20, QFN3.5X4.5-20	TXB0208, NXB0208
Analog Switch	TPW3257	4-ch 2:1 400-MHz Bus Switch	SOP16, TSSOP16, QSOP16	SN74CBTLV3257, SN74CB3Q3257, SGM330
Analog Switch	TPW3227	2.5-GHz 1:2 Multiplexer and Demultiplexer Analog Switch, USB 2.0	QFN1.4X1.8-10	TMUXHS221, SGM722x
Analog Switch	TPW3625	6-Channel, 1:2 Multiplexer and Demultiplexer with 1.8V Logic Compatible Control Inputs	QFN4X4-24	TS3A27518E, SGM6505
Analog Switch	TPD160221	16-Gbps 2-ch Diff 2:1 Multiplexer and Demultiplexer Switch, USB3.x, PCIe Gen3/4, SAS 3.0	QFN2.5x4.5-20	TMUXHS4212, CBTLO2043A, TC7PCI3212MT
RS232 Transceiver	TPT3232A	3-V to 5.5-V, 250-kbps 2T2R RS-232 Transceivers	SSOP16, TSSOP16, SOP16	MAX3232E, TRS3232, ST3232E
RS232 Transceiver	TPT3335	3-V to 5.5-V, 1-Mbps 3T5R Multi-Channel RS-232 Transceiver	SOP28, TSSOP28, SSOP28, QFN5X5-32	MAX3243
LDO	TPL9308	3-A 0.8-V REF High-Current High-Accuracy Low-Noise LDO	QFN3.5X3.5-20	TPS7A8400
LDO	TPL9305	3-A 0.5-V REF High-Current High-Accuracy Low-Noise LDO	QFN3.5X3.5-20	TPS7A8401
LDO	TPL9218	2-A 0.8-V REF High-Current High-Accuracy Low-Noise LDO	DFN2.5X2.5-10	TPS7A9201
LDO	TPL51200	3-A Sink and Source DDR Termination Regulator	DFN3X3-10	TPS51200
LDO	TPL7031	350-nA Ultra Low Quiescent Current, 300mA Linear Regulator	SOT23-5, DFN1X1-4	TPS7A03, SGM2040
Voltage Reference	TL431	Precision Programmable Shunt Voltage Reference	SOT23G-3	TL431
Voltage Reference	TPR6040	High-Precision Shunt Voltage Reference	SOT23G-3	LM4040, TL4040, TL4050, ADR504x
eFuse	TPS14P50	12-V 5-A eFuse Protection Switches with Inrush Control	DFN3X3-10	TPS259260, TPS259261
eFuse	TPS05P50	5-V 5-A eFuse Protection Switches with Inrush Control	DFN3X3-10	TPS259250, TPS259251
POL	TPP22006	16-V 20-A Sync. Step-Down Regulator with Fixed Frequency	QFN3X4-21	MPQ8633B
POL	TPP21206	16-V 12-A Sync. Step-Down Regulator with Fixed Frequency	QFN3X4-21	MPQ8633A
Reset	TPV8308	Low Quiescent Current Supervisory Circuits with Programmable Reset Delay	SOT23-6, DFN2X2-6	TPS3808
Watchdog	TPV706	Low-Voltage Supervisory Circuits with Power-Fail Detector	SOP8	ADM706
Sequencer	TPK1031	Simple 3-ch Power Sequencer with Adjustable Timing	MSOP8	LM3881
Sequencer	TPK1034	4-Channel Power Supply Sequencing and Supervisory Circuits	QFN3.5X3.5-20	SGM864
Video Buffer	TPF153	Low Power, 3-Channel 6-dB gain Video Buffer for HD-Video	SOP8	THS7316, THS7314
Video Buffer	TPF143	Low Power, 3-Channel 6-dB gain Video Buffer for HD-Video	SOP8	THS7316, THS7314
Logic Products		Please refer to Logic Products Selection Guide	Click ► https://static.3peak.com/res/doc/guide/3peak_logical-product-selection-guide_cn.pdf	

