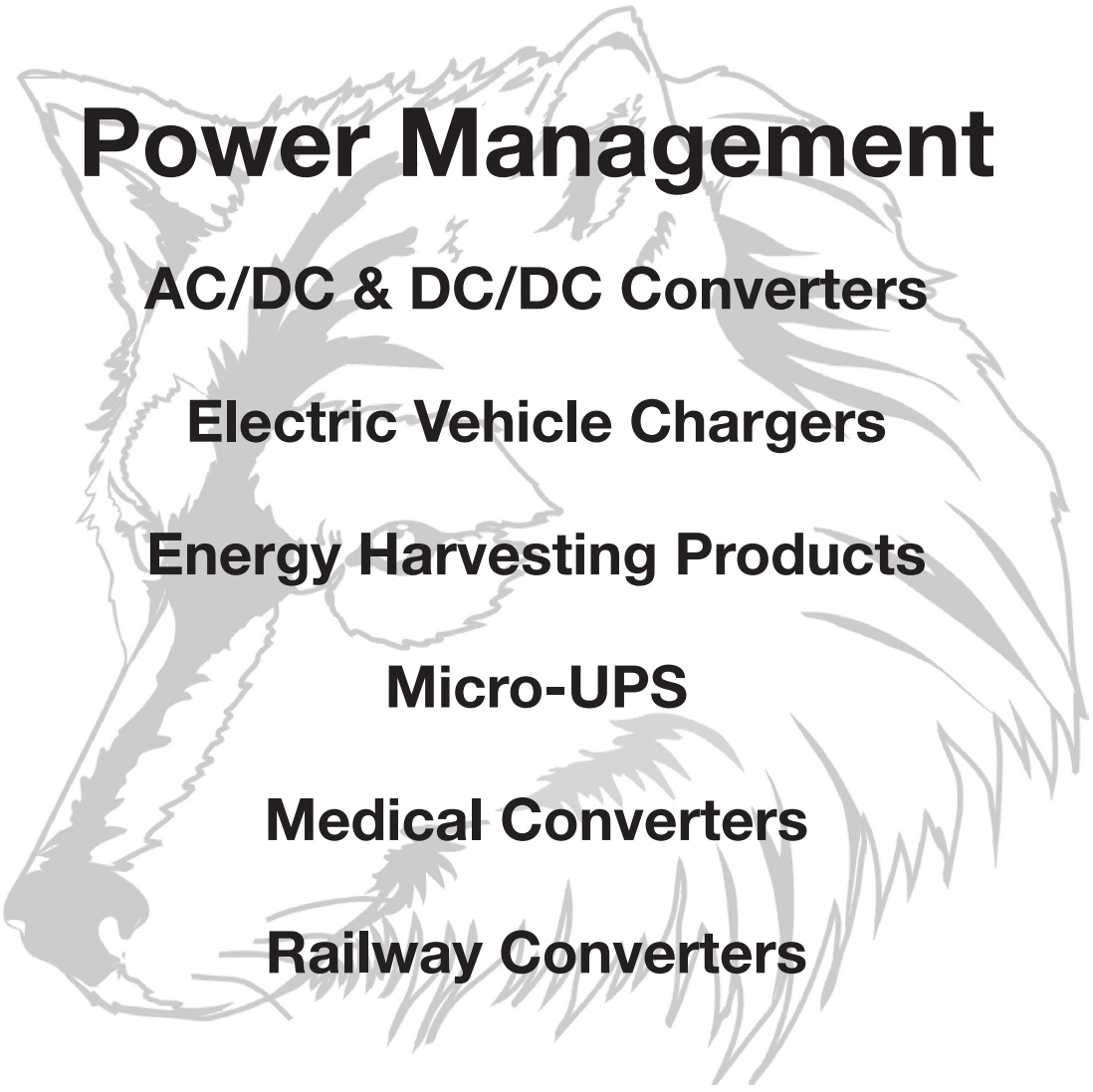
KAMAKA

ELECTRONIC

Bauelemente Vertriebs GmbH



Power Management

AC/DC & DC/DC Converters

Electric Vehicle Chargers

Energy Harvesting Products

Micro-UPS

Medical Converters

Railway Converters

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Products	Description
Brick DC/DC Converters	***Industrial Market Major Features***
	UPS systems for data centers, traffic systems and security •IP video cameras with installed face detection security •IR cameras for automation and process control •Data acquisition instruments •Universal Power Line Carrier (UPLC) equipment •Digital fault recording equipment - Electric utilities substation/ plant •Fuel cell powered systems •Industrial controllers
THT DC to DC Full Brick - 1000 Watt FXP Parallel Full Brick - 1000 Watt FXW Single 1/2 Brick - 500 Watt MXW Single 1/2 Brick - 360 Watt MTW Single 1/4 Brick - 250 Watt QMW Single 1/4 Brick - 150 Watt QSW Single ***Chassis mount solutions and Din Rail*** NCM 40 Watt 2:1 QCM 75 Watt 2:1 HCM 150 Watt 4:1	Industrial high-end, transportation, harsh environment oriented •Ultra-wide input range: 4:1, 9-36V, 18-75V - for battery powered/ backup applications •High efficiency: up to 96.5% - for energy saving and easier thermal management •High power density: 150W-250W @ quarter brick, 360W-500W @ half brick, 1KW @ full brick; for board space saving •Up to 150W chassis mount solutions •Case operating temp.: -40°C to +100°C, extended -55°C to +110°C •Ruggedized packages •Outputs: single to triple output voltages •Isolation: 2250VDC (i/o), up to 4250VDC available •Custom solutions available •5-year warranty
	Transportation Market Major Features
	•Positive Train Control (PTC) •Train tachometers •Platform Track Intrusion Detection Systems (PTIDS) •Signaling passenger trains •Light EV: E-bikes •E-Scooters •Forklift trucks •Automotive accessories •Auxiliary electronics
Calex GWP Power DC to DC RQH, 10 Watt, Railway RQT, 20 Watt, Railway RQF, 50 Watt, Railway RQS, 75 Watt, Railway MBH 1100-2100 Watt EVD-48-S-450-14 EVD-72-S-450-13 EVD-102-S-450-13 Custom DC to DC for vehicles ***Calex GWP Chargers AC to DC*** EVC-116-1200 EV-116-720 EVC-58-400 EVC-57-240-B Custom Chargers	Transportation and EV, demanding environmental conditions •Battery chargers and DC/DC converters •EN50155, EN50121 compliance railway standard solutions •Low line (vehicle) and high line (railway, EV) DC input ranges •Low-high VDC output options (any voltage between 24VDC to 116VDC) •Non-isolated and isolated •Up to IP67 •Up to 97% efficiency •Vehicles: capable of supplying high demanding pulsating loads - up to 100% load transient •Vehicles: supports up to 30ft of input power cable lengths •Vehicles: supports various input voltage transients •Optional - communication interface (SPI bus, CAN bus) •Excellent shock, vibration and thermal performance •Mounting: PCB (Bricks), Chassis •Custom solutions available •5-year warranty

