

Electronic components & applications

incorporating Philips Electronic Applications Bulletin and Mullard Technical Communications

Index to Volume 1

Electronic Components and Materials Division
N.V. Philips' Gloeilampenfabrieken, Eindhoven, The Netherlands

CONTENTS

Number 1

- Microprocessor-controlled video games
S.J. Op het Veld
- Two-tone telephone dialling
J.J.A. Geboers, D.J.G. Jansen, J.C. Kaire
- UHF broadband amplifier for transposer bands IV and V
- Understanding rectifier diode data
P.G. Noble
- Publications news
- Improved performance 25 mm diameter Plumbicon* tube
A.A.J. Franken
- A.M./F.M. receiver IC
- Research news

Number 2

- 2/3 inch Plumbicon* tube with enhanced performance
A.A.J. Franken
- Digital control of radio and audio equipment Part 1 – Frequency measurement and display system for a.m. and f.m. radios
J. van Straaten
- The 8X300 -- a high-speed, control-oriented microprocessor
E.D. van Veldhuizen
- 30AX self-aligning 110° in-line colour TV display
P.G.J. Barten and J. Kaashoek
- Solar panels for terrestrial applications
C. Franx
- The BZW10 transient suppression bridge for telephones
- Research News

Number 3

- 4 Reliability proven: BDW55/56 gold-gold medium-power transistors
S. Sliedregt 135
- 29 TDA1011: versatile 2 to 6 W audio amplifier 149
- 43 Single-phase rectifier circuits with CR filters Part 1 – Theory
A. Lieders 153
- 45 Understanding thyristor and triac data
P.G. Noble 164
- 56 Publications news 182
- 57 The P² CCD 500B linear imager
M. Herrmann and J. Wölber 183
- 60 Research News 192
- 63

Number 4

- 71 Microcomputer-controlled tuning and control systems for TV
F.A.M. van de Kerkhof 199
- 78 Single-phase rectifier circuits with CR filters Part 2 – Design procedure
A. Lieders 216
- 79 Digital control of radio and audio equipment Part 2 – Voltage converter and memory for preset radio tuning
J.W. Beunders 231
- 91 Part 3 – Introduction to microcomputer-controlled radio tuning system
U. Schillhof 239
- 103 The 8X300 development and monitoring system (DMS)
E.D. van Veldhuizen 249
- 125
- 128

SUBJECT INDEX

AM/FM receiver	60	Optical recorder	128
Amplifier,			
audio	149	Plumbicon* camera tube	57, 71
UHF broadband	43	P ² CCD 500B linear imager	183
Automatic identification of FM station	64		
BDW55/56	135	Radio tuning	231, 239
BZW10	125	Rectifier circuit	153, 216
		Rectifier diode	45
Cathode ray tube	63	SAA1058	79
Chip capacitor	152	SAA1070	79
CR filter	153, 216	SAA1089	231
Crystal growth	65	Solar panel	109
		Suppressor bridge	125
Data display	63	TDA1011	149
Device data	45, 164	TDA1077	29
Digital control of radio and		Telephone	29, 125
audio equipment	78, 231, 239	Thyristor	164
Frequency measurement and display for radios	79	Triac	164
		TV tuning	199
Image intensifier	215	Two-tone dialling	29
Integrated circuit,			
for AM/FM receiver	60	UHF broadband amplifier	43
manufacture	65		
		Video games	4
Laser	128, 129		
Linear imager	183	Voltage converter for radio tuning	231
LSI	192		
Metallisation	135	8X300	91, 249
Microcomputer	199, 239	8X300 development and monitoring system	249
Microprocessor	4, 91, 249	30AX colour TV system	103

CONTRIBUTOR INDEX

Barten, P.G.J.	103	Kerkhof, F.A.M. van de	199
Beunders, J.W.	231	Lieders, A.	153, 216
Franken, A.A.J.	57, 71	Noble, P.G.	45, 164
Franx, C.	109	Op het Veld, S.J.	4
Geboers, J.J.A.	29	Schillhof, U.	239
Herrmann, M.	183	Sliedregt, S.	135
Jansen, D.J.G.	29	Straaten, J. van	79
Kaashoek, J.	103	Veldhuizen, E.D. van	91, 249
Kaire, J.C.	29	Wölber, J.	183