Data Center Power Supply Systems

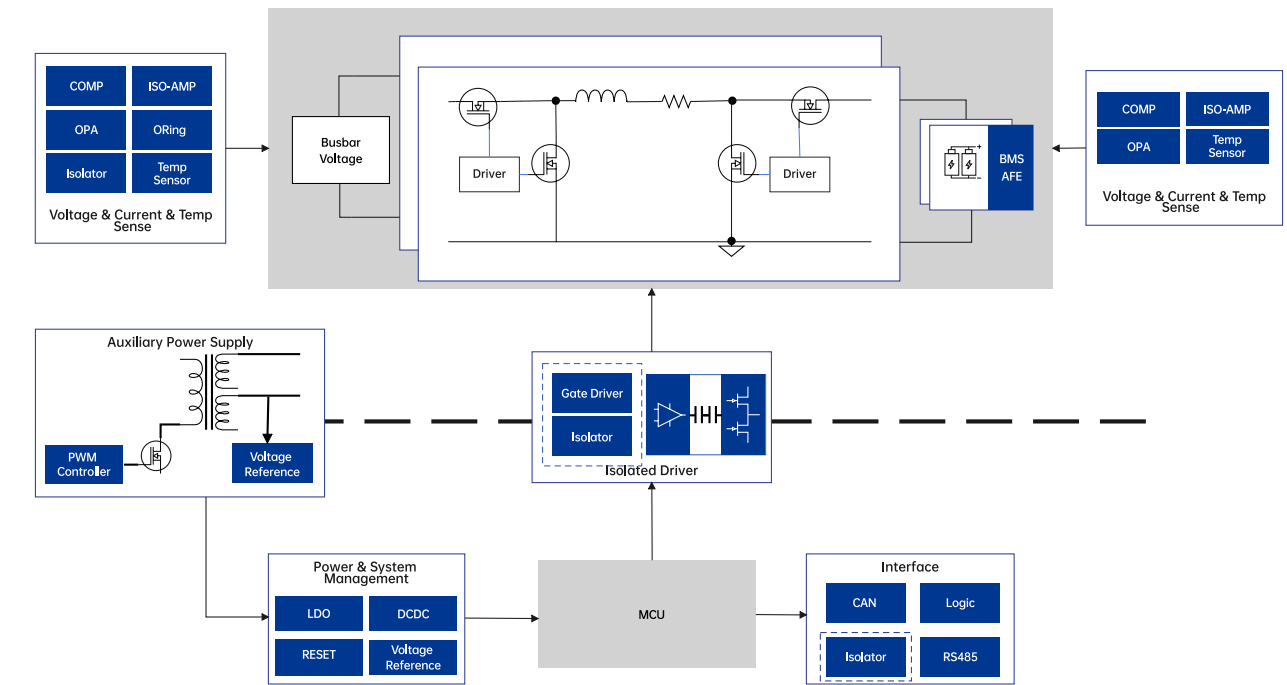
The data center power supply system serves as the "energy artery" of AI data centers, covering three core scenarios: power modules (PSU), battery backup units (BBU), and solid-state transformers (SST). It runs through full-link power conversion from medium voltage to low voltage, PFC power factor correction, isolated bidirectional DC/DC conversion, DC bus voltage regulation, and redundant protection.

With a single AI server power consumption exceeding 10kW and wide adoption of 800V high-voltage architectures, power supply systems impose rigorous demands on analog chips: high-frequency power conversion, nanosecond-scale transient response, high-noise-immunity isolated drivers, low-EMI electromagnetic compatibility design, high reliability for redundant power supply, and compliance with strict energy efficiency standards for minimum 10-year service life requirements.

