



ELECTRONIC
Bauelemente Vertriebs GmbH

Hi-Rel Solutions

Avionics

Defence

High Temperature

RF Products

Space

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Products	Description				
Isolated DC/DC Converters	Power 5W-120W - through 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	$\pm 5V, \pm 12V, \pm 15V$				
Triple Output Voltage	5V/ $\pm 12V$, 5V/ $\pm 15V$				
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.					
ASA and AHV are designed to meet stringent 80V, 0.1 second per MIL-STD-704A without external filtering required	Output Power	Hi-Rel Hermetic			
	5W	Single	Dual	Triple	-
	5W	ASA	ASA	-	-
	5W	HTB _{new}	-	-	-
	6W	ASAP	ASAP	-	-
	12W	AHF	AHF	-	-
	15W	AHV	AHV	AHV, ATO	AHFP
	15W	AHE	AHE	AHE	AHFP
ATS includes MIL-STD-461 (CE03) compliant EMI input filter • Product Development Direction 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. 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.	20W	HTA	HTA	-	-
	20W	AHFP	AHE	AHFP	-
	25W	ATR, ATS	ATS	-	-
	30W	ATR	ATR	ATR	ATRP
	40W	ATRP	ATRP	ATRP	HM
	55W	HTH	-	-	-
	66W	AFL, AHP	-	-	-
	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					
DLA SMD part number available					

MIL-Filter for DC/DC-Converters

Product Family	Filter Family	Vin Max	Iin Max	Input Transient	CE03	CS06
ASA, AHF, AMA, AMF	ASF461	50V	0.42A	50V	Y	
All converters except AFL	AFC461	40V	4A	40V	Y	
	AFV461	40V	4A	704A	Y	
	AFM704A	80V	4A	704A	Y	Y
	AFH461	40	2A	100V	Y	
ART, ARH, S28	ARF461	80	5A	100V	Y	
	AMH461	50	2A	100V	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	
ATS28	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

**Space DC/DC Converter Class H, K
Isolated and non-isolated**

Products		Description
Isolated and non Isolated		Power 5W - 350W
DC/DC Converter Class H, K		RAD Hard & Rad Hard Tolerant
Operating Temperature		-55°C to +125 °C
DC- Input Voltage Range		16V-40V, 30V-80V, 80V-160V, 160V-400V
Single Output Voltage		3.3V, 5V, 6V, 9V, 12V, 15V, 28V
Dual Output Voltage		+/- 3.3V/5V, +/-1.8V/3.3V, ±5V, ±12V, ±15V
Tripple Output Voltage		+5V/-12V or +5V/ +/- 15V
Control connector+		Remote on/off / telemetry DATA (open design Version)
Adjustment		Voltage & Sync-Frequency & Sense Connector
EMI		Mil-Std.-461-CE03 conducted emission
DCDC with internal Filter		M3G, M3L, M3H, LS, LSO, GH, GHP, EC, ZA, ZB, EA, EB, EAR, EC, EAR-T, EGA, MA, MB, MAB, MBH, MAH, ML, MAS, MNL, CLP

Output Power	Rad-Tolerant				Rad-Hard			
	TID: 25-50Krads	SEE: 37-60MeV	TID: 100K-1Mrads	SEE: 37-83MeV	Single	Dual	Triple	Quad
5W	AMA	AMA	-	ARE	ARE	MA	MAB	MLN
10W	AMF	D	-	S	S	-	-	-
	-	DH	-	-	MAH	MAH	MAS	MAH
12W	AMF	AMF	-	LS	-	-	-	-
15W	-	-	-	-	MB CLP	MB	-	-
20W	SBB ⁽²⁾	-	-	LS	MBH	MBH	-	-
25W	M3L	M3L	-	LS	-	-	-	-
30W	-	AMR	-	ARH M3H M3G	-	ARM	-	-
	-	-	-	LS	LS	ART	-	-
	-	-	-	LSO ⁽¹⁾	LSO ⁽¹⁾	-	-	-
	-	-	-	SBB ⁽²⁾	-	-	-	-
40W	M3H	M3H	M3H	M3G	M3G	M3G	-	-
50W	-	-	-	GH	-	-	-	-
55W	-	-	-	-	-	EA	-	-
60W	-	-	-	ZA	CEP	EA	-	-
80W	-	-	-	ZA	-	-	-	-
100W	-	-	-	ZA	-	-	-	-
105W	-	-	-	-	EAR	-	-	-
120W	-	-	-	GHP	GHP	EAR-T	-	-
150W	-	-	-	-	-	EB	-	-
250W	-	-	-	ZB	-	-	EC	-
300W	-	-	-	-	-	EGA	-	-
(1)	Includes output overvoltage protection and input current telemetry							
(2)	POL- Converter							

