



DUPLEX CSA Ltd.

2010



Overview

- Brief overview of Duplex CSA facilities
- Core products
 - F connectors
 - TV/IEC connectors
 - MUSA connectors
- Examples of new/expanded product lines:
 - DPX™ low-loss connectors
 - Mini BNC connectors
 - I-PEX connectors
- Value-add capability
 - custom metalwork and assembly
- Cable assemblies
- Key markets
- Cost reduction
 - New techniques/sourcing and technologies
- Product life cycle, technology, trends and summary

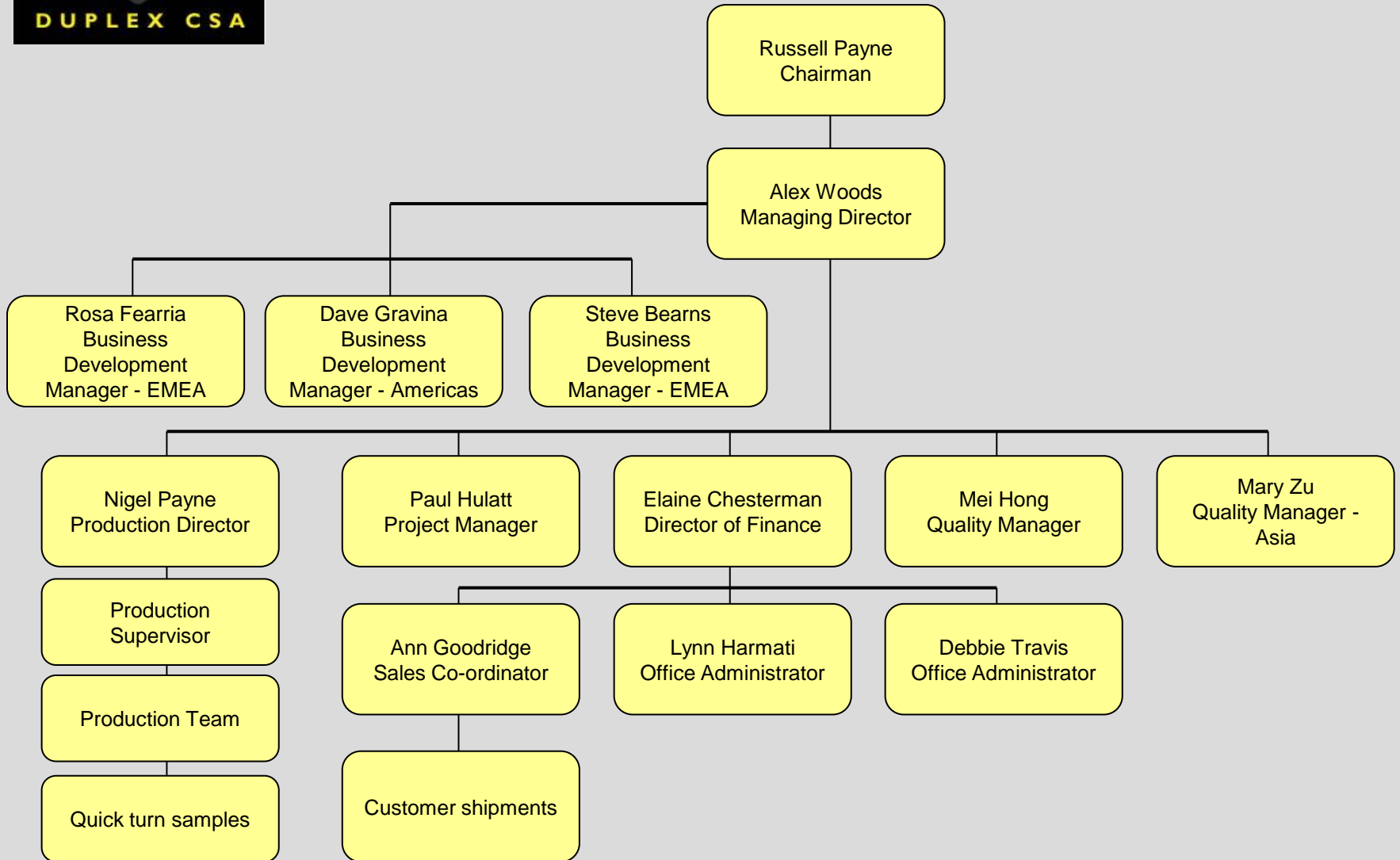


Company History

- | | |
|------|---|
| 1992 | Duplex CSA established |
| 1996 | Expanded into two buildings containing offices and workshop |
| 1998 | Further expansion into one combined facility |
| 2000 | Product range expanded to include custom shielding metalwork and more specialised connectors |
| 2006 | Moved to new and expanded custom facility |
| 2010 | I-PEX micro miniature connector range added
(New strategic partner for miniature connectors) |