Products	Description
COTS – DC/DC Converters	***Defense Market Major Features***
	Power distribution box-landed/ground based/portable •X-Band/L-Band transmitters: radar sets •Autonomous robotic systems •Man packed radio/satellite terminals •RF inhibitors/jammers (EW) •Rugged computers •Thermal imaging
Full Brick - 1000 Watt FXP Parallel •Full Brick - 1000 Watt FXW Single •1/2 Brick - 500 Watt MXW Single •1/2 Brick - 360 Watt MTW Single •1/2 Brick - 200 Watt GX Single •1/4 Brick - 250 Watt QMW Single •1/4 Brick - 150 Watt QSW Single •CBAM™-Power Quality (MIL-STD-1275B) •EMI Filters (MIL-STD-461E) •MBH 1100-2100 Watt with CAN-Bus option	Military-COTS, demanding, mission critical apps. •Ultra-wide input range: 4:1, 9-36V, 18-75V for battery powered/ back up applications •High efficiency (up to 96.5%) for energy saving and easier thermal management •High Power Density: 150W-250W @ quarter brick, 360W-500W @ half brick, 1KW @ full brick : for board space saving •Case operating temp.: -40°C to +100°C, extended -55°C to +110°C •Shock and Vibration: designed to meet MIL-STD-810G for functional shock and vibration •Complementary front end modules to comply with MIL-STD-461E and MIL-STD-1275B •Outputs: single to triple output voltages •Isolation: 2250VDC (i/o), up to 4250VDC available •Mounting: PCB (Bricks), Chassis •Custom solutions available •5-year warranty •EAR99 classified
	AC/DC - LED Power Supplies
GLC-Series - LED Lightning Power Supplies 18W to 150W (PFC)- constant current & constant voltage 18W, 30W, 40W, 50W, 60W, 80W, 100W, 150W (PFC)	•Input Voltage:100VAC to 277VAC •Output Voltage: 13VDC to max 54VDC (specified in the datasheet) •Protection: OVP, OCP, OTP •Efficiency: <90% •Case: Waterproof IP67 metal case (only the small 18W version - plastic case) •Approvals: CSA/UL/CE








DC/DC Converters for Industrial & Medical Applications

red line: medical version / blue line: railway version

Series	Power (W)	Input Voltage Nominal (VDC)	Range	Output Voltage (VDC)	Isolation	Case Type	Case Dimensions LxWxH (Inches)
SPM	1	5,12	±10%	5,12,15,±5,±12,±15	6kVDC	SIP	0.87x0.30x0.49
SMH	1	5,12,24	±10%	3.3,5,12,15,±5,±12,±15	3kVDC	SMT	0.64x0.31x0.31
DPN	2	5,12,24	10%	5,12,15,±12,±15	4kVAC	DIP	0.94x0.53x0.34
DPT	2	5,12,24	±10%	5,12,15,±5,±12,±15	6kVDC	DIP	1.25x0.80x0.40
SMP	2	5,12,24	±10%	5,12,15,±12,±15	4kVAC	SMT	0.94x0.54x0.35
SPQ	3	12,24,48	4:1	3.3,5,12,15,±5,±12,±15	1.6kVDC	SIP	0.86x0.37x0.44
DPV	3	5,12,24	±10%	5,12,15,±12,±15	3kVAC	DIP	1.25x0.80x0.41
SMZ	5	12,24,48	2:1	3.3,5,12,15,±5,±12,±15	1.5kVDC	SMT	1.31x0.81x0.40
SMW	5	24,48	4:1	3.3,5,12,15,±5,±12,±15	1.5kVDC	SMT	1.31x0.81x0.40
DPL	5 - 6	12,24,48	2:1	5,12,±12,±15	4kVAC	DIP	1.25x0.80x0.40
DMJ	5-6	5,12,24,48	2:1	3.3,5,12,15,±5,±12,±15	1.5kVDC	DIP	1.25x0.80x0.40
DPZ	6	24,48	4:1	3.3,5,12,15,24,±5,±12,±15	3kVDC	DIP	1.25x0.80x0.40
SMQ	6	24,48	4:1	3.3,5,12,15,24,±5,±12,±15	1.5kVDC	SMT	0.87x0.80x0.40
DMS	10	12,24,48	2:1	2.5,3.3,5,5.1,12,15,±12,±15	1.5kVDC	DIP	1.25x0.80x0.40
RQH	10	24,48,110	4:1	5,12,15,24	2.25kVDC	2"x1"	2.00x1.00x0.43
QMH	10	24,48	4:1	3.3,5,5.1,12,15,±5,±12,±15	1.5kVDC	1"x1"	1.00x1.00x0.40
TMR	10	12,24,48	2:1	5,12,±12,±15	4.2kVAC	2"x1"	2.00x1.00x0.47
TMK	12	24,48	4:1	3.3,5,12,15,±5,±12,±15	1.5kVDC	2"x1"	2.00x1.00x0.40
TMS	15	24,48	4:1	3.3,5,12,15,±5,±12,±15	1.5kVDC	2"x1"	2.00x1.00x0.40
RQT	20	24,48,110	4:1	5,12,15,24	2.25kVDC	2"x1"	2.00x1.00x0.43
QMJ	20	24,48	4:1	3.3,5,12,15,±12,±15	1.5kVDC	1"x1"	1.00x1.00x0.40
QMS	25	12,24,48	2:1	3.3,5,12,15,±12,±15	1.5kVDC	1"x1"	1.00x1.00x0.40
QMZ	25	24,48	4:1	3.3,5,12,15,±12,±15	1.5kVDC	1"x1"	1.00x1.00x0.40
KMW	25 - 30	24,48	4:1	3.3,5,12,15,±12,±15	1.5kVDC	2"x1.6"	2.00x1.60x0.37
TMF	40	12,24,48	4:1	3.3,5,12,15,24,±12,±15	1.5kVDC	2"x1"	2.00x1.00x0.40
TML	50	12,24,48	2:1	3.3,5,12,15,24	1.5kVDC	2"x1"	2.00x1.00x0.40
TMX	50	24,48	4:1	3.3,5,12,15,24	1.5kVDC	2"x1"	2.00x1.00x0.43
RQF	50	72,110	2:1	5,12,15,24	3.0kVDC	2.28"x1.45"	2.28x1.45x0.50
RQS	75	72,110	2:1	5,12,15,24	3.0kVDC	2.28"x1.45"	2.28x1.45x0.50

