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## DC-DC Converters

Designers in the Telecom/ Datacom world face demands for increased performance, reduced weight and volume and minimal costs. Murata can help resolve these problems. With 20,000 design and research staff, micro-engineering and production around the world, we have the technologies and the employees to make life easier.

### TRENDS

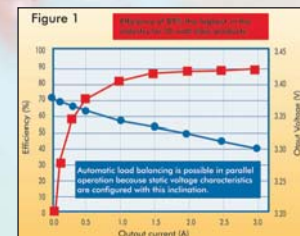
The methods of supplying the differing voltages to the sequential levels of the wired telecomms market are changing fast. Typically, designers are calling for high current low voltages to realize high performance chips, more ports less real estate, tighter tolerances and generally enhanced performance.

We have moved from the business of simply providing low voltage and high load currents, to better EMI suppression and thermal management, sequencing and more voltage levels on boards.

The traditional 48V bus is a widespread standard for DC power distribution and equipment backup in the wired telecommunications market.

This is converted from an AC supply and backed up by a bank of DC batteries. The power requirements for each board in the assembly influence the number of converters required and their power ratings. Regardless of whether the application is PBX, xDSL, FTTx, SONET, WDM Router, VoIP, or PoE it is highly probable that a 48Vdc bus distributes a powers to the system.

None of the active devices in these applications actually uses 48Vdc. There are three ways of using 48Vdc to supply power to the equipment's active circuits.

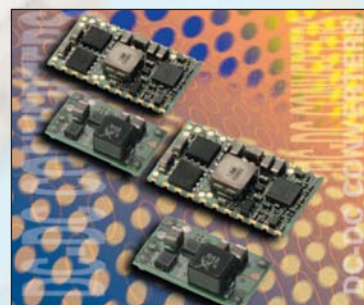


A somewhat old fashioned approach is to isolate and convert the 48Vdc on a single shelf to lower voltages within a rack; route those voltages to individual cards, e.g. line cards etc, and then to the points of load where further converters, nonisolated, may be used to convert to a yet lower voltage.

In recent times, but not growing as we write, is the DPA (Distributed Power Architecture) method. This employs isolated 48V input DC-DC converters on most board in the product.

The 48V is converted to a low regulated voltage at the edge of the board and sent directly to the load or a point of load (POL) DC-DC converter.

Now the trend for distributing DC voltages is the intermediate bus architecture (IBA). This originated in the EDP market, and is now growing



in the wired telecom/datacom power engineering communities for some applications.

IBA entails converting and isolating the 48Vdc at the edge of each board, as with the DPA; but the output is not necessarily regulated. Instead, it may be unregulated with a wide tolerance and often a nominal 12Vdc, sometimes 9Vdc. That voltage (the intermediate voltage) is then distributed to the board's POL DC-DC converters. There, the intermediate voltage is converted to the load requirement, e.g. 1.3V/1.8V/3.3V etc.

The benefits of the IBA over the DPA approach seem to vary with the customers designs and applications and practice is diverse and varied. However, there is one certainty, customers that prefer the IBA approach, do so for purely economic reasons.

### DC-DC CONVERTERS FOR TELECOM/DATACOM

Supplying regulated load voltages from 0.8 to 12Vdc with output currents up to 30Amps on certain models, Murata's line of 48Vin, isolated DC-DC converters is well-matched to the requirements of the DPA system.

Our POL non-isolated DC-DC converters suit all of the power distribution techniques very well, providing board-level bus voltage conversion to load level voltages. IBA requires a 48Vin isolated DCDC converter with a relatively high unregulated Vout, for example 12Vdc -10%. Murata's POL 12Vin converters are excellent solutions for this application.

In fact, we offer an extensive range of advanced designs, many industry-compatible with other manufacturers.

Others have unique features like the

smallest and lowest profile in the industry combined with high power density.

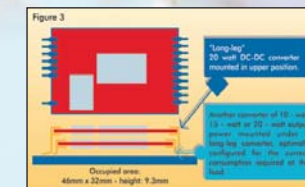
In the Japanese market our isolated power converters have been very successful with an high market share, due to our state of the art circuit designs and modular structures. However, the recent popularity of distributed power architectures has led to demand for more general use, allowing users to select from a number of different suppliers for a Telecom / Datacom application.

Part	Description
PBX	Private Branch Exchange
DEX	Other exchanges (for Central Office)
DSLAM	Digital Subscriber Line Access Multiplexer
WDSL	Other DSL equipment (including ADSL Splitter)
CSU	Optical Subscriber Unit (Central Office Side)
ONU	Optical Network Unit (Remote Side)
CFRACKS	Optical communication equipment (SONET, SDH, SONET, etc.)
CORE-ROU	High-End Router
EDGE-ROU	Mid-/Low-End Router, Edge Services Router
HOME-ROU	Home Router (including Broadband Router)
LAN-SW	LAN Switch, Multilayer Switch, Hub
VOIP-GW	VoIP Gateway
NETWORKS	Other Network equipment
PWSPY-TE	PWSPY for TELECOM equipment (Plug-in for BATTERY OTHERS)

Murata is joining the POLATM alliance.

Consequently, Murata will be offering pin compatible footprints that offer the same functionality and form factors as the other members of the POLA alliance, ensuring full compatibility and second sourcing. This has further implications because the POLA alliance has announced their intention to join the PMBus™ digital protocol initiative of leading power supply and semiconductor manufacturers. This coalition intends to develop and support a new communications standard defining an open architecture for power system control, using the industry standard I2C serial bus.

They plan to implement the new digital protocol in future generations of plug-in power modules.



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## ADC & DAC BANNER

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Nei Prodotti Standard Linear:  
viene presentata una serie di convertitori ADC e DAC da 8-10-12 bit, a basso consumo e velocità interessanti per diverse applicazioni



12-bit A/D Converter  
200ksps, 8-Channel

APPLICAZIONI  
Bilanciamento impedenze di linea, controllo volume in sistemi audio, sostituzione potenziometri meccanici, impostazione tensioni di alimentazione, programmazione di filtri ritardi- costanti di tempo, sensori

PUNTO DI FORZA  
Range di temperatura esteso, basso consumo in shutdown, scelta tra vari valori di resistenze, scelta tra vari valori di partenza, ingresso seriale



12-bit Low-Power  
400/300ksps A/D Converters

256 Taps Digital Potentiometer



PUNTO DI FORZA  
Basso consumo, ingressi configurabili single-ended o differenziali, riferimento interno, tensione di alimentazione singola a campoesteso, uscita seriale o parallela veloce

APPLICAZIONI  
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