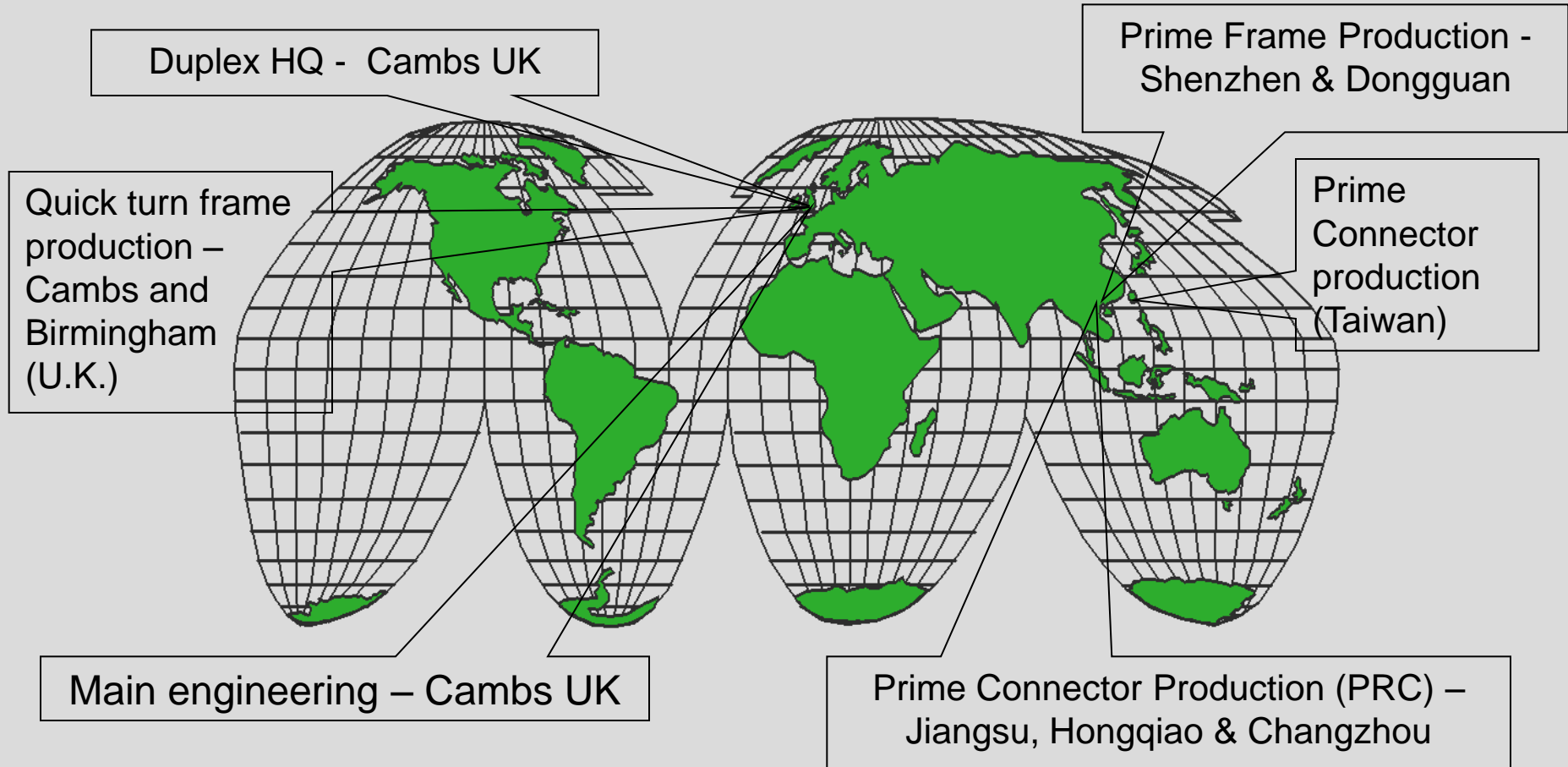
Organisation Chart





Duplex CSA

Main Operation Locations





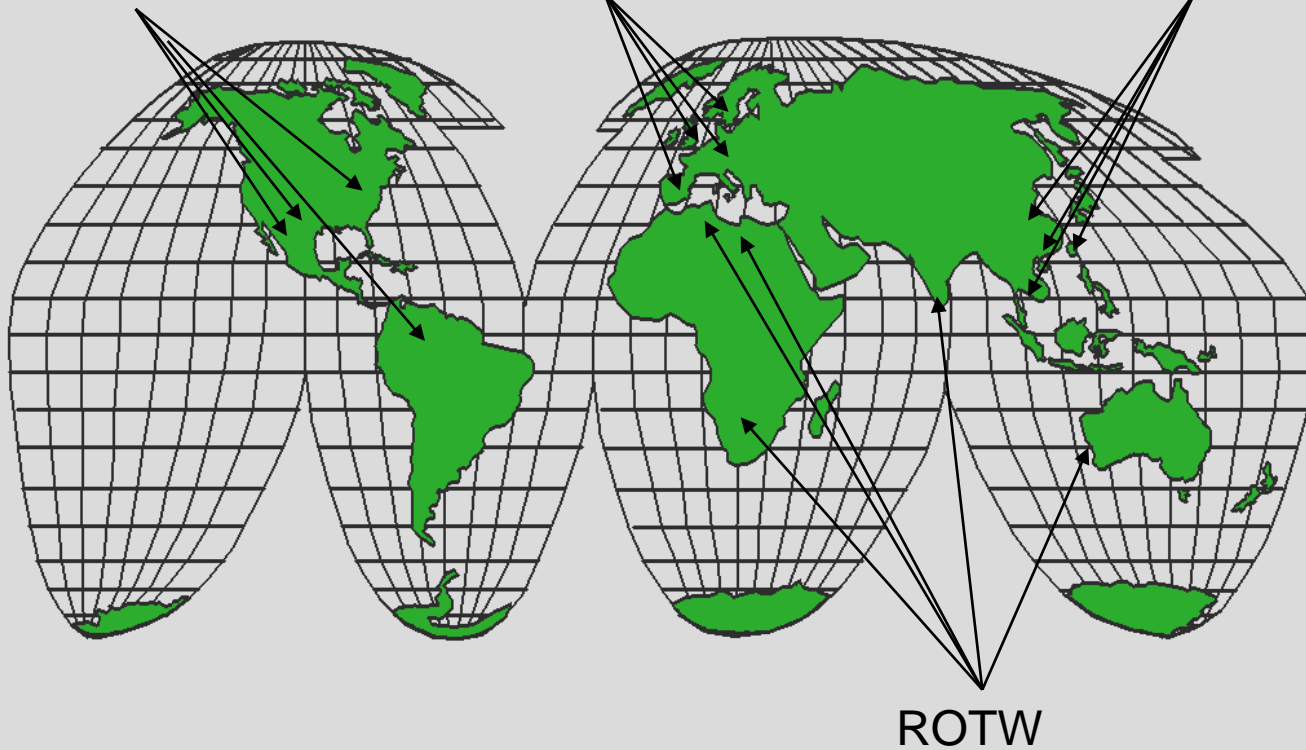
Duplex CSA

Main Customer Locations

AMERICAS

EMEA

ASIA



ROTW



Duplex CSA

Main Customer Locations

EMEA

- U.K./Ireland
- BELGIUM
- NETHERLANDS
- GERMANY
- SPAIN
- FRANCE
- ITALY
- GREECE
- AUSTRIA
- EASTERN EUROPE
 - Czech, Slovenia, Lithuania, Romania, Poland, Hungary
- SCANDINAVIA/NORDIC
 - Sweden, Finland, Denmark, Norway, Iceland

AMERICAS

- U.S.A
- MEXICO
- BRAZIL

ASIA

- P.R.C
- R.O.C
- MALAYSIA
- THAILAND
- SINGAPORE

ROTW

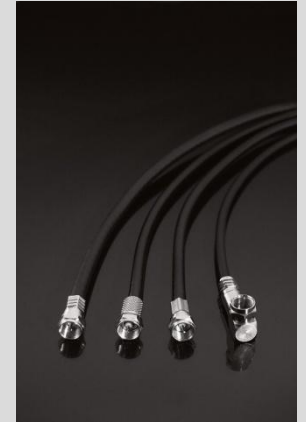
- AUSTRALIA
- R.S.A
- EGYPT
- INDIA
- TURKEY
- ISRAEL



