Cyntec EMEA

Power & RF Components

Brochure 2023

About Cyntec Group

Since 1991 Cyntec's team of scientists and engineers have been known to lead the way in the research and development of the miniaturized and highly integrated products and solutions. The product lines consist of magnetic components, passive components, power modules, RF & optical modules which serve the client, cloud computing equipment, automotive, IOT, industry, and other market segments.

1991 Founded in Taiwan

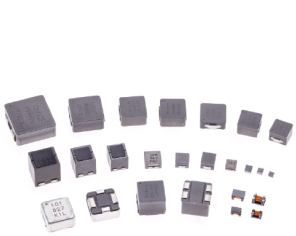
1.3 Billion USD Sales Revenue in 2022

5 R&D Centers Worldwide

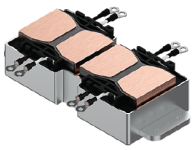
8 Plant Sites Worldwide

19 Sales Offices Worldwide

Product Portfolio

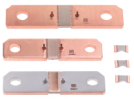


Molded/Sealed/Hot Pressed/ LTCC/Assembled Choke

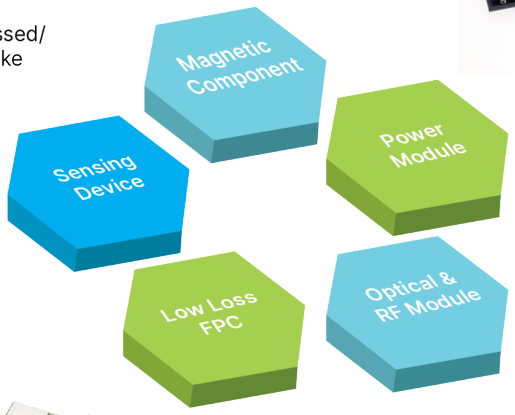


Power Transformer/Reactor

Power Module



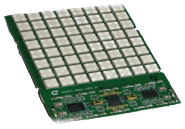
Shunt-based Current Sensing Solution



Optical Transceiver

Current Sensing Resistor

Low Loss FPC



Antenna Module

Power Inductor

Cyntec, expert in assembly- and molded-type inductors, is dedicated to continuously developing new materials, processes, and integration technologies to provide innovative products and solutions. Our power inductor production capacity exceeds 2.7 billion pieces per month, with high market shares in notebook (~60%), smartphone (~40%), and cloud (~30%) segments.

Series	Feature	Application

HMx

- Low loss ferrite with multi-turns of flat wire
- Square foot print & low-profile
- High inductance & low saturation

- 48V bus
- Server, Datacenter, Telecom, Networking

Series	Inductance (μH)	DCR (mΩ)	Sat. current (A)	Package (mm)
HMx	0.47~22	0.55~23	6~51 @100°C	13.0×13.2×6.0~23.5×23.5×15.6

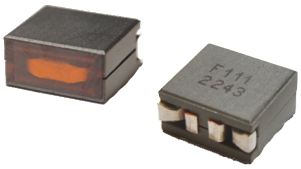
HCB

- Low loss ferrite with one-turn clip
- Low profile PoL
- Low inductance & high saturation

- PoL, 48V bus
- Server, Datacenter, Telecom, Networking

Series	Inductance (μH)	DCR (mΩ)	Sat. current (A)	Package (mm)
HCB	0.08~0.55	0.125~0.63	14~89 @100°C	10.2×7.0×5.0~13.3×13.0×8.2

TLM / TCB

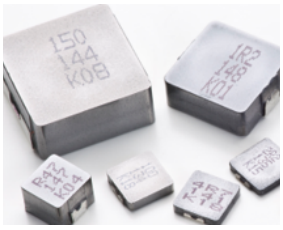


- Low loss ferrite with one-turn clip
- Shortened width for multiphase line-up arrangement
- Low inductance & highest saturation

- 48V bus
- Server, Datacenter, Telecom, Networking

Series	Inductance (μH)	DCR (mΩ)	Sat. current (A)	Package (mm)
TLM	0.07~0.2	0.125~0.24	6~51 @100°C	9.6×6.4×10.5~11.0×7.5×12.5
TCB	0.1~0.2	0.52~0.55	21~76 @100°C	13.0×8.0×4.0~13.0×8.0×5.0

CMLx



- Superior current handling
- Low leakage field
- Wide variety of form factor (4×4~22×22(mm))
- Miniaturization & low profile
- High inductance with low DCR
- Low core loss for high switching frequency

- 48V bus
- Server, Datacenter, Telecom, Networking

Series	Inductance (μH)	DCR (mΩ)	Sat. current (A)	Package (mm)
CMLx	0.1~22	0.55~23	6~51 @25°C	4.0×4.0×2.0~22.0×22.0×13.0