CONTENTS LISTED UNDER APPLICATION AREAS

BROADCAST AND AUDIO

A.M./F.M. receiver IC	60
Digital control of radio and audio equipment	78
Part 1 – Frequency measurement and display system for a.m. and f.m. radios	79
Part 2 – Voltage converter and memory for preset radio tuning	231
Part 3 – Introduction to microcomputer-controlled radio tuning system	239
TDA1011: versatile 2 to 6 W audio amplifier	149

COMMUNICATION

The BZW10 transient suppression bridge for telephones	125
Improved performance 25 mm diameter Plumbicon* tube	57
The P ² CCD 500B linear imager	183
Reliability proven: BDW55/56 gold-gold medium-power transistors	135
Two-tone telephone dialling	29
UHF broadband amplifier for transposer bands IV and V	43
2/3 inch Plumbicon* tube with enhanced performance	71

INSTRUMENTATION AND CONTROL

The 8X300 – a high-speed, control-oriented microprocessor	91
The 8X300 development and monitoring system (DMS)	249

POWER ELECTRONICS

Single-phase rectifier circuits with CR filters	
Part 1 – Theory	153
Part 2 – Design procedure	216
Solar panels for terrestrial applications	109
Understanding rectifier diode data	45
Understanding thyristor and triac data	164

TELEVISION

Microcomputer-controlled tuning and control systems for TV	199
Microprocessor-controlled video games	4
30AX self-aligning 110° in-line colour TV display	103

*Trademark of N.V. Philips' Gloeilampenfabrieken for television camera tubes

Electronic components & applications

incorporating Philips Electronic Applications Bulletin and Mullard Technical Communications

Index to Volume 2

CONTENTS

Number 1

Digital control of radio and audio equipment	
Part 4 – Displays and control of analogue functions with RTS	2
<i>U. Schillhof</i>	
Part 5 – DC-controlled audio switches and filters	16
<i>E.A. Kilian</i>	
A new approach to a PCM codec for telephony	28
TDA1060 – a comprehensive integrated control circuit for SMPS	31
<i>H. Houkes</i>	
Mains pollution caused by domestic appliances	
Part 1 – Definitions and standards	49
<i>W. Ebbing</i>	
Reliable thyristors and triacs in TO-220 plastic packages	53
<i>P. Blunt</i>	
Segment field magnets for large electric motors	59

Number 2

Introduction to PWM speed control system for 3-phase AC motors	66
<i>J.A. Houldsworth and W.B. Rosink</i>	
Bucket-brigade delay-line enhances sound reproduction	80
Mains pollution caused by domestic appliances	
Part 2 – Harmonic distortion	83
<i>H.W. Evers</i>	
Versatile LSI frequency synthesiser system	91
<i>T.G. Giles</i>	
Integrated Schottky logic gate array	106
<i>S.Y. Lau</i>	
Digital control of radio and audio equipment	
Part 6 – Voltage-controlled tuning of AM radios	115
<i>B.P. Bahnsen</i>	

Number 3

Inverter circuit for PWM motor speed control system	130
<i>F. Burgum and E.B.G. Nijhof</i>	
Mains pollution caused by domestic appliances	
Part 3 – Voltage fluctuation and flicker	143
<i>H.W. Evers</i>	
Electret microphone for telephony	150
<i>J. Rees and E.I. Varszegi</i>	
Asymmetric J-FET improves radio performance	165
Digital control of radio and audio equipment	
Part 7 – RTS tuning controls and the microcomputer	170
<i>W. Hesse and U. Schillhof</i>	
Interrupted current-loop dialling for pushbutton telephones	175
<i>J. Fasser and A.M.L. Hodemaekers</i>	
Segment field magnets for large electric motors	

Number 4

Gate turn-off switch	194
<i>F. Burgum, E.B.G. Nijhof and A. Woodworth</i>	
Development of digital filters using the 8X300 microprocessor	203
<i>J.A.A. den Ouden</i>	
Interference suppression for FM radios	215
<i>D.J. van der Wal</i>	
LSI circuit for AC motor speed control	219
<i>B.G. Starr and J.C.F. van Loon</i>	
Quality-oriented designs and processes	230
Monolithic 14-bit DAC with 85 dB S/N ratio	235
<i>R.J. van de Plassche</i>	
PCM codec with on-chip digital filter	242
<i>D.J.G. Janssen and L. van de Meeberg</i>	
Research News	251
Publication News	253