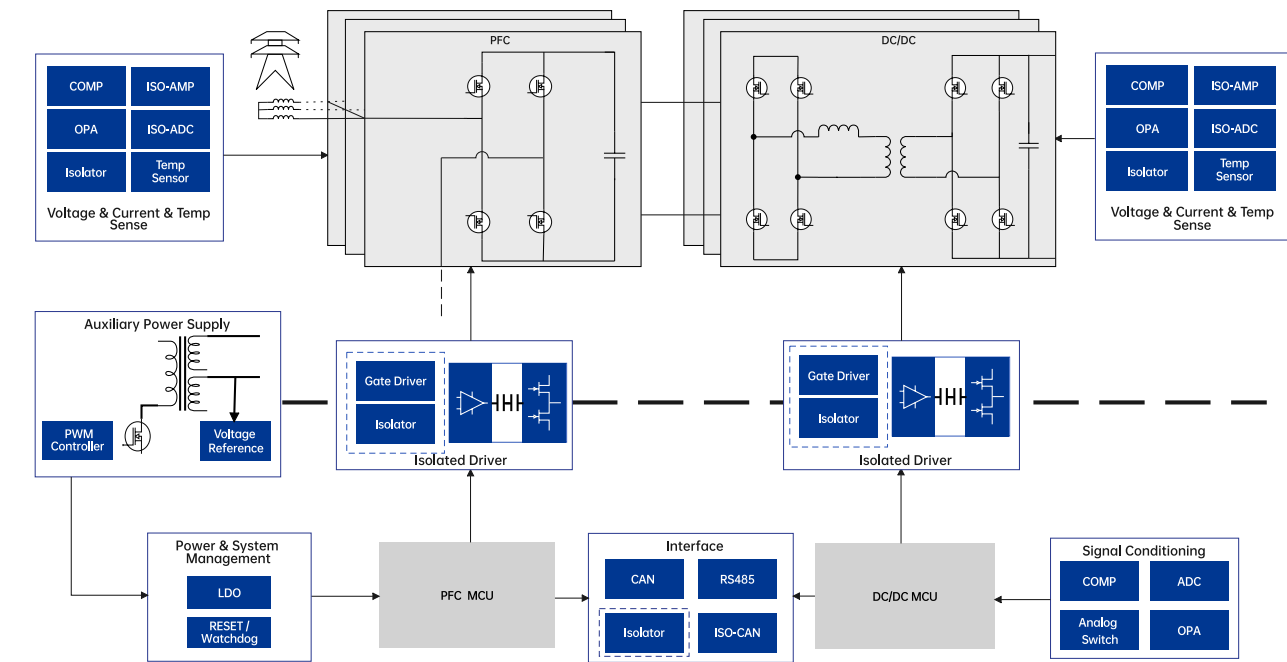
PSU Block Diagram



BBU Block Diagram



SST Block Diagram



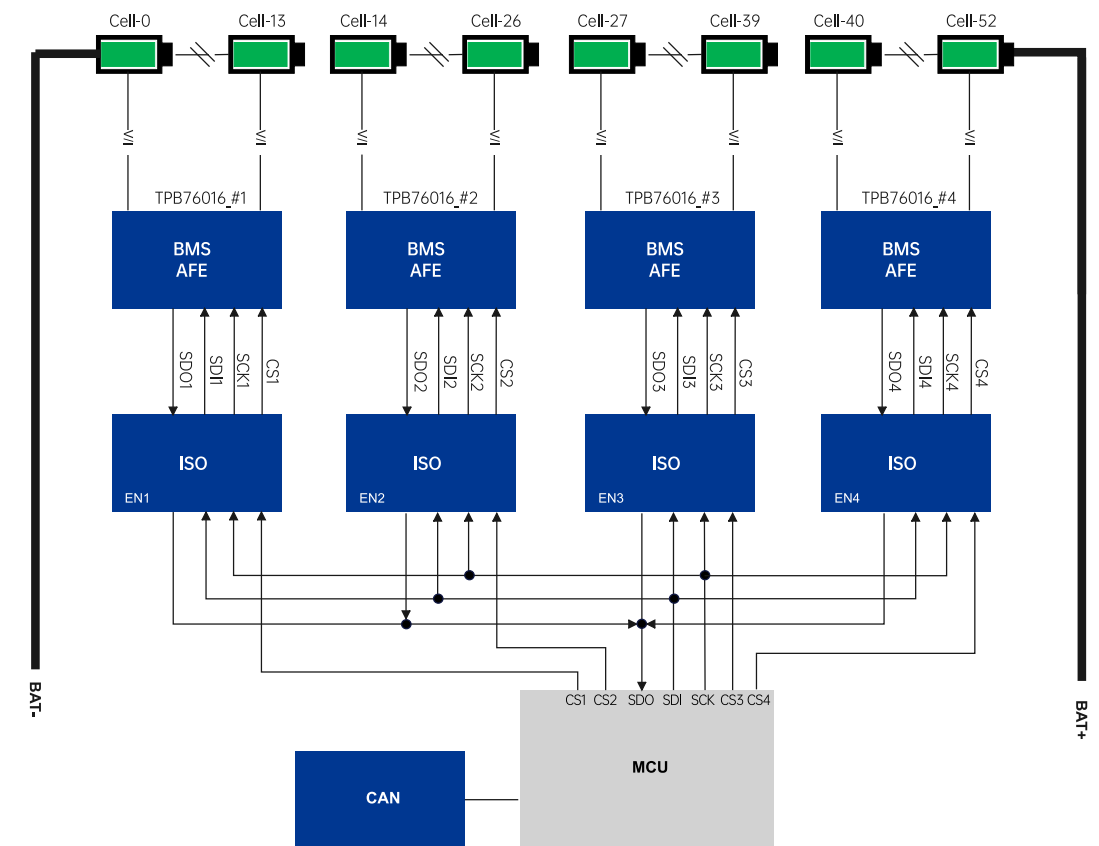


Power Supply System Product List

Category	3PEAK PN	Description	Package	Competition
Comparator	LM393, LM339	40V 2-ch/4-ch High-Voltage Comparators with Open-Drain Output	SOP8, MSOP8, TSSOP8, SOP14, TSSOP14	LM339, LM393
Comparator	TP1961, TP1962, TP1964	7ns, 1/2/4, Ultra-High-Speed, +3V/+5V, Beyond-the-Rails Comparators	SOT23-5, SOT353, SOP8, DFN2X2-8	
Amplifier	TPA1551, TPA1552, TPA1554	40V 1-ch/2-ch/4-ch 6-MHz Bipolar Input Op Amp	SOT23-5, SOP8, MSOP8, TSSOP8, SOP14, TSSOP14	LM2904, LM2902
Amplifier	TP5531, TP5532, TP5534	5.5V 1-ch/2-ch/4-ch 350-kHz 42-μA RRIO Zero-Drift Operational Amplifier	SOT23-5, SOT353, SOP8, DFN2X2-8, MSOP8, SOP14, TSSOP14	SGM855x
Amplifier	TP2261, TP2262, TP2264	36V 1-ch/2-ch/4-ch 3.5-MHz 15-V/μs Operational Amplifier	SOT23-5, SOT353, SOP8, DFN2X2-8, DFN3X3-8, MSOP8, SOP14, TSSOP14	OPAx171
Amplifier	TPA6581, TPA6582, TPA6584	5.5V 1-ch/2-ch/4-ch Low-Noise, 10-MHz, Operational Amplifier	DFN0.8X0.8-4, DFN2X2-8, SOT23-5, SOT353, SOP8, TSSOP8, MSOP8, SOP14, TSSOP14	TLV906x, SGM72x, MCP602x
CSA	TPA191	36V Current-Sense Amplifier	SOT363	INA199, INA181, INA191
CSA	TPA158	150V VCM, 1 MHz, High-Precision, Current-Sense Amplifier	SOT23-5	INA281, INA293
Isolated Amplifier	TPA8012	±1.6-V Input Isolated Amplifier	SOP8, WSOP8	NSI1312