CORE PRODUCTS



General Product Range





Product Range

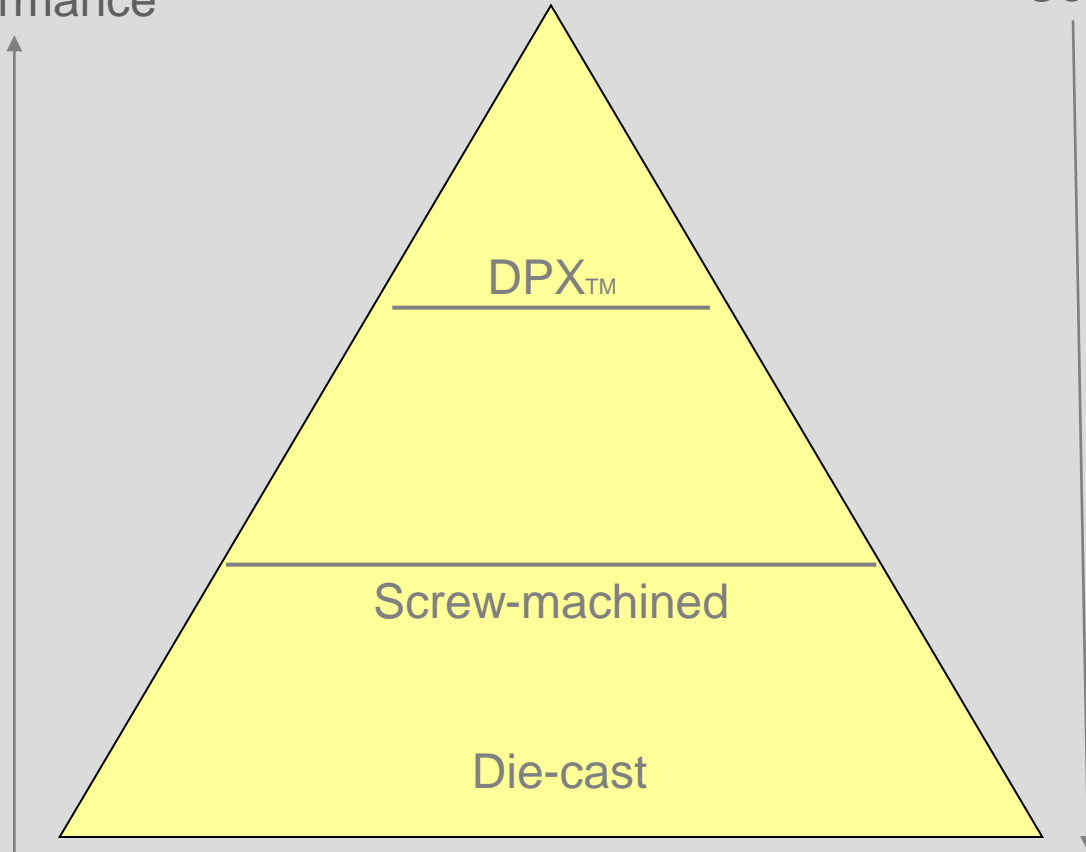
- F type connectors
- IEC/TV
- MUSA/WEC_o
- BNC/Mini BNC
- SMA, SMB, SMC
- N type
- Custom metalwork/value-added services
- Cable assemblies
- I-Pex (New strategic partner for miniature connectors)
- Custom Solutions



Product Pyramid

Performance

Cost





F Connectors

Full range of connectors :

- PCB mount : Vertical male and female
- PCB mount : Right angle male and female
- Panel mount : Swage-on for termination to a panel or into a can/frame
- Bulkhead mount
- Wave/hand solder or SMT termination
- Cable mount male and female for typical RG cable sizes, crimp or twist-on, standard hex nut or 'quick' mate
- F-F or F-Interseries adaptors

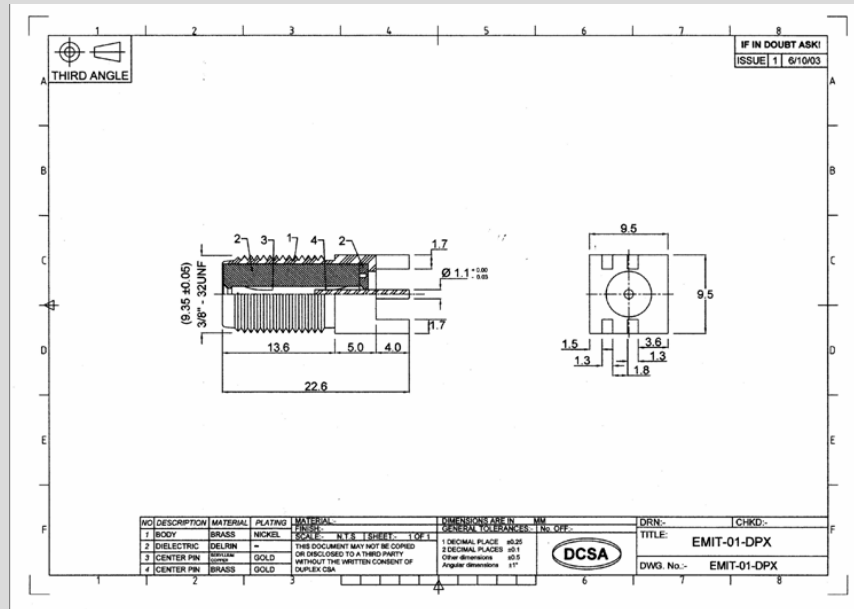
Specialists in connectors custom designed to meet user requirements



F Connectors



All standard and custom F connectors are available



Typical low-loss DPX™ F Connector



IEC/TV Connectors

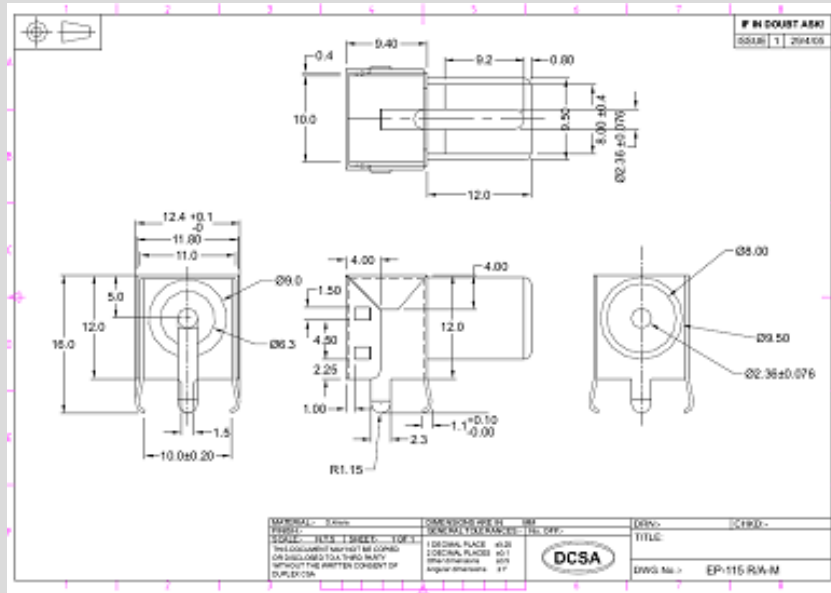
Full range of connectors

- PCB mount : Vertical male and female
- PCB mount : Right angle male and female
- Panel mount : Swage-on for termination to a panel or into a can/frame
 - Wave/hand solder or SMT termination
 - Cable mount male and female for typical RG cable sizes, crimp or twist-on
- TV-TV or TV-Interseries adaptors