HBED

- Superior current handling
- Ultra-high efficiency + low loss material
- Ultra-low DCR with ribbon wire design

- Server, Datacenter
- Telecom, Networking

Series	Inductance (μH)	DCR (mΩ)	Sat. current (A)	Package (mm)
HBED	0.15~4.7	0.6~38	5~63 @25°C	4.0×4.0~6.0×6.0

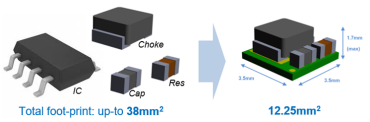
Power Module

Point of Load

Enable great PCB space saving with optimized power efficiency and thermal performance
12 Vin/5 Vin, 1 A-30 A load current

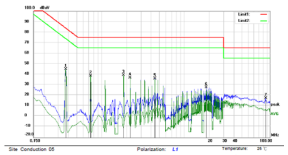
Product Portfolio & Specifications

Compact Design Fast Time to Market



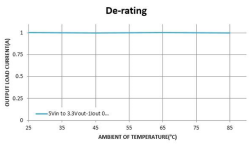
- PCB & footprint saving up 70%
- Minimum DC-DC design effort

Robust EMI Solution



- Short current path in the module
- Module meet CISPR25 Class5

High Temperature Operation

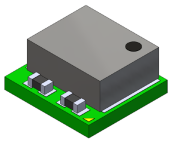


- Effective heat dissipation
- Full power operation at 125°C

Automotive Quality

- Certified automotive production
- AEC-Q100 qualified

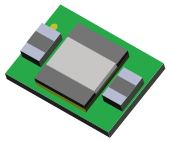
MUN12AD03-SEC Hot



3.0 × 2.8 × 1.5mm

- 4.5V to 17V V_in
- 0.8V to 5.5V V_out
- Continuous 3A Output
- 91% Peak Efficiency at 12V V_in
- PFM or PWM Automatic

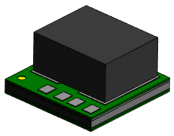
MUN3CAD02-JE Hot



3.0 × 2.8 × 1.5mm

- 2.7V to 5.5V V_in
- 0.6V to 3.3V V_out
- Continuous 2A Output
- 93% Peak Efficiency at 3.3V V_in
- Forced PWM Mode

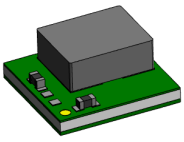
MUN3CAD05-JF Hot



3.0 × 3.0 × 1.5mm

- 2.7V to 5.5V V_in
- 0.6V to 3.3V V_out
- Continuous 5A Output
- 92% Peak Efficiency at 3.3V V_in
- Forced PWM Mode

MUN3CAD03-SE Hot



3.0 × 2.8 × 1.3mm

- 2.75V to 5.5V V_in
- 0.6V to 3.3V V_out
- Continuous 3A Output
- 92% Peak Efficiency at 3.3V V_in
- PWM or PFM Automatic

Cyntec DC-DC Modules Proposal for Versal AI SoC Core

XILINX®

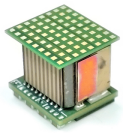
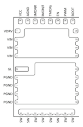
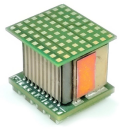
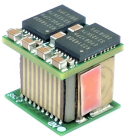
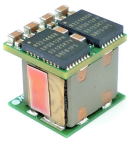
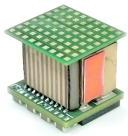
- MPN12AD160-MQ-15
- MUN12AD01-SG-15
- MUN12AD03-SECM-15
- MUN12AD05-SMFL-15