Point of load DCDC Space DCDC Converter Features SBB Serie:

- 4.5 to 5.5V DC input
- Output rating: 14W to 30W / 14A
- 100Krads, 83 MeV, prompt dose and neutron rated
- Fixed 400KHz Operating Frequency
- Discrete PWM controller
- DLA Qualified SMD Part Number
- Output Voltage 1V, 1.2V, 1.5V, 1.8V, 2.5V, 3.3V
- Typ Eff% up to 89%
- Remote sense / External Sync. / Output Adj. +/-10%
- No external Filtering / OLP / SCP
- Under Voltage Lockout (UVLO)
- Output Status Telemetry (POK)
- Derating per Mil-STD-1547 for space flight
- MTBF > 2.8million hours for space flight environments

Point of load DCDC Space DCDC Converter Features SBP Serie:

- 3.3V to 12V DC input
- Output rating: up to 20W / 6A
- 100Krads (Si), SEE hardness rated,
- SEL/SEB/SET/SEGR with LET>86MeV-cm²/mg
- Output Voltage: Adjustable from 0.8V to 3.3V
- with external Resistor
- Fixed 500KHz Operating Frequency
- Typ Eff% up to 93%
- Remote sense
- No external Filtering / OLP / SCP/ telemetry & Timing
- Adjustable Soft Start and Input Under Voltage Lockout
- Output Sequencing of Multiple Modules via Track and
- Enables Pins
- Derating per Mil-STD-1547 and NASA EEE-INST-002

LS, LSO, M3H, M3L series: MIL-STD-461 compliant filter included
LSO series also includes OVP and input telemetry

Hi-Rel PWB-based Hi-Rel DC/DC Converters for space digital- and RF-applications.

High level power management solutions.

Specific mechanical interface between EPC and RF-part

Pout	DC/DC – Converter	High CS rejection - power input to outputs
up to 10W	MA, MAB, MAH, MB, MBH, ML	Sequencing between positive and negative outputs
10 - 20W	MB, MBH, EA	Low noise outputs (filters and linear post regulators)
20 - 40W	MBH, EA	High efficiency & adjustable main output (high power EPC)
40 - 80W	EA, EB, EBR, EAR, ZA	High efficiency at low voltage / high current
up to 80W	EB, EC, EAR, EGA, ZA, ZB	SPFF regarding output over voltage