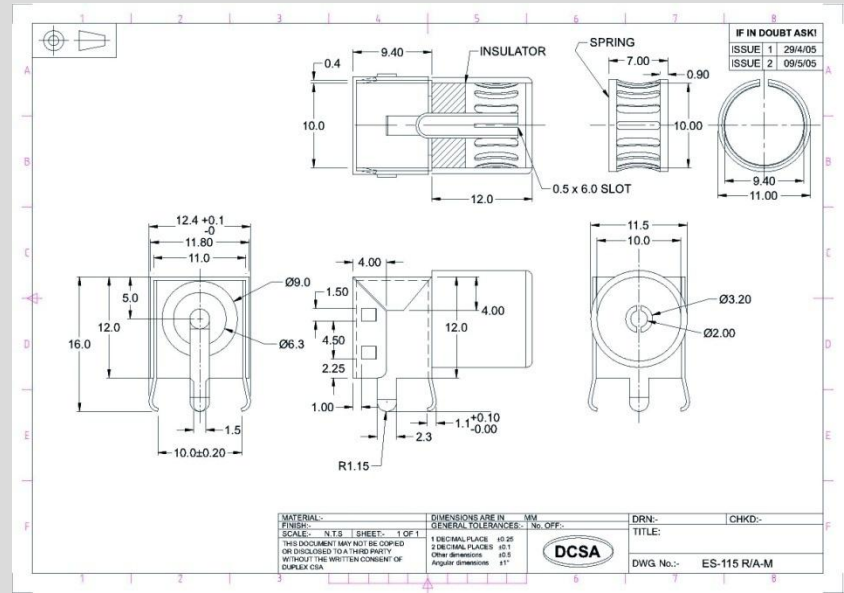
Specialists in connectors custom designed to meet user requirements



IEC/TV Connectors



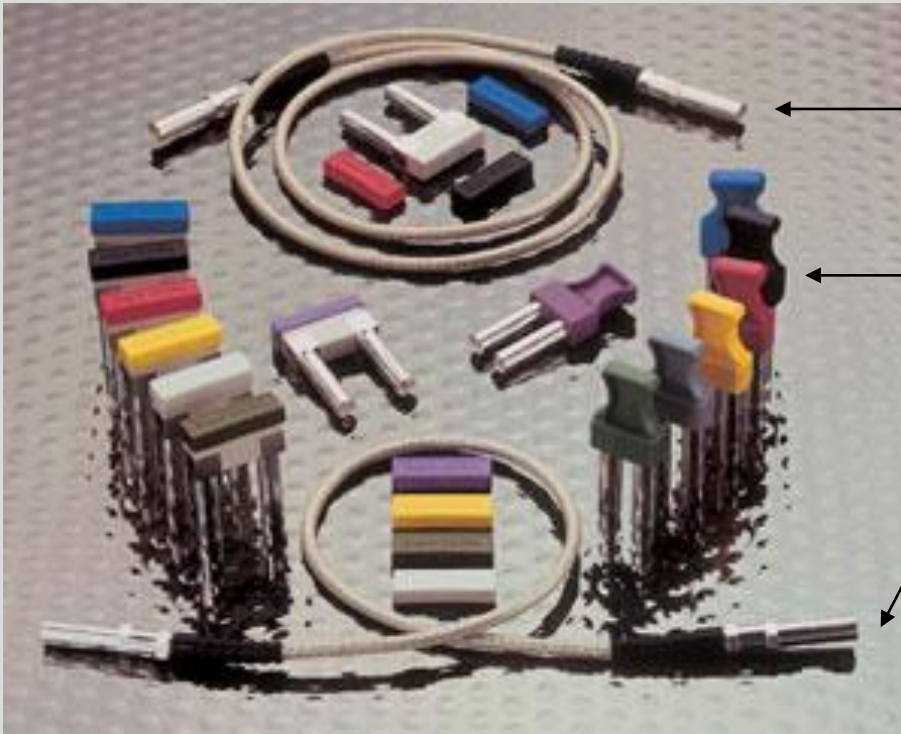
Typical, shielded, R/A PCB
Male connector



Typical shielded, R/A PCB
Female connector



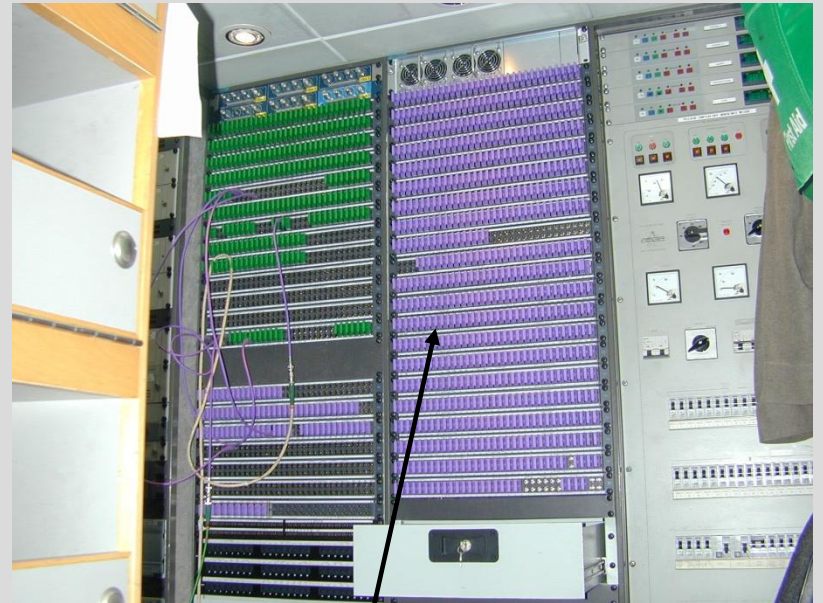
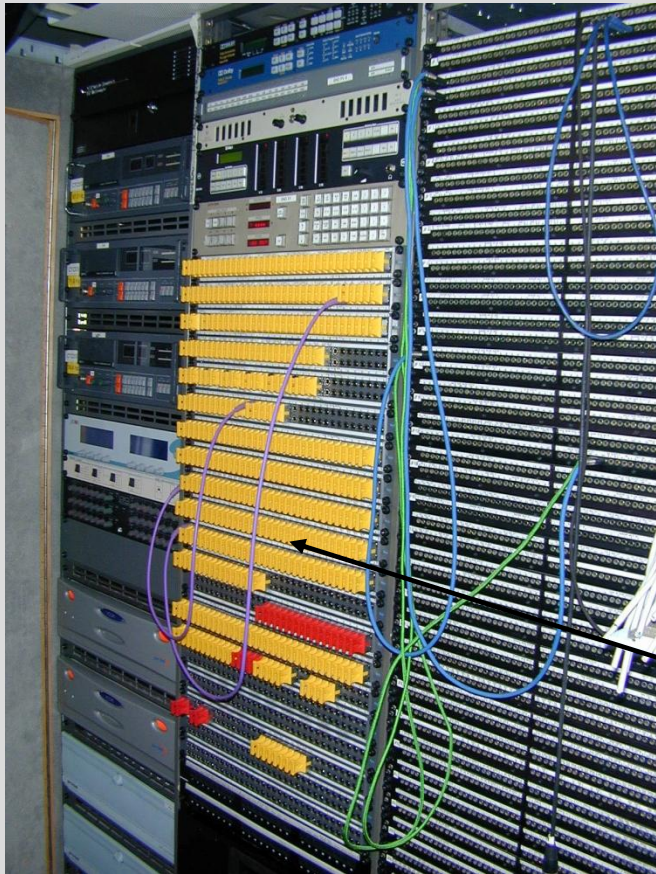
MUSA Connectors – 3 Types