AC DC Power Modules

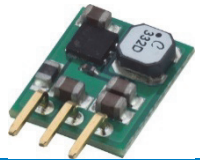
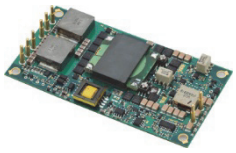
Series	Power (W)	Input Voltage (VDC)		Output Voltage (VDC)	Output Configurations	Case Type
		Nominal	Range			
PK 2	2	115	85-264	3.3,5,8,14,24	Single, Dual	PCB
PK 4	4	115	85-264	3.3,5,9,12,15,24	Single, Dual	PCB
PK 7	7	115	85-264	3.3,5,12,15,24	Single	PCB
PL 10	10	115	85-264	3.3,5,12,15,24	Single	PCB
PK 10	10	115	85-264	3.3,5,12,15,24	Single, Dual	PCB
PK 15	15	115	85-264	5,12,15,24,48	Single, Dual, Triple	PCB
PC 15	15	115	85-264	5,12,15,24,48	Single, Dual, Triple	Chassis
CM25	25	115	88-264	5,12,24,48	Single	Chassis
PK 30	30	115	85-264	5,12,15,24,48	Single, Dual, Triple	PCB
PC 30	30	115	85-264	5,12,15,24,48	Single, Dual, Triple	Chassis
CM35	35	115	88-264	5,12,24,48	Single	Chassis
CM50	50	115	88-264	5,12,24,48	Single	Chassis
PK 60	60	115	85-264	5.1,12,15,24,36,48	Single	PCB
PC 60	60	115	85-264	5.1,12,15,24,36,48	Single	Chassis
CM75	75	115	88-264	5,12,24,48	Single	Chassis
CM100	100	115	88-264	5,12,24,48	Single	Chassis
DNP120	120	115	88-264	12,24,48	Single	DIN
CM150	150	115	88-132/ 176-264	5,12,24,48	Single	Chassis
DNP240	240	115	88-132	12,24,48	Single	DIN

Enclosed Chassis mount & THT power supplies from 25W up to 150W

Protection: OVP, OLP, SCP, OTP
Operating temperature
max.-25°C to +70°C
Output adjust: ±10%
Derating information: specified in the data sheet
Approvals: CE / UL

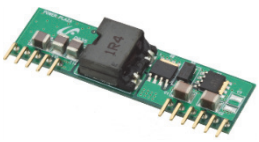
PFC Din Rail mount AC/DC power supplies 120W, 240W, 480W

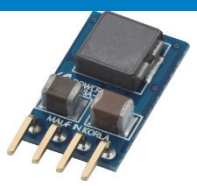
Protection: OVP, OLP, SCP, OTP
Operating temperature
max.-25°C to +70°C
Derating information: specified in the data sheet
Approvals: CE / UL60950 pending