SUBJECT INDEX

Analogue-to-digital converters	28, 242	LOCMOS quality	231
Audio	2, 16, 80, 115, 170		
Codec, PCM	28, 242	Magnets, segment field	59
Delay line, bucket brigade	80	Mains pollution	49, 83, 143
Digital control of radio and audio equipment	2, 16, 115, 170	Microcomputers	2, 170, 203
Digital		Modulator, Sigma-Delta	242
filters	203, 242	Motors	
signal processing	28, 175, 235, 242	PWM speed control system for	66, 130, 219
Digital-to-analogue converters	28, 235, 242	segment magnets for	59
Diodes, glass-bead	231	Power switches	194
Display of radio/audio functions	2	PWM control of a.c. motors	66, 130, 219
Domestic appliances	49, 83, 143	Quality	54, 230
Electret microphone	150	Quartz resonators	251
Ferroxdure	59		
Field effect transistors, junction gate	165	Radio	
Filters		digital control of	2, 16, 115, 170
d.c. controlled audio	16	interference suppression in	215
digital	203, 242	J-FETs in	165
Flicker	49, 143	mobile	252
Frequency synthesiser	2, 91, 252	Reliability	53, 230
Gate turn-off switch	194	RTS (radio tuning system)	2, 16, 170
Harmonic distortion	49, 83		
Integrated Schottky logic (ISL)	106	Switched-mode power supplies	31
Interference suppression	215	Switches	
Interrupted current-loop dialling	175	d.c. controlled audio	16
Inverter, for three-phase a.c. motor control	66, 130, 219	gate turn-off	194
Klystrons	27	Telephony	28, 150, 175, 242
		Thyristors	53
		Transistors, r.f. power	233
		Triacs	53
		Tuning, radio	2, 16, 115, 170
		Two-tone telephone dialling	175

CONTRIBUTOR INDEX

Bahnsen, B.P.	115	Lau, S.Y.	106
Blunt, P.	53	Loon, J.C.F. van	219
Burgum, F.	130, 194	Meeberg, L. van de	242
Ebbinge, W.	49	Nijhof, E.B.G.	130, 194
Evers, H.W.	83, 143	Ouden, J.A.A. den	203
Fasser, J.	175	Plassche, R.J. van de	235
Giles, T.G.	91	Rees, J.	150
Hesse, W.	170	Rosink, W.B.	66
Hodemaekers, A.M.L.	175	Schillhof, U.	2, 170
Houkes, H.	31	Starr, B.G.	219
Houldsworth, J.A.	66	Varszegi, E.I.	150
Janssen, D.J.G.	242	Wal, D.J. van der	215
Kilian, E.A.	16	Woodworth, A.	194

Electronic components & applications

Index to Volume 3

Contents

NUMBER 1

CQL10 semiconductor laser for information readout	2
Analogue control system for a.c. motor with PWM variable speed drive	6
<i>W. B. Rosink</i>	
Highlight handling with diode-gun Plumbicon® tubes	17
<i>A. Franken and W. Lohuis</i>	
Ceramic permanent magnets for d.c. motors	22
Part 1 – Performance equations	
<i>H. J. H. van Heffen</i>	
New hybrid stepping motor design	31
<i>B. H. A. Goddijn</i>	
Serial I/O with the MAB8400 series microcomputers	38
<i>A. P. M. Moelands</i>	
Frequency synthesiser using LSI devices	47
<i>P. R. Brennan and B. Murray</i>	

NUMBER 2

Integrated circuits for car radios	66
<i>B. P. Bahnsen and A. Garskamp</i>	
Fibre-optic communications	87
<i>H. J. M. Otten</i>	
Purpose-designed ferrite toroids for isolated current measurement in power electronic equipment	101
<i>J. A. Houldsworth</i>	
Microprocessor peripheral for viewdata	110
<i>R. E. F. Bugg</i>	
Ceramic permanent magnets for d.c. motors	120
Part 2 – Design calculations	
<i>H. J. H. van Heffen</i>	

NUMBER 3

Miniature Plumbicon® tube for portable TV cameras	130
<i>A. A. J. Franken</i>	
Single-transistor preamplifier for surface-acoustic-wave i.f. filters	135
Wideband, variable persistence oscilloscope tube	138
<i>K. Zeppenfeld</i>	
High-fidelity and stereo/dual sound for TV	142
<i>U. Buhse and H. Schwarz</i>	
Low output-capacitance Plumbicon® tubes	156
<i>A. A. J. Franken</i>	
Understanding GTO data as an aid to circuit design	159
<i>A. Woodworth</i>	
Electrolytic capacitors for industrial applications	167
<i>J. A. Houldsworth and H. Schmickl</i>	
Bandswitching diode for a.m. radios	181
Transmitting tubes for radio and TV broadcasting	183
<i>D. van Houwelingen and J. van Warmerdam</i>	