Customer adaptable product platforms

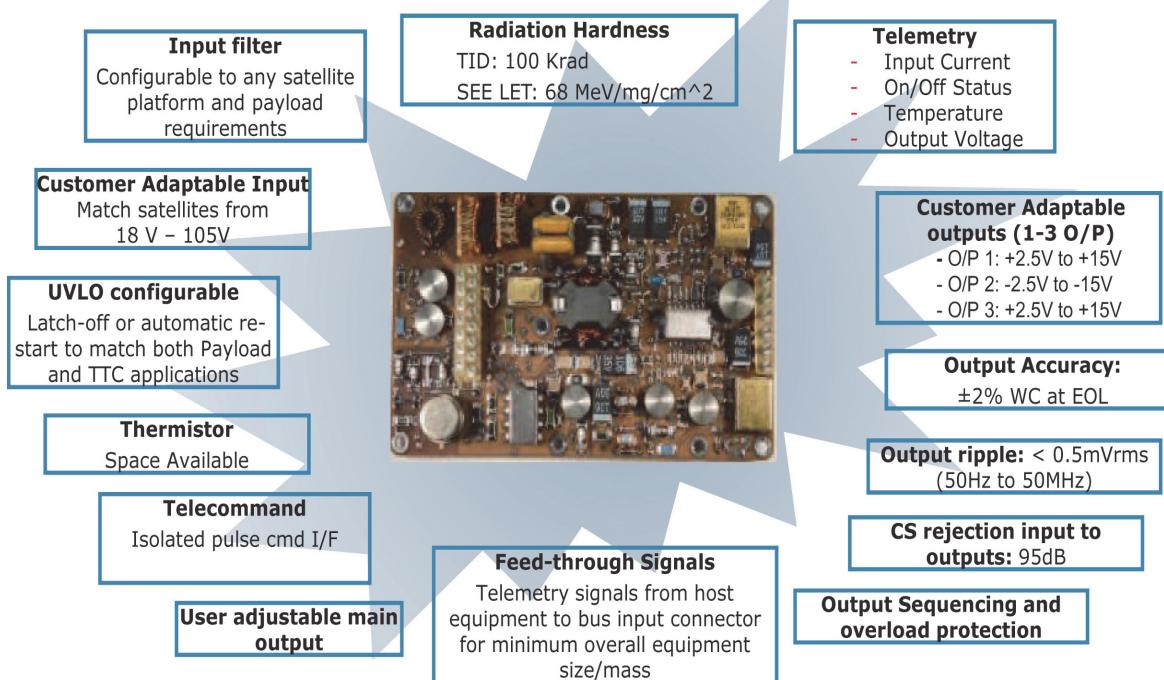
Hi-Rel PWB-based Hi-Rel DC/DC Converters for space digital- and RF-applications.

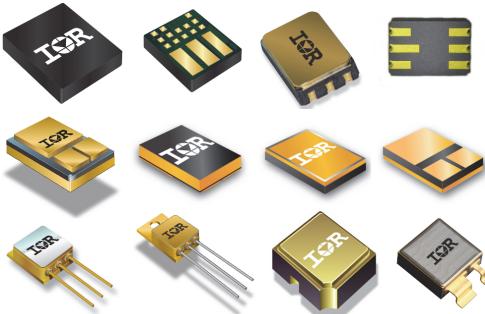
High level power management solutions.

Specific mechanical interface between EPC and RF-part

Pout	DC/DC – Converter	High CS rejection - power input to outputs
5W - 10W	MA, MAB, MAH, ML, MLN, MAS	Sequencing between positive and negative outputs
15W - 20W	MB, MBH, CLP,	Low noise outputs (filters and linear post regulators)
55W - 120W	EA, CEP, EAR, EAR-T, ZA	High efficiency & adjustable main output (high power EPC)
250W - 300W	EC, EB, ZB, EGA	High efficiency at low voltage / high current
		SPFF regarding output over voltage

IRD's customer adaptable product platforms are designed to offer high performance and maximum flexibility. Typical features are:





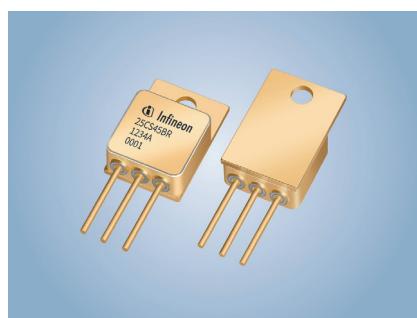
Military and Space Products

MIL-qualified N-, P-Channel MOSFETs
 Logic Level Rad Hard MOSFETs
 Radiation Hardened Power N-, P-Channel MOSFETs
 Single, Dual & Quad MOSFETs 30 to 600V
 RAD Hard MOSFETs SEE= 37, 60, 82, 85, 90MeV,
 TID= 100, 300, 500, 1000Krad
 Radiation Hardened Solid State Relays Single, Dual, Octal
 TID>100Krad, SEE immunity, Class K
 High Voltage Gate Driver IC TID>100Krad, SEE= 82MeV
 QPL Schottky Diodes Single Device, Doubler Common Cathode
 Ultra-Fast Diodes Single Device, Doubler Common Cathode
 Ultra LDO-Voltage Regulators, Linear Regulators
 EAR99 Space Grade Products
Approvals: MIL-PRF-19500 JANTX, JANTXV, JANS level



Manufacturer of Hi-Rel Space Products ESCC5000 and 5010 qualified HiRel components