1. MUSA cable mount connectors
2. MUSA U-Links
3. MUSA interseries adaptors (not shown)



MUSA Connectors - Application



MUSA Products for the Broadcast market

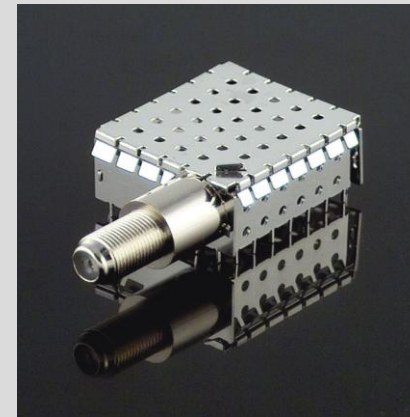


NEW/EXPANDED PRODUCTS



DPX™ Range of Connectors

- Designed to produce exceptional RL performance at a competitive cost
- Available in F female, TV/IEC male & female
- All mounting types possible (PCB, bulkhead)



Incorporated into a can/frame

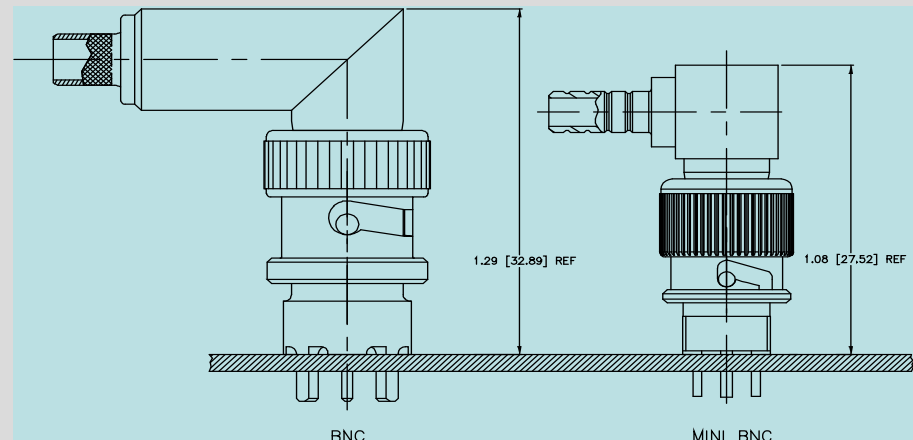


As a discrete connector



Mini BNC Connectors

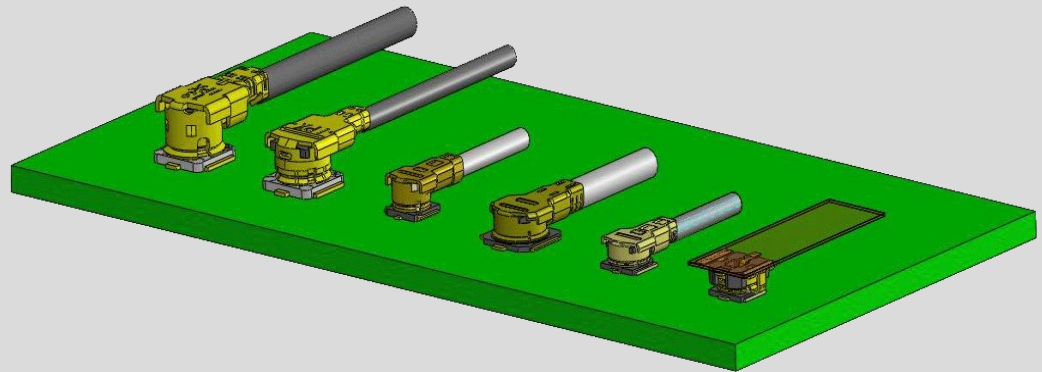
- Same high performance but 40% more interconnects in the same area as compared to standard BNC
- Ideal for telecommunications and broadband applications





I-PEX – strategic partner

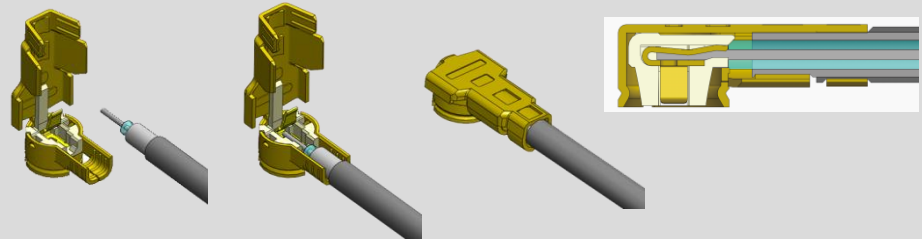
MHF - Micro Miniature SMT type RF micro coaxial connector. Applicable for WiFi, Bluetooth etc.



Features

1. Easy Cable Termination by “i-Fit®” Technology
2. SMT Receptacle and Mating Plug Cable connector
3. Ultra Low Profile 2.5 / 2.1 / 1.6 / 1.45 / 1.2mm MAX.
4. Accepts high frequency transmission of DC to 6GHz
5. Special testing tools and special pulling tools are available
6. Applicable Cables. O.D.0.64 ~ 1.8mm AWG#30 ~ #36

i-Fit® Technology



Simple, easy and speedy solderless cable termination in one operation.





I-PEX – strategic partner

MINIFLEX series

Product Name	MINIFLEX3-BFS	MINIFLEX3-VT	MINIFLEX5-BFS	MINIFLEX5-BF	MINIFLEX5-BF II	MINIFLEX5-NV	MINIFLEX5-BFN
Photo							
Pitch	0.3mm		0.5mm				
Type	Horizontal Back ZIF	Vertical ZIF Slider	Horizontal Back ZIF			Vertical NON-ZIF	Horizontal Back ZIF Narrow
Pin Count	60	21, 27, 33, 39, 45	4, 6, 8, 10, 12, 14, 19, 20	4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28	10, 22, 30, 34, 40, 45, 50	6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30	10, 12, 16, 22, 30
FPC thickness	0.15±0.03	0.2±0.03	0.2±0.03	0.3±0.05			
Height (mm)	0.9	4.0	1.0	1.0	2.0	4.0	1.0
Width (mm) ACT :Closed	4.0 (4.93)	2.95	3.8 (4.9)	3.8 (4.9)	4.92 (5.9)	3.4	3.0 (3.5)
Traveling length (far / near)	0.3/0.25 mm	0.9/1.6 mm	1.3mm	1.3mm	1.35mm	-	1.0mm
FPC insertion depth	1.9mm	-	1.8mm	1.8mm	2.1mm	-	1.3mm
Contact point	Upper and Lower	-	Upper and Lower			-	Upper and Lower