Temperature Sensor	TPR9001	Linear Thermistor	X1SON, SOT23-3	TMP35
Active EMI Filter	TPAEF0040	Active EMI Filter for Common-mode Noise Mitigation	SOP8	
Active EMI Filter	TPAEF0041	Active EMI Filter for Common-mode Noise Mitigation	SOP8	
Hall Sensor	TPA850x	Hall Current-Sense Amplifier	SOP8, SOW16	NSM211x, ACS3703X, TMCS11xx
PWM Controller	CM2842	High-Performance Current Mode Controller	SOP8, DIP8	UCC2842
Isolated DCDC	TPM6902	40-V, 1-A Full-Bridge Transformer Driver for Isolated Power Supplies	ESOP8, EMSOP8	VPS8703
Isolated DCDC	TPQ5180	75-V, PSR Flyback DC/DC Converter with 100-V, 1.5-A Internal Switch	DFN4X4-8	LM5180
DCDC	TPP36208	36-V Input, 2-A Synchronous Step-Down Voltage Regulator	TSOT23-6	TPS54202, LMR51402
DCDC	TPP00801	80V Synchronous Buck Controller	QFN4.5X3.5-20	LM5145
LDO	TPL8031	40-V 300-mA Wide-Input Ultra-Low Quiescent Current Low-Dropout Linear Regulator	SOT89-3, SOT23-5, SOT223-3	TPS709, TPS7B82
LDO	TPL51117x	16-V 800-mA, Low-Dropout Linear Regulator	SOT223-3	LM1117, SPX1117, TLV1117
Gate Driver	TPM27524	Dual 5-A High-Speed, Low-Side Gate Driver	SOP8, EMSOP8, DFN3X3-8, DFN2X2-8, DFN1.5X1.5-8	UCC27524
Isolated Gate Driver	TPM5355	5-A/5-A, 1-Ch Isolated Gate Driver with Miller Clamp, Split Gate	SOP8, WSOP8	UCC5350
Isolated Gate Driver	TPM21550	4.2-A Source, 7.8-A Sink, 5-kV RMS Dual-Channel Isolated Gate Driver	WSOP16, WSOP14	UCC21550