POWER PLAZA

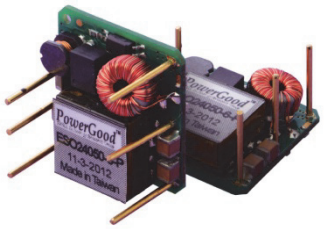
Products	Description
Isolated DC/DC Converters	
SP - Series	1,5W-20W RoHS Long Life Design (only ceramic capacitor)
Input Voltage 2:1	5V, 12V, 24V, 48V Remote on/off
Output: Single, Dual	3.3V, 5V, 12V, 15V, ±5V, ±12V, ±15V Trimmable output single
PT - Series	10W-25W RoHS
Input Voltage 2:1	24V , 48V 6 sided shield metal case
Output: Single, Dual, Triple	3.3V, 5V, 12V, 15V, ±5V, ±12V, ±15V, 3.3V/±12V, 3.3V/±15V, 5V/±12V, 5V/±15V
PBR - Series	50W 2" x 1.6" RoHS
Input Voltage 2:1	18V-36V, 36V - 75V Remote on/off
Output: Single	2.5V, 3.3V, 5V, 12V, 15V Trimmable output
HRS - Series	50W ½ brick RoHS Railway Application 1500VAC full isolation
Input Voltage 2:1	36V-76V, 50V-100V, 65V-150V 6 sided shield metal case
Output: Single	3.3V, 5V, 12V, 15V, 24V Trimmable output Remote on/off
More Variation	
NHS/NHF - Series	100W-150W Open frame ½ brick input 2:1 and 4:1 24V and 48V single output
HF/HS - Series	100W, 150W ½ brick Input 2:1 and 4:1 24V and 48V
	Single output 3.3V, 5V, 12V 6 sided shield
P - Series	1.5W~25W RoHS encapsulated small size
Input Voltage 2:1	5V, 12V, 24V, 48V
Output: Single, Dual	3.3V, 5V, 12V, 15V, ±12V, ±15V
SPT - Series	15W RoHS Remote on/off
Input Voltage 4:1	10V-36V, 20V-72V Six-sided EMI Shield
Output: Single	3.3V, 5V, 12V, 15V Output voltage adjustment (TRM)
YPM - Series	600W RoHS Screw type Pin
Input Voltage	48V, 72V, 96V Input over (under) voltage protection
Output: Single	12V Over temperature protection, over current protection
LPM - Series	600W RoHS Constant current, constant voltage
Input Voltage	48V, 72V, 96V Parallel operation (no current sharing)
Output: Single	13.8V Short circuit protection
Non isolated DC/DC Converters	
SNS- POL Family	5W-75W Input 3V-5.5V, 10V-14V - Output 1V-5V
78NS-Series	Standard 3-Pin switching regulator - Input 4.5V-5.5V - Output 1V-3.3V / 1.5A
AC/DC Converter SF - Series	**AC/DC Universal Input 85VAC to 264VAC or 110VDC to 340VDC**
FS - Series	On-board type – 5W-10W Output: Single, Dual
	Output: Single 3.3V, 5V, 12V, 15V, 24V - Dual ±12V, ±15V
CFS - Series	5W Non-Potting Type
Output	3.3V, 5V, 12V, 15V, 24V Low power consumption at no load
(e)FS - Series	10W, 15W, 30W, 60W Built-in EMI Filter
Output: Single, Dual	3.3V, 5V, 12V, 15V, 24V Dual ±12V, ±15V
(Triple for 10W)	Triple 5V, ±12V, ±15V Chassis type available: FS 15W, eFS 30W

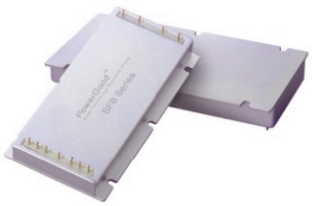



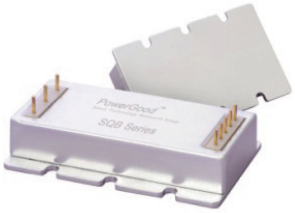
PowerGood™
Small Technology Research Group Co., Ltd.

Manufacturer of encapsulated, brick and open frame DC/DC Converters
All-In-One-Solutions; excellent performance. High integration. Easy to use design for harsh applications; ultra-wide input range; clean energy; high efficiency; RoHS compliant; cutting edge solutions; slim package; ultra-low input range; high isolation voltage; ultra-high quality with endurance.
Temp. range -45°C to 115°C - OTP 120°C Auto Recovery -
Served Markets: Medical Care, Industrial Automation, Military, Railway
Approvals: ISO 9001:2008, RoHS, REACh, UL-certification



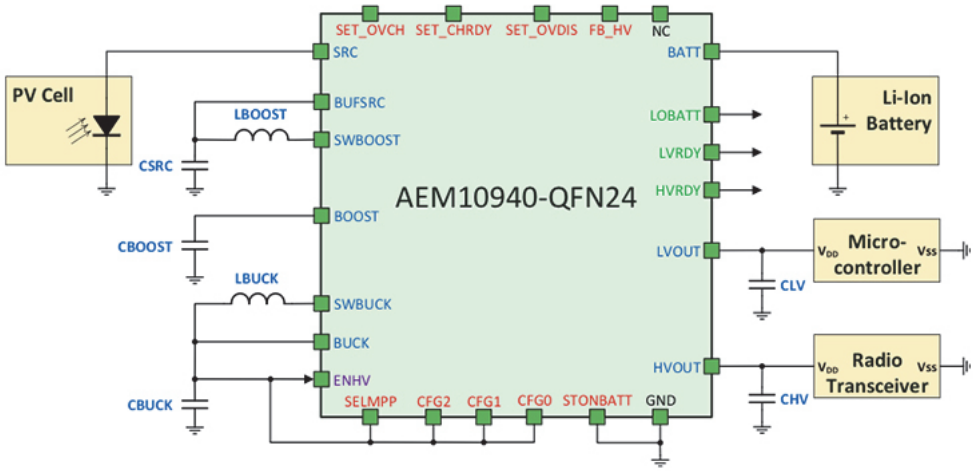
	Encapsulated DC/DC Converters
ESAN Series	Standard Pin Out; DIP24 packages compliant 4:1 ultra-wide input range 4.5-18 & 9-36VDC input-to-output isolation up to 6KVDC Output 3.3V to +/-15V
ESAN Railway Series	Standard Pin Out; DIP24 packages compliant 4:1 ultra-wide input range 40V-160V input-to-output isolation up to 6KVDC Output 3.3V to +/-15V
ESBN Series	Industrial Standard Pin Out; 1.0"x1.0"x0.4"/0.5" package; 4:1 ultra-wide input range 9-36 & 18-75VDC. Input-to-output isolation 2250VDC. Heat-Sink package available.
ESBN Railway Series	Industrial Standard Pin Out; 1.0"x1.0"x0.4"/0.5" package; 4:1 ultra-wide input range 40-160VDC. Input-to-output isolation 2250VDC. Heat-Sink package available. Output 3.3V to +/-15V
ESB Series	Standard Pin Out; fully replaceable with 2.0"x1.0 standard case; 2:1 / 4:1 ultra-wide input range. Input-to-output isolation 2250Vdc. Built-in EMC filter meets EN55022 class B and FCC Level B without external components Output 3.3V to +/-24V
ESC Series	Standard Pin Out; fully replaceable with 2.0"x1.6" standard case; 2:1 / 4:1 ultra-wide input range. Input-to-output isolation 2250VDC. Built-in EMC filter meets EN55022 class B and FCC Level B without external components. Heat-Sink package available. Output 3.3V to +/-24V
ESC Railway Series	Standard Pin Out; fully replaceable with 2.0"x1.6" standard case; 4:1 ultra-wide input range 40-160VDC. 3KV enforceable insulation. Meet EN50155 - Output 3.3V to +/-24V
ESCN Series	Industrial Standard Pin Out; 2.0"x1.0"x0.4" package; 2:1 / 4:1 ultra-wide input range. Input-to-output isolation 2250VDC. Cost performance optimizing Output 3.3V to +/-24V
	Brick Family
STB Series	Industry-Standard DOSA 1/16 Brick compliant; 2:1 / 4:1 input range; Up to 60W output 3.3V to 15V
SQB Series	Industry-Standard DOSA 1/4 Brick compliant; 2:1 / 4:1 input range; Up to 60W output 3.3V to 48V
SHB Series	Standard 1/2 Brick compliant; ultra-wide 4:1 input range; Up to 500W output 3.3V to 48V
SFB Series	Standard Full Brick compliant; ultra-wide 2:1 input range; Up to 960W output 12V to 48V
MQB Series	Multiple Output Brick; ultra-wide 8:1 input range; Up to 60W multiple output
	Open Frame
ESO Series	Standard pin out; 4:1 ultra-wide input range 9-.36 / 18-75VDC; 2500VDC I/O insulation output 3.3V to +/-15V
EST Series	Industry-Standard DOSA pinout; Standard 1/16 Brick foot-print; 0.9"x1.3"; 2:1 / 4:1 ultra-wide input range output 3.3V to +/-15V