I-PEX – strategic partner

CABLINER[®] series

Product name	CABLINER-CX	CABLINER-UX	CABLINER-MS	CABLINER-UAII	CABLINER-SS	CABLINER-UB	CABLINER-UBII	CABLINER-V	CABLINER-CBL	CABLINER-VS
Photo										
Cable Pitch	0.25mm	0.25mm	0.3mm	0.3mm	0.4mm	0.4mm	0.4mm	0.4mm	0.4mm	0.5mm
Board Pitch	0.5mm	0.5mm	0.6mm	0.6mm	0.4mm	0.4mm	0.4mm	0.4mm	0.4mm	0.5mm
Pin count	40, (50)	34, (40), (50)	32, 40, 44, 50	32, (34), 40, 50	10, 14, 20, 30, 32, 35, 40, 50	20, 30, 36, 40	34, (40)	10, 15, 20, 25, 30, 35, 40	30, 40	20, 30, 40
H/V	Horizontal	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Nominal height	0.7mm	1.00mm	1.60mm	1.27mm	1.65mm	1.00mm	0.825mm	1.00mm	0.825mm	1.00mm
Maximum height	0.80mm	1.10mm	1.81mm	1.37mm	1.85mm	1.10mm	0.90mm	1.15mm	0.975mm	1.10mm
Depth	4.0mm (without Latch bar)	2.40mm	3.70mm	2.90mm	3.00mm	5.00mm	3.75mm	5.65mm	5.44mm (with Latch bar)	5.70mm (with Latch bar)
Width	14.5mm (without Latch Bar)	16.6 (50p)	6.1+Px(0.3)mm	17.0mm	5.8+P x(0.4)mm	6.0+P x(0.4)mm	21.1mm	4.4+P x(0.44)mm	6.44+Px(0.4)mm (with Latch bar)	7.55+P x(0.5)mm (with Latch bar)