Half Bridge Driver	TPM27282	120-V Supply, 3.5-A Peak, High-Frequency HS and LS Gate Driver	SOP8, DFN3X3-10	UCC27282
Voltage Reference	TL431	Precision Programmable Shunt Voltage Reference	SOT23G-3	TL431
Ideal Diode Controller	TPS75R01	75-V High-Side Ideal Diode/OR-ing MOSFET Controller	SOT23-6	LM5050
RS485 Transceiver	TPT487A	3-V to 5.5-V, ±20-kV ESD Protected, 500-kbps, Full Fail-Safe, RS-485 Transceiver	SOP8, MSOP8, DFN3X3-8	THVD1500D, SN65HVD3082
Isolated RS485 Transceiver	TPT7487	Isolated Half-Duplex RS485 Transceiver	WSOP16	ISO1410, MAX33070, ISL3274X
CAN Transceiver	TPT1255, TPT1256	Fault Protected High-Speed CAN FD Transceiver with Silent Mode	SOP8, DFN3X3-8	TJA1051, TCAN1051
Isolated CAN Transceiver	TPT71044, TPT71050	Isolated CAN Transceiver with Flexible Data Rate	WSOP8, WSOP16, SMP8	ISO1044, ISO1055
Digital Isolator	TPT76xx	1-ch/2-ch/3-ch/4-ch/6-ch Reinforced High-Performance Digital Isolator	SOP8, WSOP8, SOP16, QSOP16, WSOP16, WWSOP16	ISO77xx, NSI82xx

AIDC backup power and battery management systems (BMS) are the safety insurance for AI data centers, comprising lithium battery packs, BMSs, and power conversion systems (PCS). They monitor the full lifecycle status of battery cells in real time to deliver millisecond-scale uninterrupted power supply during grid faults. This guarantees continuous core computing services, thus serving as the final critical safeguard for the stable operation of data center.