Highly efficient, dual regulated output, ambient energy manager

The AEM10940 is an integrated energy management subsystem that extracts DC power from PV cells or TEGs to simultaneously store energy in a rechargeable element and supplies the system with two independent regulated voltages. This allows product designers and engineers to extend battery lifetime and ultimately get rid of the primary energy storage element in a large range of wireless applications such as industrial monitoring, geolocation, home automation, wearables



The AEM10940 harvests the available input power from 1 µW to 50 mW. It integrates an ultra-low-power Boost converter to charge a storage element, such as a Li-Ion battery, a thin film battery or a super- or conventional capacitor. The Boost converter operates with input voltages in a range of 100 mV to 2.5 V. With its unique cold-start circuit, it can start operating with an empty storage element at an input voltage as low as 380 mV and an input power of just 11 µW.The low voltage supply typically drives a microcontroller at 1.8 V. The high voltage supply typically drives a radio transceiver at a configurable voltage. Both are driven by highly efficient LDO (Low Drop-Out) regulators for low noise and high stability.

Ultra-low-power start-up
Cold start from 380 mV input voltage and 11 µW input power (typical)

Ultra-low-power Boost regulator
Configurable MPPT (PV or TEG) with single-pin programming
Open circuit voltage sensing for MPPT
Input voltage operation range from 100 mV to 2.5 V

Integrated LDO regulator at low voltage
1.8 V, high efficiency
Up to 10 mA load current

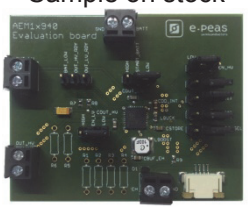
Integrated LDO regulator at high voltage
Configurable from 2.2 V to 4.2 V, high efficiency
Up to 80 mA load current with 300 mV drop-out
Power gated by external control

Flexible energy storage management
Programmable overcharge and overdischarge protection
Suitable for any type of rechargeable battery or (super)capacitor
Fast supercapacitor charging

Smallest footprint, smallest BOM
Only seven passive external components

The AEM1x940 Evaluation Board is a printed circuit board (PCB) assembly featuring all needed components to put in operation the AEM10940 integrated circuit (IC) from e-peas. Please refer to the AEM10940 data sheet for all useful details about this IC. It allows you to test the component and analyze its performance in a laboratory-like environment. The AEM1x940 Evaluation Board is not intended for final implementation in an end-user application.
The board provides easy connections to the source of harvested energy, the storage element, the low voltage load and the high voltage load. It includes all the configuration items to set the device in any modes described in the data sheet. The control and status pins are available on standard pin headers, enabling wiring for any usage scenario and evaluation of the corresponding performance.
The AEM1x940 Evaluation Board is your indispensable tool to take appropriate decisions (component selection, operating modes…) regarding the design of a highly efficient energy harvester subsystem in your target application.

Sample on stock



EVANS CAPACITOR Company
www.evanscap.com

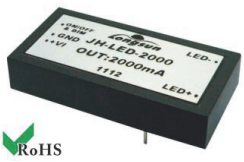
EVANSCAP has the highest energy and power density capacitors
Military grade Tantalum Wet Capacitors - MTBF>5,000,000 hours

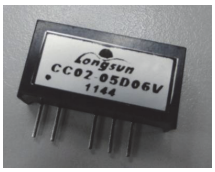
10V-125V with over 100 capacitance ratings in broad range of form factors

Very low ESR, very high current handling capability. Applications range from Avionics/Power hold up, Laser pulse power, Phased array radar pulse power, 200˚C+ models available for oil and gas exploration.