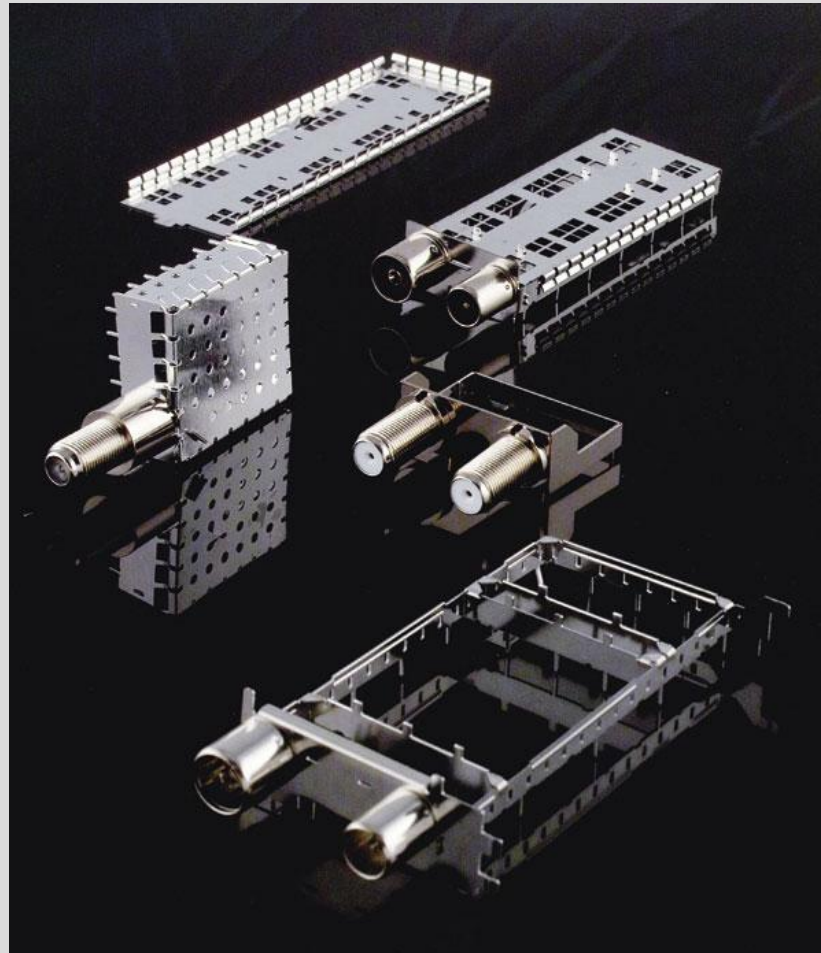




VALUE-ADDED/ CUSTOM PRODUCTS

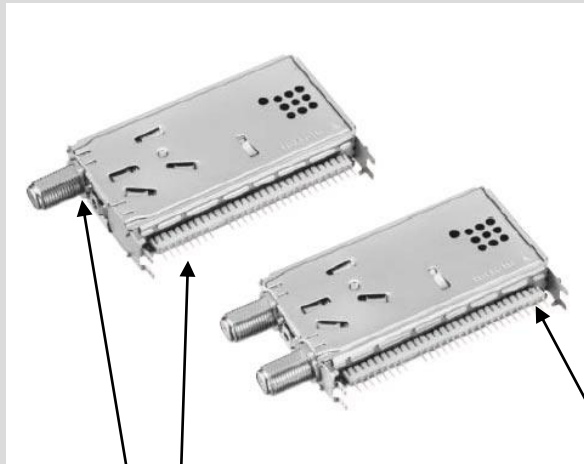


Custom Metalwork - RF Shields/Cans/Frames



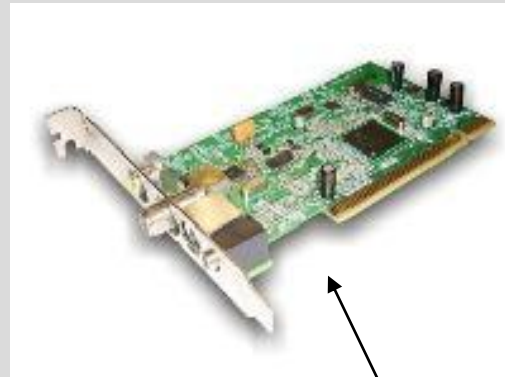


Products for Typical RF tuners

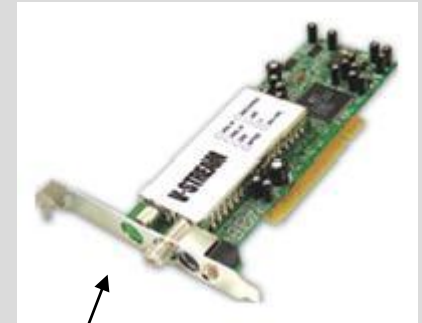


F Connectors

Frame and lids

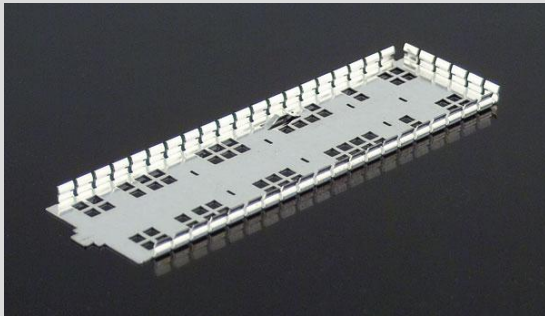


TV/IEC Connectors



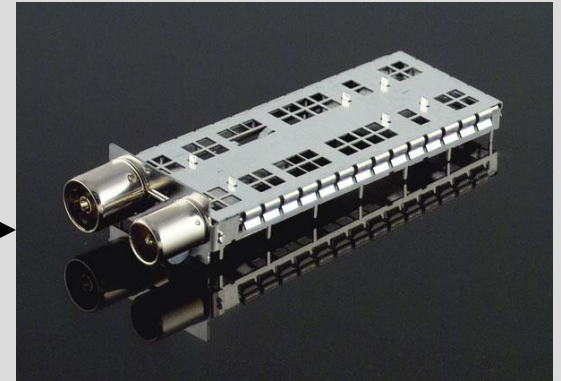


Custom Metalwork



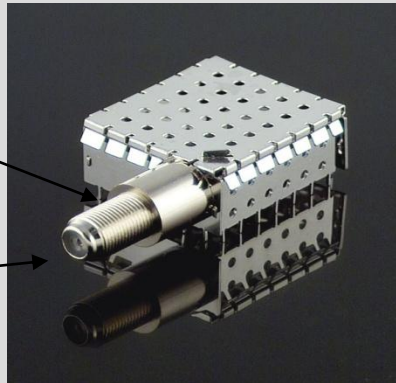
← SPTE cover

Frame with connectors
and cover, fitted

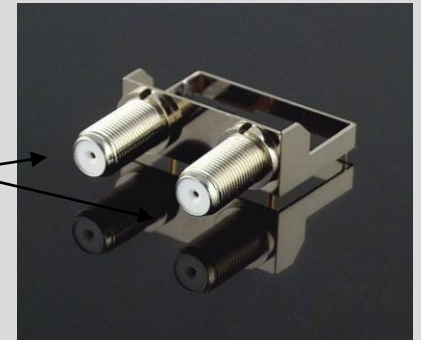


Swaged
connection into
frame for security

High
Performance
DPX™ F
Connector



2 x High
Performance
DPX™ F
Connectors

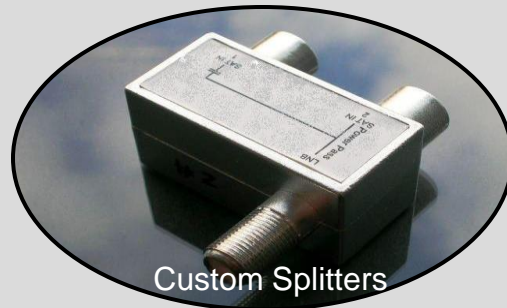




Custom Capability



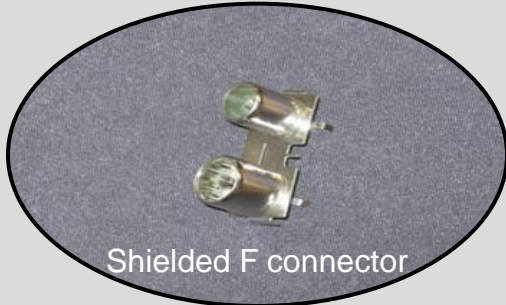
Swaged Connectors



Custom Splitters



End Launch BNC



Shielded F connector



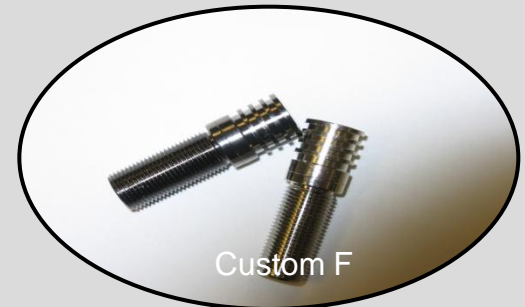
U-Link



U-Link



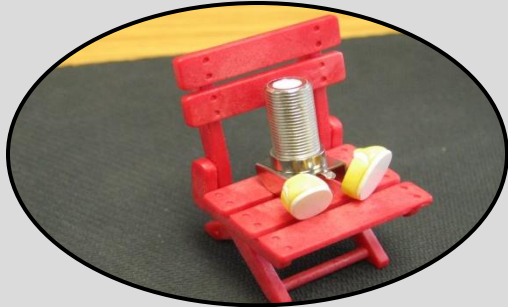
U-Link



Custom F



Custom Solutions



Always prepared to sit & listen

– Limited only by your imagination



Making Your Ideas a reality



Working with silicon manufacturers on reference board designs - optimised connectors

Product Brief

Intel® CE 9528 DVB-T
TNIM Reference Design
Consumer Electronics

Applications

- DVB-T set top boxes
- DVB-T integrated digital TV
- PC DVB-T receiver cards
- PC DVB-T USB "plug-and-play" modules
- Portable DVB-T receivers

DVB-T Digital Terrestrial Front-end Solution with Xceive® Tuner



Product Overview

The Intel® CE 9528 TNIM reference design is a complete DVB-T digital terrestrial front-end solution integrating the Intel® CE 6355 NorDig Unified high-performance COFDM demodulator and the Xceive® XC3028 analog/digital hybrid tuner* with integrated analog radio and TV receiver. It is designed specifically for digital terrestrial motherboard integrated digital TV's and PC-TV applications. This solution has a low bill of materials because there is no SAW channel filter required.

This reference design allows customers to quickly and cost-effectively evaluate and implement the DVB-T standard in their product design. Software is supported directly by Intel and each reference design is accompanied by a comprehensive documentation and test results. This DVB-T reference design offers excellent signal-handling performance and low power consumption.

Intel® CE 9528 DVB-T Reference Design with Xceive® Tuner

The Intel® CE 9528 DVB-T TNIM reference design front-end application board provides a small, highly integrated TV receiver solution for combined analog radio, TV and DVB-T digital TV receivers. Target applications are iDTVs and PC-TVs requiring hybrid digital/analog operation.

Received digital terrestrial signals are down-converted via the Xceive tuner to a low IF and fed to the Intel® CE 6355 COFDM demodulator for channel coding to MPEG transport stream output.