Vin	600mA	1A	2A	3A	5A	6A	12A	20A	30A
High Voltage (<45Volt)		**MUN24AD01-SH** 3.5×3.5×1.7mm **VUN12AD01-SH** 3.5×3.5×1.7mm	**VUN12AD02-SM** 6.0×6.0×2.6mm	**MPN24AD03-UP** 8.6×7.4×6.0mm **MUN24AD03-SM** 6.0×6.0×3.5mm **VUN12AD03-KM** 6.0×6.0×3.5mm **VUN12AD03-KMH** 6.0×6.0×2.6mm	**MPN24AD05-UR** 9.4×8.6×7.2mm (USB PD)				
Mid Voltage (<24Volt)		**MUN12AD01-SG** **MUN123C01-SGB** 3.9×2.6×1.7mm (Force PWM)		**MUN20AD03-SM** 6.0×6.0×3.5mm **MUN12AD03-SEC** 3.0×2.8×1.5mm	**MUN12AD05-SMFH** 6.0×6.0×3.5mm (Force PWM) **MUN12AD05-SMFL** 6.0×6.0×3.5mm (Force PWM)	**MPN12AD06-TS** 12.19×12.19×5.4mm (DOSA) **MUN12AD06-SM** 6.0×6.0×3.5mm	**MPN12AD12-TS** 12.19×12.19×8.4mm (DOSA) **MSN12AD12-MP** 8.6×7.5×6.5mm (Force CCM)	**MPN12AD20-TS1** 2.19×12.19×8.4mm (DOSA) **MSN12AD20-MQ** 10.0×9.0×6.5mm (Forced CCM)	**MSN12VD30-FR** 14.2×7.8×6.35mm (PMBus/SVID)
Low Voltage (<7Volt)	**MUN3C1HR6-FB** 2.5×2.3×1.05mm **MUN3C1BR6-SB** 2.5×2.0×1.1mm	**MUN3CAD01-SC** 2.9×2.3×1.05mm **MUN3CAD01-SB** 2.5×2.0×1.1mm	**MUN3CAD02-JE** 3.5×2.5×1.5mm (Low ripple)	**MUN3CAD03-SF** 3.0×3.0×1.30mm **MUN3CAD03-SE** 3.0×2.8×1.30mm	**MUN3CAD05-JF** 3.0×3.0×1.5mm (Low ripple)				

Power Block for V-core

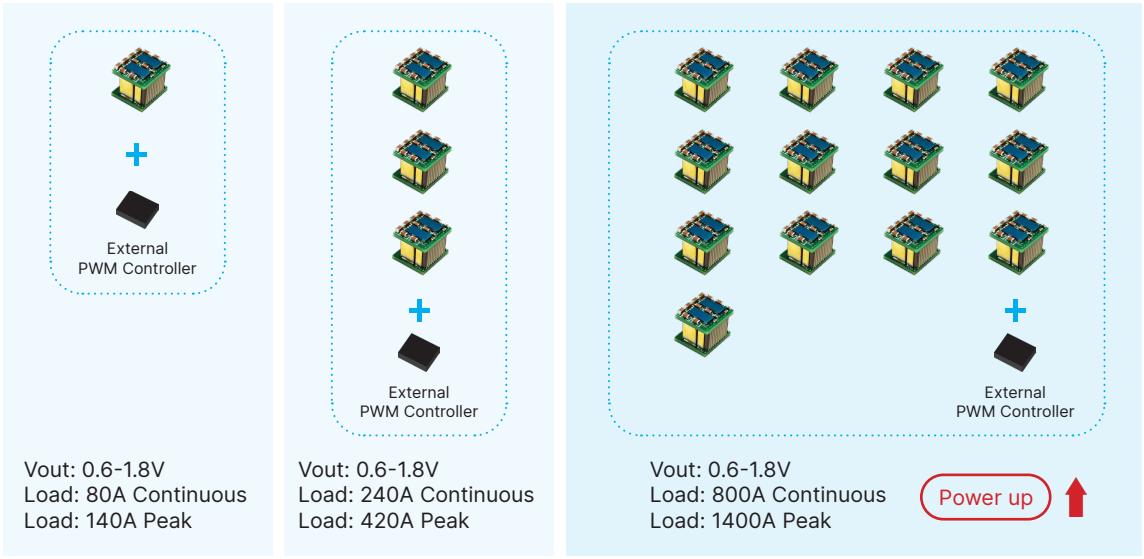
High power density - High efficiency - Space saving - Fast time to market

Key Features

Solution	P/N			
MPS 	MP87006 4 x6 x0.85mm 3.3Vdriver			
IFX 	TDA22590 4 x6 x0.465mm 5.0Vdriver			
Renesas 	RAA221490 4 x6 x1.0mm 5.0Vdriver			

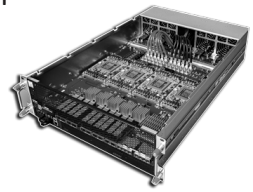
Management level engagement with IC partners for mutual benefits

Application with External Controller



Power Block Target Applications

OAM

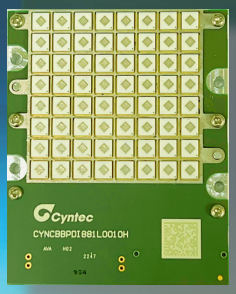


PCIe

Switch

mmWave Antenna Module

Support FR2 n257/n261 28GHz band
Customized solution for n258(26GHz) or n259/n260(39GHz)