THQ Hybrid Capacitors 1.40” dia	4,500µF to 200,000µF (10V-125V) 85°C (6V-75V) 125°C
TDD Hybrid Capacitors 1.40”square	1,500µF to 30,000µF (50V-125V) 85°C (30V-75V) 125°C
THS3 Hybrid Capacitors	4,200µF to 200,000µF (10V-125V) 85°C (6V-75V) 125°C
THQ & THS Hybrid Capacitors	Stud Mounting SM00 – SM05
HyCap Series Hybrid Capacitors	68µF to 2,200µF (25V-125V) 85°C (15V-85V) 125°C
HyCap Series Hybrid Capacitors	Standard DSCC 93026 & DSCC 10004 ratings
HyCap HT Hybrid Capacitors	68µF to 1,500µF (30V-75V) 175°C (25V-62V) 200°C
THQA2 Hybrid Capacitors	215µF to 10,000µF (10V-125V) 85°C (6V-75V) 125°C
THQA2-HT Hybrid Capacitors	215µF to 560µF (37.5V-62.5V) 175°C (30V-50V) 200°C
TQS2 Shock hard Hybrid Capacitors	1,600µF to 13,000µF (8V-50V) 85°C (4.8V-30V) 125°C
THQ3 Hybrid Capacitors	1,100µF to 50,000µF (10V-125V) 85°C (6V-75V) 125°C
3STHQ3 or 3PTHQ3 Series - 3” Pack	1,100µF to 450,000µF (10V-300V) 85°C (6V-180V) 125°C
6PTHQ3 Series - 6” Pack	20,000µF to 900,000µF (10V-125V) 85°C (6V-75V) 125°C
Capattery Series EDLC	0.47F to 1.5F (5.5V -25V) -55°C to +85°C
HQ Series Hybrid Capacitors	1,100µF to 50,000µF (10V-125V) 70°C

EVANSCAP - POWER WHEN YOU NEED IT!
Approvals: ISO 9001:2008, AS9100





Longsun

Products	Description
Isolated DC/DC Converters	**1W-72W / RoHS** **2-year warranty**
Operating Temperature max.	-40°C to +85°C derating information specified in the datasheet
Case Temperature max.	100°C Isolation 1W - 72W = 1.5KV
Input Voltage ±10%	4.5V-5.5V, 10.8V-13.2V, 21.6V-26.4V 1W - 2W
Input Voltage 2:1	9V-18V, 18V-36V, 36V-75V 1W - 72W
Input Voltage 4:1	9V-36V, 18V-75V 3W - 15W
Single / Dual Output Voltage	3.3V, 5V, 12V, 15V, 24V, ±5V, ±12V, ±15V 1W- 72W
Case	SIP-7, DIP-24, 1” x 2”, 1.6” x 2”, 2” x 2”, 2.5” x 3”
DIP24	DIP-24 with Industry Standard Package and Pinout
Remote On/Off	only 15W-72W
Second Source	Cincon, Traco, YCL, CTC, Recom, Newport
Approvals / Company	EN55022 - EN55024 - CE / ISO 9001:2000 certifed

AC/DC Power Supplies JETA Series

Power supplies with output power of 30W up to 5000W are performed upon specialized circuitry with a heat-conducting insulating compound, which allows their application in extreme operating conditions over a temperature range of -50°C to +85°C, humidity (95%) and other external factors (dust, vibration). Approvals EN60950/CE

The modules have a full range of security features in emergency situations (overheating, over-voltage at the output, overload and short circuit on the output). All this allows you to develop power systems requiring a combination of strict requirements in terms of weight and size parameters, and harsh conditions of exposure to external environmental and mechanical factors.

Power Watt	Model	I max	Uout	Effic.	Outputs	Dimensions mm	80VAC - 140VAC 1PH	100VAC - 242VAC 1PH	304VAC - 456VAC 3PH
60	JETA60	12A	5V…60V	84	1,2,3	101 x 51 x 18.3	X	X	
120	JETA120	24A	5V…60V	84	1,2,3	111 x 61 x 21	X	X	
300	JETA300	30A	12V…60V	84	1,2,3	134 x 84 x 27.4		X	
700	JETA700	60A	12V…60V	88	1,2	175 x 93 x 28.6		X	
1200	JETA1200	80A	12V…60V	88	1	211 x 117 x 38.1		X	
2000	JETA2000	100A	15V…60V	88	1	250 x 140 x 38.1		X	
2000	JETA2000-400	100A	15V…60V	88	1	250 x 140 x 38.1			X
3000	JETA3000-400	125A	24V…60V	92	1	300 x 170 x 39.1			X
5000	JETA5000-400	200A	24V…60V	92	1	450 x 250 x 39.1			X

AC/DC Power Supply (modules) TESAV Series (low profile)

VAC or VDC operating (36V, 230V or 115V) modules, which have an output power of 50W to 1000W, and a wide operating temperature range between -60…+125°C with an efficiency of up to 92%. These modules allow building ultra-low-profile electric power supply systems with an operating temperature level of more than 100°C. Approvals EN60950 /CE

Power Watt	Model	I max	Uout	Effic.	Outputs	Dimensions mm	25VAC - 53VAC 1PH	80VAC - 140VAC 1PH	176VAC - 242VAC 1PH
50	TESAV50	10	3V…60V	83	1,2	73 x 53 x 13	X	X	X
100	TESAV100	17	12V…60V	87	1	95 x 68 x 13	X	X	X
200	TESAV200	17	12V…60V	87	1	95 x 68 x 13	X	X	X
500	TESAV500	32	12V…60V	88	1	110 x 84 x 16	X	X	X
1000	TESAV1000	32	24V…60V	90	1	168 x 110 x 16		X	X

DC/DC Converter JETD Series

DC converters are designed in Brick standard cases with a reduced height profile, output power of 25 W up to 600 W, and they are capable to operate in severe operating conditions – at a temperature range of -60°C... +125°C, humidity of 95%, and other external environmental conditions (dust, vibration). Form factor allows the application in constructions and projects focused on a wide range of DC/DC converters from leading manufacturers. In our JETD DC/DC series JET implemented new developments to improve efficiency and increase power density.