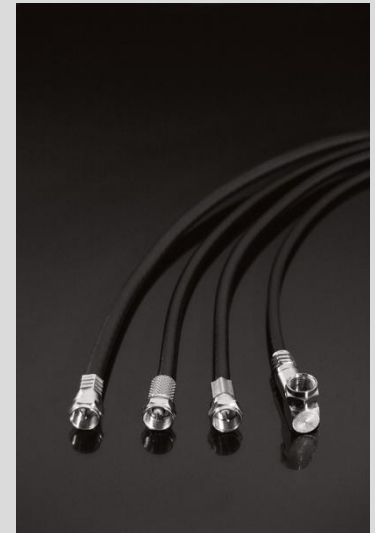
The Intel CE 9528 DVB-T TNIM reference design kit is supplied with an Intel® CE 9594 interface board, which only requires a single +5 V supply, all other power rails are generated on board. The Intel CE 9528 DVB-T reference design front-end solution is optimized for real in-field terrestrial environmental conditions.

Supplied as a tested and characterized application board, the reference design provides a reliable, fast time-to-market hybrid analog/DVB-T digital front-end solution.

For further information on the Xceive XC3028 tuner please contact sales@xceive.com or visit <http://www.xceive.com>.



Cable Assembly Capability



Complete connector range, solder, crimp & twist-on



FlexiForm
conformable
cable with RCA
plugs

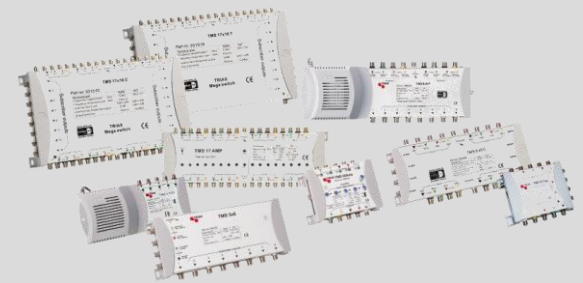


BNCs on customer specific cable



Key Markets

- Set top box and related television equipment
- Multiswitches
- Head end equipment
- Cable TV/Satellite TV installation
- RF tuners
- Telecom equipment
- Broadcast equipment – audio and video
- Support industries to the above





Cost Reduction Focus

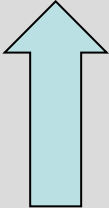
Considering ways to reduce applied cost through :

- Ease of assembly
 - Termination, piece-parts, packaging
- Application
 - SMT, Press fit, Pin-through-paste, Push fit, Swage-on
- Material selection :
 - MID, BZ4, Selective Plating
- Integrated/multi-contact
- Value-add
 - Cable assemblies, complete frame/connector
- Review of manufacturing location v suitability
 - Far East v EMEA
- Alternative manufacturing methods
 - Die-cast, over moulding




Technology Trends

Increasing:

- 
- Adoption of low-loss connectors
 - Move towards die-cast for cost benefits
 - Need for miniaturisation of internal interconnect
 - Use of SMT
 - Move from RCA>mini Phono


Future:

- 
- Move towards alternative materials
 - Multi-way connectors
 - More snap-on designs

Stable:

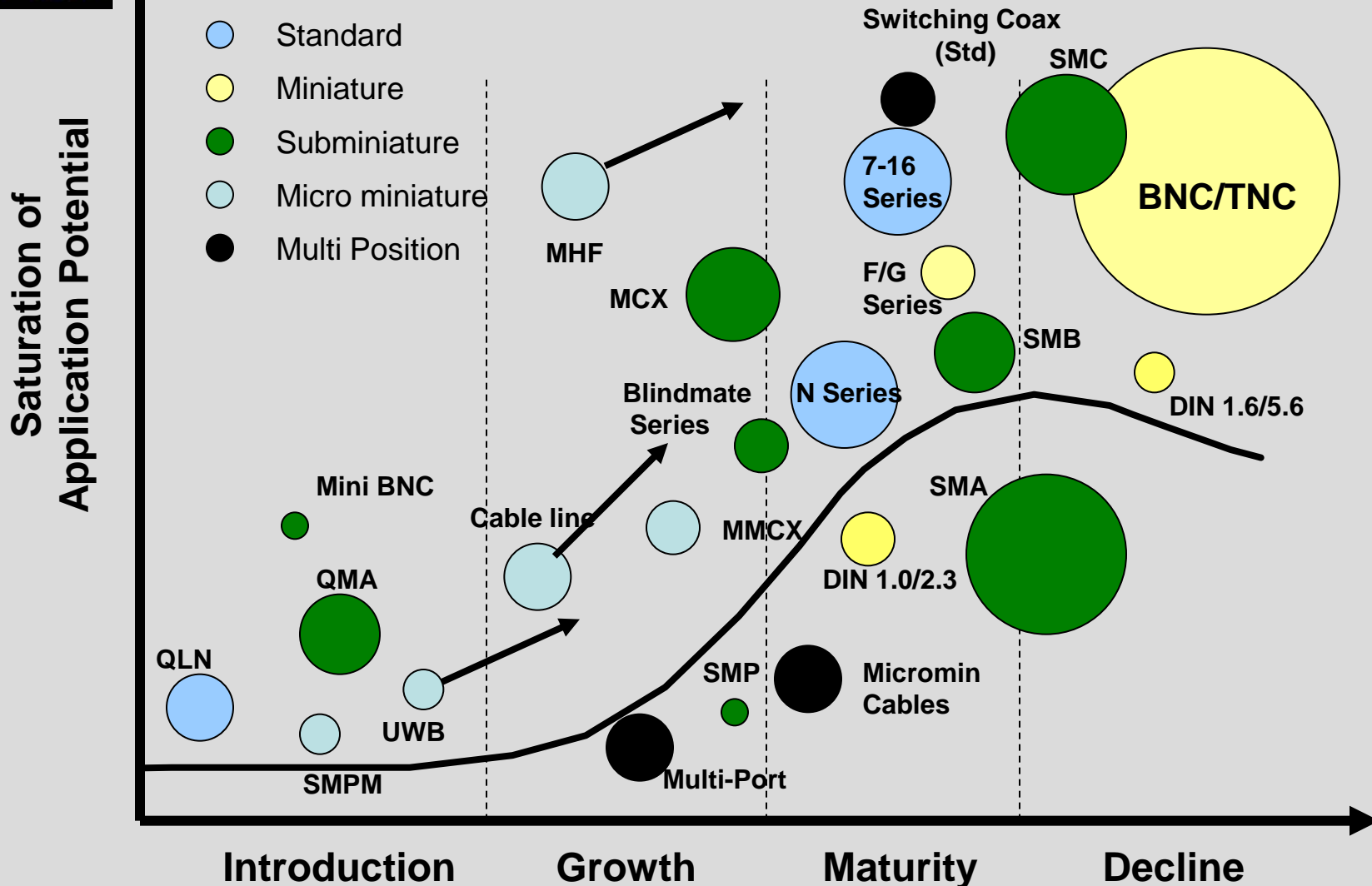
- 
- Conventional solder & crimp products for CATV market
 - MUSA applications in the video/broadcast market
 - SMA, SMB, BNC etc within the general market

Declining:

- 
- Screw-machined connectors in price sensitive applications
 - Sales of discrete connectors v value-add/pack solutions



RF Coax product life cycle





Thank You For Your Interest

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