NUMBER 4

A.M. stereo – a new dimension for car radios	194
<i>W. Jansen and W. Kanow</i>	
Advances in solid aluminium electrolytic capacitor technology	206
<i>E. H. L. J. Dekker and H. Schmickl</i>	
Wideband linear amplifiers in h.f. communications	210
<i>J. Ling</i>	
Electronic components for telephone subscriber sets	224
<i>L. van de Meeberg and H. J. M. Otten</i>	
Basic GTO drive circuits	232
<i>F. J. Burgum</i>	
Lens-coupled intensifier unit for low-light-level CCTV cameras	238
Simplified synchronous power pack with diode-split transformer for colour TV	243
Auxiliary power supply for a.c. motor speed control system	245
<i>F. J. Burgum and L. E. Jansson</i>	
Quality line	251
Research news	252

Subject Index

Camera tubes	
Highlight handling with diode-gun Plumbicon® tubes	17
Lens-coupled intensifier for CCTV cameras	238
Low output-capacitance Plumbicon® tubes	156
Miniature Plumbicon® tube for portable TV camera	130
Capacitors	
Advances in solid-aluminium electrolytic	206
Electrolytic, for industrial applications	167
Communications	
Fibre-optic communications	87
Frequency synthesiser using LSI devices	47
Transmitting tubes for radio and TV broadcasting	183
Wideband amplifier for h.f. communications	210
Ferrite	
Permanent magnets for d.c. motors	22, 120
Toroids for isolated current measurement	101
Gate turn-off switch (GTO)	
Basic drive circuits	232
Understanding data as an aid to circuit design	159
Laser, semiconductor for information readout	2
Microcomputers, serial I/O with MAB8400	38
Motors	
Analogue control system with PWM	6
Auxiliary power supply for speed control system	245
Ceramic permanent magnets for	22, 120
Hybrid stepping motor	31
Power supply	
Auxiliary, for motor speed control system	245
Synchronous, simplified, for colour TV	243
Radio	
A.M. stereo	194
Bandswitching diode for a.m.	181
Integrated circuits for car radios	66
Television receivers	
High-fidelity and stereo/dual sound	142
Microprocessor peripheral for viewdata	110
Preamplifier for surface acoustic wave i.f. filter	135
Simplified synchronous power pack for colour TV	243
Tubes	
Transmitting, for radio and TV broadcasting	183
Wideband variable persistence oscilloscope	138
See also Camera tubes	
Telephones, electronic components for subscriber sets	224
Viewdata, microprocessor peripheral for	110

Contributor Index

Bahnsen, B. P.	66
Brennand, P. R.	47
Bugg, R. E. F.	110
Buhse, W.	142
Burgum, F.	232, 245
Dekker, E. H. L. J.	206
Franken, A. A. J.	17, 130, 156
Garskamp, A.	66
Goddijn, B. H. A.	31
Heffen, H. J. H. van	22, 120
Houldsworth, J.	101, 167
Houwelingen, D. van	183
Jansen, W.	194
Jansson, L. E.	245
Ling, J.	210
Kanow, W.	194
Lohuis, W.	17
Meeberg, L. van de	224
Moelands, A. P. M.	38
Murray, B.	47
Otten, H. J. M.	87, 224
Rosink, W. B.	6
Schmickl, H.	167, 206
Schwarz, H.	142
Warmerdam, J. van	183
Woodworth, A.	159
Zeppenfeld, K.	138

Electronic components & applications

Index to Volume 4

Contents

NUMBER 1

Fast turn-off asymmetric silicon controlled rectifiers <i>F. J. Burgum and A. Woodworth</i>	2
Integrated circuits for hi-fi radios and tuners <i>W. Kanow and I. Siewert</i>	11
Integrated circuits for data-graphic displays <i>A. Goldberger and J. I. Goodhart</i>	28
Scan-velocity modulation increases tv picture sharpness <i>G. Haenen and H. Simons</i>	38
Cathode-ray tube requirements for data-graphic displays <i>E. B. G. Nijhof and H. W. Evers</i>	42
Introduction to the series-resonant power supply <i>J. Matull</i>	50
Quality line	58
Research news	60