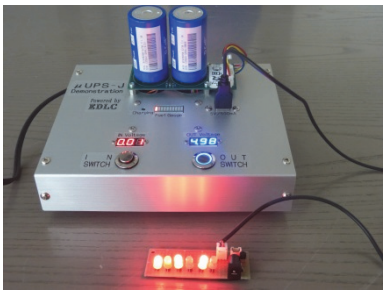
Power Watt	Size	Model	Imax	Uout	Effic.	Outputs	Dimensions mm	Input 9V-36V	Input 9V-18V	Input 18V-75V	EMI Class B - Filter
25	1/16 Brick	JED25	6	3V…60V	88	1	33.1 x 23 x 10.4	X	X	X	JETDF2.5
50	1/8 Brick	JED50	10	3V…60V	88	1	58.5 x 23 x 9.8	X	X	X	JETDF5
100	¼ Brick	JED100	20	5V…60V	93	1	58,5 x 36.9 x 11.6	X	X	X	JETDF10
200	½ Brick	JED200	40	5V…60V	93	1	61.1 x 58.5 x 11.6	X	X	X	JETDF20
400	Full Brick	JED400	40	9V…60V	92	1	116.8 x 61 x 13		X		JETDF20

Custom products:
Should you have special requirements, which cannot be met by their standard products – JET is keen on finding solutions for challenging projects!

JETIS - EXPLOSION-PROOF CONVERTERS
JETIS Series – the new series of AC/DC and DC/DC converters, intended for use in anti-spark power systems for electrical facilities of explosion-hazardous industry.

JCC
JAPAN CAPACITOR INDUSTRIAL CO.,LTD.

Super Cap UPS system products - battery is not used.
Backup power supply version with DC input & DC output.
Long life time, wide operating temperature range.
Main feature for outdoor environment applications: maintenance-free design.
It is ideal for embedding it in a system in order to extend the life cycle and for energy saving
for various applications such as power-saving wireless, sensors, USB electrical power supplies and IoT.



	DC3V Produkt	DC5V Produkt	
DC Input Voltage（V）	3.0±10%	5.0±10%	
DC Input Current（A）	1.0（Maximum）		
DC Output Voltage（V）	3.0±10%	5.0±10%	
DC Output Current（A	0.5（Maximum）		
Back-up Time (min)	60		at 150mW Load（25℃）
	4		at Maximum Load（25℃）
Other function	Charge status signal (open drain)		
Operating Temperature	-20 to +60 (℃)/ -4 to +140 (°F)		
Size(mm) / Weight(g):	W41 D100 H64 / 200		

PCB-type（Embedded Module）
Guaranteed operating temp: - 20℃ ～ 60℃
No cooling fan - high energy efficiency - saving energy costs
Most energy can be used for backup
Telecommunication/Networking equipment
Observation/Measurement equipment
Fan-less/Box PC - Wireless Systems for disaster prevention
Monitoring/Sensors/Surveillance systems

・Box-type and customization
Energy storage device:
Supercapacitor only
1. Long product life
2. Maintenance-free design
3. Wide operating temperature
4. Long backup time

SAMWHA

Super-Capacitors up to 2.8V, wide temp. range -40 to + 65°C;
-25 to +70°C
EDLC (Green Caps): 3F to 3000F, 2.5V to 2.7V, very low ESR
hybrid supercaps: 250F to 7500F, 2.8V, Low ESR
Applications: Hybrid vehicles, renewable energy system PV, UPS
high power performance vs. battery, maintenance-free, environmental

International
IOR Rectifier

Products	Description
Isolated DC/DC Converters	Power 5W-120W - though hole technology -(THT)-
	High Reliability DC/DC Converters with Magnetic Coupled Feedback
Operating Temperature	-55°C to +125°C
DC - Input Voltage Range	16V-50V, 30V-80V, 80V-160V, 160V-400V
Single Output Voltage	3.3V, 5V, 6V, 9V, 12V, 15V, 28V
Dual Output Voltage	±5V, ±12V, ±15V
Triple Output Voltage	5V/±12V, 5V/±15V
Case	Metal Case / option: with flange

Manufactured in a facility fully qualified to MIL-PRF-38534, these converters are fabricated utilizing DSCC qualified processes. For available screening options, refer to device screening table in the data sheet. Variations in electrical, mechanical and screening requirements can be accommodated.

	Output Power	Hi-Rel Hermetic		
		Single	Dual	Triple
ASA and AHV are designed to meet stringent 80V, 0.1 second per MIL-STD-704A without external filtering required	5W	ASA	ASA	-
	5W	HTB new		
	6W	ASAP	ASAP	-
ATS includes MIL-STD-461 (CE03) compliant EMI input filters • Product Development Direction	12W	AHF	AHF	-
	15W	AHV	AHV	AHV, ATO
	15W	AHE	AHE	AHFP
AHP/AFL Series: – Parallel for higher power with equal current/ stress sharing – AHP270/AFL270 offers highest power density in the industry – Strong heritage - AHP/AFL >100K units since intro over 10 years ago.	20W	HTA	HTA	-
		AHFP AHE	AHFP AHE	-
	25W	ATS	ATS	-
	30W	ATR	ATR	ATR
		ATW	ATW	ATRP
	40W	ATRP	ATRP	HM
	55W	HTH	-	-
	66W	AFL, AHP	-	-
Product Development Direction – Hermetic designs driven by cost, power density, efficiency – Reviewing non-hermetic power solutions – Leveraging core design for downhole drilling applications up to 210°C and on engine aircraft usage HT Series +185°C without derating.	80W	AFL, AHP	AFL, AHP	-
	90W	AFL, AHP	-	-
	92W	HTM	-	-
	96W	-	AFL, AHP	-
	100W	-	AFL, AHP	-
	108W	AFL, AHP	-	-
	112W	AFL, AHP	-	-
	120W	AFL, AHP	-	-
		+185°C rated temperature		
		+165°C rated temperature		