Rad-Hard Power MOSFETs (CoolMOS™ Technology)
 100V, 150V, 250V in SMD-0.5, SMD-2, TO-254AA, TO-257AA
 TID>100Krad (300Krad on request), SEE >LET 55 / 85 MeV
 "SAM" are electrically functional samples
 "P" are professional level used on bread-boards and EM
 "ES" for ESA space level used for full qualified satellite flight modules



Microwave Transistors

Silicon Bipolar Transistor Technology
 Supply voltage rating from 4V to 12V
 Output power from 20mA to 150mA
 Transition Frequency from 6.5GHz to 42GHz

Microwave Silicon Diodes

Small Signal-, Schottky- and PIN-Diodes
 $I_{Fmax} = 120mA$ to 5A, $V_{BR} = 40V$ to 150V, $R_F = 0.9\Omega$ to 10Ω

Chips (bare die's) available Customer specific screening



Radiation Hard Power MOS, MW Transistors ESA qualification
 ESCC qualified products
All products are produced in Europe – no export license required

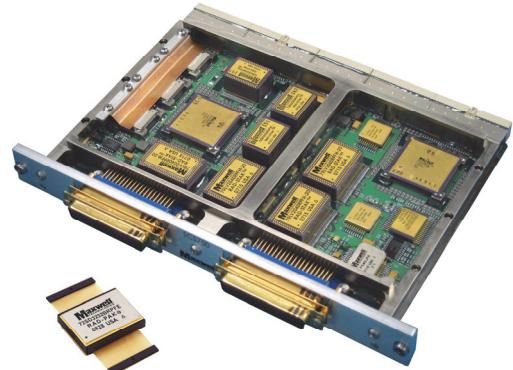


Radiation Hard Microelectronic Components

50-100 Krad(Si) TID with the patented RAD-PAK® packages.
Digital to Analog Converters: 8 to 16 Bit
Analog to Digital Converters: 8 to 16 Bit
Memory: Low Voltage EEPROM, SRAM, SDRAM, OTP-PROM
NOR-FLASH 512Mb

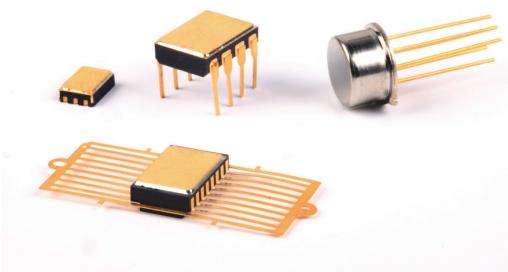
Mass NAND Flash Memories 32, 64, 128, 256 Gbit

Nuclear Event Detectors, Processor
Multiplexers: 8-, 16-, 128 Channel
High Speed Comparator, Dual & Quad Operational Amplifier
Logic IC: Buffer/Driver, Transceiver, Interface D-Latch, Clock Buffer
Radiation Hardened Single Board Computer SCS750
PowerPC® Based 750FX, 900-1800 MIPS
Approvals: AS9100, MIL-PRF-38535 Class Q & V, Class B & S
MIL-PRF-38534 screened to Maxwell's Class H & Class K flows



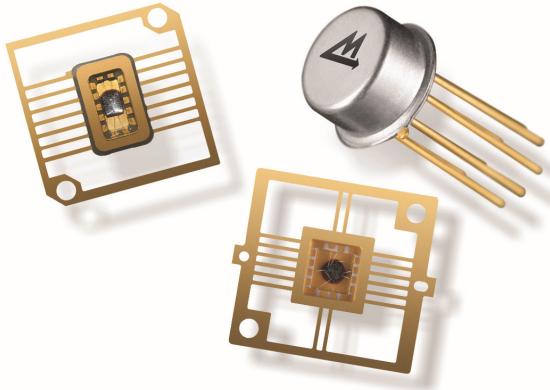
Radiation Hard Optoelectronics

Space Rad Hard Optocouplers, Emitters, Detectors
Operating across 100% to 1000%CTR
Bare Dies tested to TID up to 150Krad(Si)
Operating Temperatures of -150°C to +125°C
High Speed-, High Gain-, Transistor-Optocouplers
Analog and digital output devices
Single-, Dual-, Quad-Channel Optocouplers
Hi-Rel Military NATO Stock Numbers available
Customized products
Ceramic DIL, SMT LCC packages, Flat Pack, 4-Pin LCC
Standard Optocouplers available for EM parts
Applications: Isolation for high-voltage power systems
ISO 9001:2008, IECQ-CECC (BSI) component approvals compliant
with MIL-STD-883 and MIL-STD-19500 screening process
Made in UK – Benefit of being ITAR free