Key Features

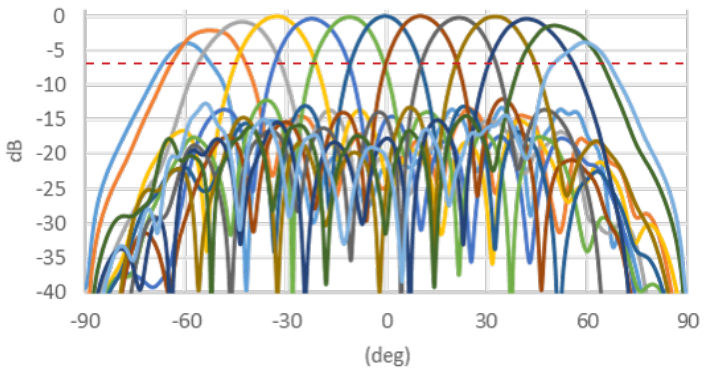
- Long transmission distance: EIRP(@P1dB) up to 57dbmi/pol
- High capacity bandwidth: 800MHz bandwidth with high order 256QAM modulation
- Wide angle: ±60° beam steering to obtain highest scanning gain for a phased array
- Scalable flexibility: Flexible combinations by multi-8×8 antenna module units
- Hybrid structure: LTCC chip antenna on rigid PCB to reach compact size and better reliability
- Infrastructure sharing: World's first shared RU equipment, supporting 8cc multi-carriers
- Proven ecosystem: Compatible with NXP/ FPGA baseband platform

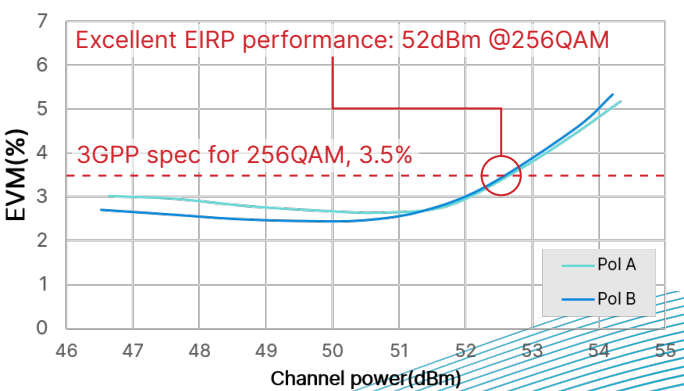
Product Portfolio & Specification

Specification	Cyntec 8×8 Antenna
Operating Band	n257(26.5~29.5GHz); n261(27.5~28.35GHz)
Antenna Architecture	8×8 array, 64 elements
Polarization	Dual Pol +/- 45deg
Tx EIRP @ Linear Power	48 dBmi/Pol Beam @ 256 QAM 400MHz BW (typ 3% EVM)
EIRP @ P1dB	57 dBmi/Pol Beam
Rx/Pol Sensitivity	NF 5dB typ
Steering Angle	H : +/-60 deg; V : +/- 60 deg
Interfaces	IF (TX*2, RX*2) 2.6~5.8GHz
	Lo 5.175~8.775GHz

Performances

Gain Pattern @ 28GHz --- -8dB: 3GPP standard





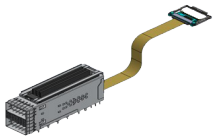
Ultra low-loss FPC

For high-speed and high-frequency applications

Key Features

- Ultra-low loss performance for 5G mmWave & 112/224 GT/s application
- High channel density and robust signal integrity
- Slim profile for flexible assembly
- Stable performance over wide temperature range

Solution for high-speed inter-connection



Application | 800G Switch, USB 4.0 & PCIe interface

Series	Connector	Data-Rate	Unit Loss	
			@ 56 GT/s	@ 112 GT/s
AFBNQ-X208-005	QSFP-DD	112 GT/s	-0.34 dB/inch	-0.49 dB/inch
AFBNQ-X208-007	QSFP-DD	112 GT/s	-0.27 dB/inch	-0.39 dB/inch
AFBNN-X208-005	Board mount	64 GT/s	-0.34 dB/inch	-0.49 dB/inch

Solution for high-frequency Antenna

Application | Inter-connection for UWB & 5G mmWave Antenna AiP

Series	Unit Length Loss	Size (mm)
	@ 10GHz/40GHz per lane	
AFBNN-X308-002 'Low profile'	-0.53 dB/ inch @ 10GHz -1.38 dB/ inch @ 40GHz	3.7 x 100 x 0.24 (mm)
AFBNN-X308-003 'Low insertion loss'	-0.47 dB/ inch @ 10GHz -1.10 dB/ inch @ 40GHz	4.1 x 100 x 0.31 (mm)

Application | Antenna integration (Antenna + FPC)

10 dB Antenna gain, low inter-connection loss depends on the length

Series	Frequency Band	Antenna Array	Size (mm)
AFPDI-1411-002	26, 28, 39 GHz	1 × 4	3.7 × 50 × 1.2

The FPC form factor is open for customized design discussions

Cyntec Co., Ltd. EMEA
Email: info-emea@cyntec.com
www.cyntec.com