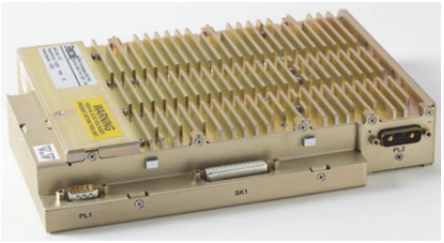
Mil.Std Filter Products

Product Family	Filter Family	Vin Max	Iin Max	Input Xsient	CE03	CS06
ASA	ASF461	50V	0.42A	50V	Y	
All except AFL	AFC461	40V	4A	40V	Y	
All except AFL	AFV461	40V	4A	704A	Y	
All except AFL	AFM704A	80V	4A	704A	Y	Y
AFL28 / AHP28	AME28-461	40V	15A	100V	Y	
AFL50	AME50-461	100V	7A	300V	Y	
AFL120, AFL270	AME270-461	400V	1.5A	720V	Y	
AHP270	AME270-461	400V	1.5A	720V	Y	
ATS	Internal				Y	

EMI Filters are available for design that must be compliant with conducted emission CE03 requirements of MIL-STD-461 - Imax 0.42A to 15A

Pascall
ELECTRONICS LIMITED

Power Products



The high reliability and technical excellence of Pascall´s civil avionics power supplies stems from their background in the military power converter market. For over twentyfive years Pascall has been designing and manufacturing specialized power supplies for use in both military and other environmentally challenging applications. These include units for missile guidance, helicopter health monitoring, avionics radar, airborne electronic warfare, land vehicle weapon targeting, space station experiments, off-shore oil rig valve control and ship helicopter landing systems. Whilst the majority of products that Pascall manufactures are bespoke designs to customer specification, they also offer a COTS range of AC to DC and DC to DC VME power supplies, targeted primarily at the military and avionics markets.

Military

Avionics, Ground & Naval (to MIL-STD-461, MIL-STD-704, MIL-STD-810)
Single & Three phase AC to DC custom designs, active & passive power correction
DC to DC custom designs, multi-output 10W to 2000W

Civil Avionics

(to RTCA-DO-160 / Airbus / Boeing specifications)
AC to DC custom designs, multi-output 10W to 1000W
DC to DC custom designs, multi-output 10W to 500W
Battery backed up custom designs

VME BUS Power Converters

AC to DC 250W single slot 90VAC to 135VAC input, quad output 5V, 3V3, ±12V
DC to DC 250W single slot 18V-32V input, quad output 5V, 3V3, ±12V

Databus

MIL-STD-1553 Databus transformers - Surface mount and through hole versions

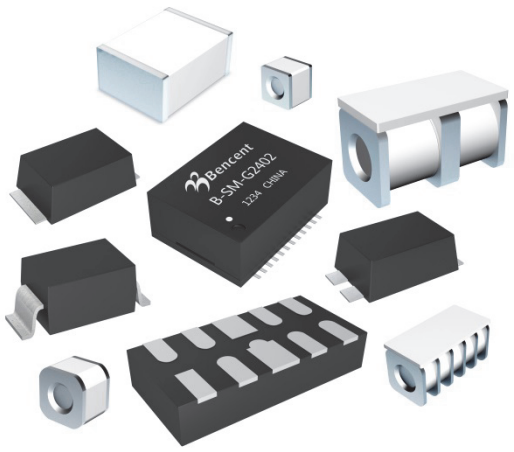
Pascall power supplies on board
IFEC - In Flight Entertainment and Communications Products

Mobil Phone Coms, Media File Servers, Passenger Access Terminals, Central Power Supply Units, Digital Flight Data Acquisition Units, File Server General Purpose Satellite TV Decoders & Distribution Systems, Area Distribution Boxes, Audio Visuals on Demand, Satcoms Antennas, Satcoms Transmitters to RTCA-DO-160 Airbus / Boeing specifications

Xcel Power
Standard and Custom Power Supplies

Maritime Systems - MIL-STD-1399 Shipboard Power
STANG 1008 NATO Shipboard Electric Power
MIL-STD-461 EMC Requirements
Naval Maritime Applications
Airborne Systems - MIL-STD-704 / MIL-STD 461 / MIL-STD 810
Airbus / Boeing Civil Electrical Supply Spec
DO160 Civil Aircraft EMC & Protection
Airborne System Applications
Ground System MIL-STD-1275 / DEF STAN 59-411 / MIL-STD 810
Industrial, Hi-Rel, Rail Transport, Medical, Nuclear Industry

Bencent®



Over Voltage Protection
Integrated Surge Protection Solutions

Switching Type
- GDT - Gas Discharge Tubes
- TSS - Thyristor Surge Suppressors

Clamping Type
- TVS – Transient Voltage Suppressors

All products available in SMD packages

Focus Market Segmentations
- Surge Protection on Telecomm & Surveillance Systems
- Surge Protection on AC/DC Power Supplies
- Surge Protection on Industrial & Medical Systems

Application Guide on Surge Protection Available
Spotlight: High quality & reliability
Certifications: ISO 9001 / ISO14001 / UL497B / UL1449

KAMAKA ELECTRONIC Bauelemente Vertriebs GmbH

KAMAKA Service

Obsolescence Management
Serving the semiconductor industry since 1992
Dedicated to the military, medical and industrial markets
Services
Long-lifetime Program up to 15 years
Last Time Buy, EOL-, and PCN-Service
Long Term Storage of obsolescence products
Obsolete component replacement, Device Replication
Worldwide access to allocation and obsolete products
Packaging Solutions
Custom packaging of bare die, Multi Chip Module
Components Upscreening Program
Quality Agreements
Anti-counterfeiting program
Traceability is guaranteed
No counterfeiting parts - only original parts
You will get the complete manufacturer guarantee
You will get a manufacturer CoC

Member of

COG DEUTSCHLAND

Quality Management System

DIN EN 9120:2009 technically equivalent to AS9120A and SJAC9120
DIN EN ISO 9001:2008
DIN EN 61340-5-1 ESD compliant storage & handling process

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