High-Reliability Hermetic Integrated Circuits

Radiation Hard ICs in BCD SOI for Power Management
POL Converter: 24V 2A DC/DC Buck Regulator IC suitable for
high efficiency (>90%) POL from 12V Power Input Rails
LDR TID biased >40krad(Si); -40°C to +125°C
SEL, SEFI and SEU immune
Hermetic Ceramic FP-16 Power Package
Qualification Tested and Screened According to
ESCC 24600 quality standard
POL SPPL12420RH registered in EPPL Listing
Enables efficient & space-saving solutions in POL architecture
Radiation Test Reports available
Made in Germany - Benefit of being ITAR/EAR free



Manufacturing semiconductors since 1962

Development & production of electronic engineering products
 Expertise in the field of analog, analog to digital technology
ITAR free products are manufactured within the EU in Latvia

New Space Product Line

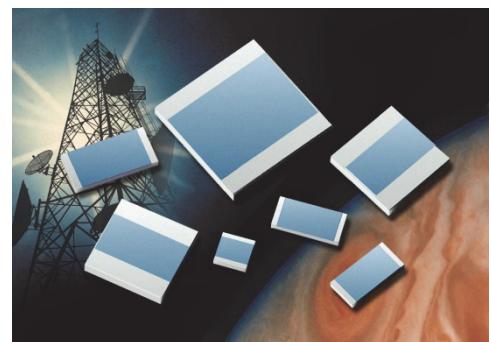
Monolithic Dual Transceivers 5V Version, MIL-STD-1553/1760
 2-Terminal IC Temperature Transducer
 Balanced Modulator-Demodulator
 Internally Trimmed IC Precision Multiplier
 Symmetrical Mixer
 Innovative Solution for Optical Spectrum Measurement
 In-house Design, Assembly, Electrical Test, Burn-in, Qualification Process: using Bi-polar, Bi-FET, CMOS & Bi-CMOS
 Analog Microcircuits, Analog switches
 Amplifiers, Comparators
 Multiplexers, Sample & Hold circuits
 Transistor pairs
 Custom IC solutions for obsolescence parts
 Packages: LCC package, Metal Can, Flat Pack, Ceramic DIP
 Standard Operating Temp from low – 60°C to +125°C
Replacements to Analog Devices, Burr Brown, Calogic, Elantec, Harris, Intersil, NSC, Philips & TI
 Approvals: DIN EN ISO 9001:2008 certified



State of the Art

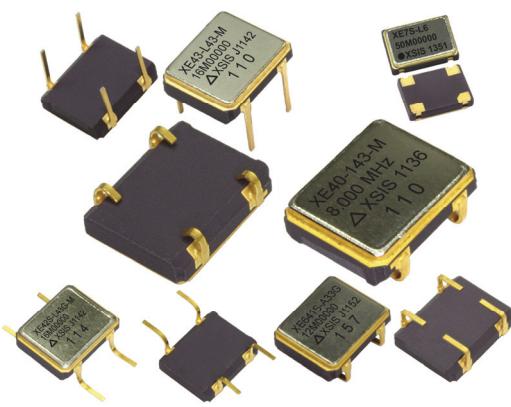
Mission Critical Thick & Thin Film Resistor Products Surface Mount Chip Resistors