With widespread adoption of 800V high-voltage DC architectures, the industry imposes stricter requirements on BMS voltage precision, millisecond-scale response speed, and insulation safety, driving explosive demand for high-performance BMS solutions.

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AIDC Backup Power & BMS Product List

Category	3PEAK PN	Description	Package	Competition
BMS AFE	TPB76016	17-Channel Battery Management System Analog Front-End	LQFP7X7-48	BQ76952
BMS AFE	TPB79818	18-Cell Automotive Grade, Battery Management Analog Front-End	eLQFP10X10-64	BQ79718
BMS AFE	TPB7717	Automotive Grade SPI Communication Interface with Functional Safety Compliance	TSSOP-16	BQ79600
ADC	TPC6160I	16-Bit, 8 kSPS, 4-Channel Sigma-Delta ADC with Internal Reference	MSOP10	ADS1115
ADC	TPC5121	12-Bit 8-Channel 1-MSPS SAR ADC	QFN4X4-24	ADS7951
ADC	TPC6200S	24-Bit, 32 kSPS, 4-Channel Sigma-Delta ADC with Internal Reference	MSOP10	ADS1118
Digital Isolator	TPT7641	4-Channel Reinforced High-Performance Digital Isolator	SOP16, QSOP16, WSOP16, WWSOP16	ISO7741
CAN Transceiver	TPT1255, TPT1256	±15-kV ESD Protected, CAN FD 5-Mbps, Fault Protected High-Speed CAN FD Transceiver with Silent Mode	SOP8, DFN3X3-8	TJA1051
Isolated CAN Transceiver	TPT71050	5-kV RMS Isolation, CAN FD 5-Mbps, Isolated CAN Transceiver with Flexible Data Rate	WSOP8, WSOP16, SMP8	ISO1050
RS485 Transceiver	TPT487L1	±12-kV ESD Protected, 500-kbps, Full Fail-Safe, RS-485 Transceiver	SOP8, MSOP8, DFN3X3-8	SN65HVD3082
Isolated RS485 Transceiver	TPT7487	5-kV RMS Isolation, 500-kbps Isolated Full- and Half-Duplex RS485 Transceiver	WSOP16	ISO3082
Analog Switch	TPW4051	12-V 8:1 General-Purpose Analog Switch	SOP16, TSSOP16, QFN3X3-16, WSOP16	CD4051
DCDC	TPP36308X	36-V Input, 3-A Synchronous Step-Down Voltage Regulator	SOT23-6	LM51430
DCDC	TPP15051	170-V, 0.8-A Buck Converter	SOP8	SD4938
Isolated DCDC	TPM6501	5.5V 1-A Low-Side Center-Tapped Transformer Driver	SOT23-5	SN6501
Isolated DCDC	TPQ5180	75-V, PSR Flyback DC/DC Converter with 100-V, 1.5-A Internal Switch	DFN4X4-8	LM5180
LDO	TPL8031	40-V 300-mA Wide-Input Ultra-Low Quiescent Current Low-Dropout Linear Regulator	SOT89-3, SOT23-5, SOT223-3	TPS7B82, TPS709
LDO	TPL5031	5.5V 300-mA Output, High PSRR, Low-Dropout Linear Regulator	SOT23-5	TLV700
Voltage Reference	TL431	Precision Programmable Shunt Voltage Reference	SOT23G-3	TL431
I2C IO Expander	TPT29555A	16-bit I2C to GPIO Expander	TSSOP24, QFN4X4-24	PCA9555, TCA9555