Established Reliability and Space Level Chip Resistors
 MIL-PRF-55342 Thick Film C, M, P, R, S, U, V, T Level
 MIL-PRF-55342 Thin Film C, M, P, R, S, U, V, T Level
 MIL-PRF-32159 Zero Ohm Jumpers C, M, T Level
 MIL-PRF-914 Surface Mount Resistor Networks
 Standard Grade Thick Film from 0 Ω to 100 MΩ
 Standard Grade Thin Film from 5 Ω to 10 MΩ
 Solderable, Epoxy Bondable & Wire Bondable Finishes
 High Frequency Chip Resistors up to 20 GHz
 High Power Chip Resistors rated to 200 Watt
 High Voltage up to 5 KV, High Value to 100 GΩ
 Silicon Chip Resistors 5 Ω to 10 MΩ
 Chip Attenuators from 1 to 20 dB
 Thin Film Multi-Tap Attenuators
 Thin Film Platinum Heater / Sensors
 Temperature Variable Chip Attenuators (Second Source to IMC)
 Current Sense Resistors at values as low as 20 mΩ
 Power Moisture Compliant Chip Resistors
 Standard Thin & Thick Film Products are RoHS compliant
 High Temperature Chip Resistors with Termination Style Y and Z
Aerospace, Defence & Medical Applications
 High Reliability Screening Specialist
 Approvals: ISO9001 & AS9100 Certified, MIL-STD-790





Xsis Electronics



Hi-Rel Hybrid Microcircuit Crystal Oscillators

Space Qualified Oscillators, TID, SEL & SET Test Data

Military Qualified Oscillators 883B Screening

QPL to MIL-PRF-55310/08, /09, /11, /14, /15, /16, /17, /18, /19, /26 /27, /30, /33, /34, /35, /36, /37, /38, /39, & /40 parts

Custom Hi-Rel Screening

Very High-Temperature Down-Hole

Ultra High Shock & Vibration Designs

TTL- LVTL- CMOS- AC/HCMOS- LVHCMOS- ECL, Tristate Output

Multiple Frequency Outputs, Wide Frequency Ranges

Multiple Temperature Ranges

THT Package: CerDIP, TO-5

Surface Mount: Leadless-, J-Lead-, Gull Wing-Lead-Package

New: Low Voltage 3.3V in 5x7 mm SMD

Approvals: AS9100, MIL-PRF-55310, MIL-PRF-3098



Custom and mobile portable power systems

Military, Aerospace, Marine, safety & energy storage applications

Soldier Wearable Integrated Power Equipment System (SWIPES)

Aerospace / UAV: Rechargeable batteries

High energy density up to 240Wh/Kg

Military standard and custom Li-Ion rechargeable batteries

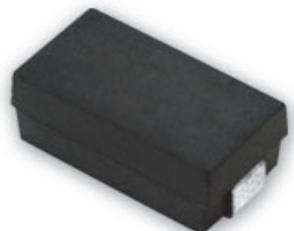
Military Tactical & Depot Chargers, Vehicle Lithium-Ion batteries

MIL-810 vibration, shock, thermal cycles, humidity, transportation

UN 38.3 Recommendations on the Transport of Dangerous Goods

Battery Management Systems (BMS) and Power Electronics

Renewable energy storage systems and Micro-grid



Aerospace & Defence Solutions

Highest Performance RF Inductors, Power Inductors

EMI/RFI Filters, Suppressors

RF Coils, Chokes, Transformers

Heavy Duty Brushless Resolvers

High Temperature Products

Custom Magnetic Products

MIL-0603 Hi-Rel Surface Mount Devices RF Chip Inductors

MIL-1812, 4922, 8532 High Current SMD Power Chip Inductors

Highest quality to MIL-PRF-39010 to Level S – 0.001% Failure Rate

A New Series of Inductors in a Compact Size

Served Markets: Military, High Temperature, Medical, Space, Avionics

Qualifications: MIL-PRF-27 Level T, MIL-PRF-83446, MIL-PRF-15305



EVANSCAPS - POWER WHEN YOU NEED IT!

EVANSCAPS have 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

The design and manufacture of capacitors and capacitor modules for Aerospace and Defence customers
 Approvals: ISO 9001:2008, AS 9100:2009, in accordance with the requirements of AS9104/1:2012



DSCC MIL Approved Manufacturer of High Reliability Devices Commercial, Industrial, Military, Aerospace

Silicon Carbide Products

Transistors, Diodes

Low & High Power Diodes

Zener Diodes 1% & T.C.Z, TVS, SMD, Cells & Hermetic Packaged

Transistors, Thyristors, Triacs

Silicon Bipolar Power, NPN-PNP, MOSFETs, IGBTs, Unijunction

MOSFET Drivers & Relays: Photovoltaic, Solid State Relays

Voltage Regulators: Positive, Negative, Fixed, Adjustable, Low Drop

Custom Hybrids & Semiconductor Packaging

Analog, Digital, Power, Standard Semiconductors

Approvals: MIL-PRF-19500, MIL-R-28750C, MIL-STD-883



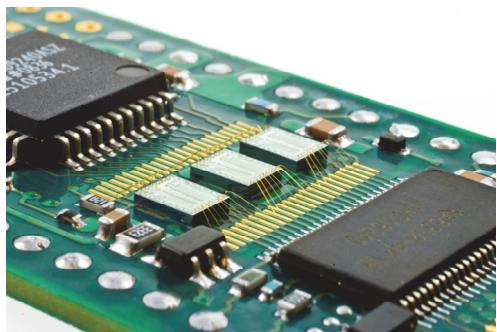
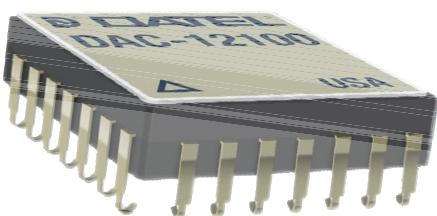
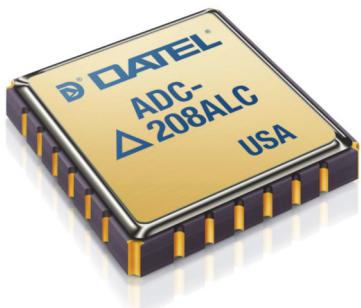
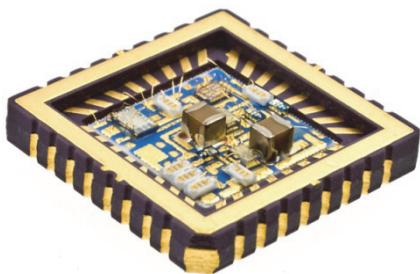
Products	Description
Isolated DC/DC Converter	MBH Series 1100 to 2100 Watt
MIL-STD-1275B / MIL-STD-461E	Custom and Standard Solutions for Industrial and Mil- Applications
Input Voltage	10V-16VDC (1100W)
Output Voltage	28Vdc
Input Voltage	23V-32Vdc (2100W)
Output Voltage	12V & 13.5V
Efficiency	97%
Environment	Ideal for harsh Shock and Vibration Environments

Isolated-Digital DC/DC Converter	WDE Serie 75 Watt 1/8 Brick Solution
Input Voltage	4:1 / 9.0-36VDC / 18-75V DC
Output Voltage / 24V Input	5V, 12V, 24V, 28V, 48V
Output Voltage / 48V Input	24V, 28V, 48V
Telemetry-Data	Real Time Performance Data VIA PMbus TM
Adjustment	Digital configurable voltage, current and over temperature & Sense Connectors
Control connector	Remote on/off
Evaluation Board	WDE24-1, WDE24-2, WDE48-2 please contact Kamaka

Isolated-Analog DC/DC Converter			Brick Solution 75 Watts and up to 1000 Watts			
Series	Watts	Package	V in Nom	V out	V in Range	Case/Size
QH	75	1/4 Brick	24, 48	3.3 , 5, 12, 15, 24	2:1	1.45"x2.28"x0.52"
HEW	100	1/2 Brick	24, 48	3.3, 5, 12, 15, 24	4:1	2.4"x2.28"x0.55"
HEW	150	1/2 Brick	24, 48	5, 12, 15, 24	4:1	2.4"x2.28"x0.55"
GX	200	1/2 Brick	28	15, 24	2:1	2.4"x2.28"x0.55"
MTW	360	1/2 Brick	24	12, 15, 24, 28	4:1	2.4"x2.50"x0.55"
MXW	500	1/2 Brick	24	12, 15, 24, 28	4:1	2.4"x2.50"x0.55"
FXW	1000	Full Brick	24	24, 28	4:1	4.7"x2.50"x0.55"
FXP	1000	Full Brick	24	24, 28, 48, 53	4:1	4.7"x2.50"x0.55"
HD DUAL	75	1/2 Brick	24, 48	2.5 , 3.3, 5	2:1	2.4"x2.28"x0.55"
HE Triple	75	1/2 Brick	24, 48	3.3, 5,+/-12, +/-15, +/-17	2.1	2.4"x2.28"x0.55"
LT Triple	75	1/2 Brick	24	1.5, 1.8, 2.5, 3.3 ,5	2:1	2.4"x2.28"x0.55"
Control Connector				Remote on/off		
Adjustment				Output voltage +/-10% & Sense Connectors		
EMI				Filter for 24V + 28Vdc nom. input voltage MIL-STD-461-E at full load 200W / 28V		
Load Share Module	LSL			1/4 brick package, Dual input load sharing, DCDC trim function ; 60° output		
Hold Up Module	HU-28			1/4 / 1/2 brick package 50ms hold-up time without external capacitor		
			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			

<ul style="list-style-type: none"> •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. <ul style="list-style-type: none"> •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 •Complementary front end modules comply with MIL-STD-461E & 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
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100% Testing under all operating conditions 5 Year warranty



Data Acquisition Products since 1970 High-Temperature, Medical, Military, Space

Standard Products

A to D-Converters: 7 to 8-bit CMOS Flash up to 20MSPS
Stand-alone 12-bit with 2 to 20 μ sec conversion rate

Sampling A to D-Converters: 12 to 24-Bit up to 20 MSPS

D to A-Converters: 8, 10, 12, 16-bit up to 250MHz with input latching
COTS:DAC-1412 14-bit 125MHz D-to-A-Converter, 28-Pin Plastic TSSOP

Single-Package Data Acquisition Systems 12-bit

Input Multiplexer, Instrumentation Amplifier, S & H Amplifier, A/D-Converter and various interface logic – fully qualified with screening

CCD Signal Processor / Imaging Converters: 12, 14, 16, 18-Bit ADC with integrated Correlated Double Sampler for easy interface with CCD

Stand alone CCD Image Converters: Functionally complete 12 to 18-bit resolution ADCDS converter family

Sample & Hold Amplifiers: from 0.1% to 0.001% accuracy (10 to 16-bit equivalent resolutions) with acquisition speeds from μ s to low tens of ns

Precision Voltage references

1.024; 1.25; 2.048; 2.5; 3.0; 3.3; 4.096; 5.0V

LDO Linear Voltage regulators: -15V; +15V ; from -55 to +125°C

4- & 8-CH Multiplexers: from 0.1% to 0.001% accuracy (10 to 16-bit equivalent resolutions) with fast settling time speeds in the low tens of ns

Amplifiers: 70 to 200ns from -55 to +125°C

High Temperature Products:

Amplifiers, Correlated Double Sampling Amplifiers, A/D & D/A-Converters
Operating Temperature Range: -55 to +200°C

Custom solutions: Design of modified products for digital imaging, industrial, medical, aerospace, Hi-Rel Defence applications

Obsolescence Solutions

Reverse Engineering
Process Porting & Device Replication
Obsolete component replacement, Device Replication

Standard Microcircuit Drawings: SMD5962-xxxx, DSCC/DLA certified

Approvals: MIL-883 certified components



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Pascall manufactures power supplies to customer specification COTS range of AC to DC and DC to DC VME power supplies

Civil Avionics & 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 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

VME BUS Power Converters

AC to DC 250W single slot 90Vac to 135Vac input, quad output 5V, 3.3V, ±12V

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

Applications: Missile guidance, helicopter health monitoring, avionics radar, airborne electronic warfare, land vehicle weapon targeting, space station experiments, off-shore oil rig valve control, ship helicopter



XCEL Power Standard and Custom Power Supplies

Naval Maritime Systems MIL-STD-1399 Shipboard Power
STANG 1008 NATO Shipboard Electric Power
MIL-STD-461 EMC Requirements

Airborne System Application MIL-STD-704, MIL-STD-461, MIL-STD-810
Airbus / Boeing Civil Electrical Supply Spec
DO160 Civil Aircraft EMC & Protection
Ground System MIL-STD-1275, DEF STAN 59-411, MIL-STD-810
Industrial, Hi-Rel, Rail Transport, Medical, Nuclear Industry

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Only original parts

You will get the complete manufacturer guarantee

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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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