NUMBER 2

Improved method of power-choke design <i>L. P. M. Bracke and J. Jongasma</i>	66
Integrated voice synthesiser <i>H. E. van Brüick and D. J. A. Teuling</i>	72
Insulation displacement connections <i>J. A. M. Roelofs and A. Sved</i>	80
Bipolar ICs for DTMF telephone dialling <i>J. J. A. Geboers</i>	89
PWM uninterruptable power supplies <i>L. Hampson</i>	100
New developments in integrated fuse logic <i>K. A. H. Noach</i>	111
Research news	125

NUMBER 3

Compact Disc digital audio	130
ICs for Compact Disc decoders <i>J. Matull</i>	131
Pyroelectric infrared detectors <i>M. A. Rose</i>	142
Single-chip synthesiser for radio tuning <i>J. Matull and J. van Straaten</i>	150
Small electrolytic capacitors compared <i>E. H. L. J. Dekker and P. S. Friedrich</i>	158
Full-page display using television components	163
Light-switching array for high-resolution pattern generation <i>B. Hill and K. P. Schmidt</i>	169
Silicon ousts germanium for ratio detector diodes <i>A. Garskamp</i>	175
Interface IC for linear variable differential transformers <i>I. J. Hadley and E. E. Herceg</i>	180
Oscilloscope tube with magnetic correction and scan magnification <i>K. Zeppenfeld</i>	185

NUMBER 4

Expandable microprocessor bus for distributed processing <i>Cecil Kaplinski</i>	194
Schottky-barrier diodes combine the best of germanium and silicon <i>Th. Hafemeister</i>	201
Microprocessor-based phase controller – the “look-back” system <i>J. E. Gilliam</i>	206
PPM management – a tool for IC quality improvement <i>J. Th. Verschoor</i>	215
Single variable-capacitance diode for a.m. car radios	223
Dielectric-resonator oscillators – a new microwave signal source <i>B. F. van der Heijden</i>	227
Controller IC for FIFO buffers <i>Jeff Seltzer</i>	233
Higher quality synthesised speech through fast and easy editing	241
Detectors for thermal imaging <i>J. A. Chiari and F. D. Morten</i>	242

Subject Index

Capacitors		Quality	
Small electrolytic capacitors compared	158	Improved measurement method guarantees cerdip moisture level	59
See also Quality		PPM management – a tool for IC quality improvement	215
Connectors		Quality in design: 123-series solid aluminium capacitors	58
Insulation displacement connections	80	Quality proven: 122-series solid aluminium capacitors	58
Data processing		Radio, audio	
Controller IC for FIFO buffers	233	Compact Disc digital audio	130
Desk-size digital file stores million and a half pages	60	ICs for Compact Disc decoders	131
Expandable microprocessor bus for distributed processing	194	Integrated circuits for hi-fi radios and tuners	11
New developments in integrated fuse logic	111	Schottky-barrier diodes combine the best of germanium and silicon	201
Display		Silicon ousts germanium for ratio detector diodes	175
Cathode-ray tube requirements for data-graphic display	42	Single-chip synthesiser for radio tuning	150
Full-page display using television components	163	Single variable-capacitance diode for a.m. car radios	223
Integrated circuits for data-graphic displays	28		
Oscilloscope tube with magnetic correction and scan magnification	185		
Scan-velocity modulation increases tv picture sharpness	38		
Instrumentation and control		Speech synthesis	
Interface IC for linear variable differential transformers	180	Higher quality synthesised speech through fast and easy editing	241
		Integrated voice synthesiser	72
Optoelectronics		Telecommunications	
Detectors for thermal imaging	242	Bipolar ICs for DTMF telephone dialling	89
Light-switching array for high-resolution pattern generation	169	Dielectric-resonator oscillators – a new microwave signal source	227
Low-noise multi-purpose AlGaAs laser	125		
Pyroelectric infrared detectors	142		

Contributor Index

Bracke, L. P. M.	66	Jongsma, J.	66
Brück, H. E. van	72	Kanow, W.	11
Burgum, F. J.	2	Kaplinski, Cecil	194
Chiari, J. A.	242	Matull, J.	131, 150
Dekker, E. H. L. J.	158	Morten, F. D.	242
Evers, H. W.	50	Nijhof, E. B. G.	50
Friedrich, P. S.	158	Noach, K. A. H.	111
Garskamp, A.	175	Roelofs, J. A. M.	80
Geboers, J. J. A.	89	Rose, M. A.	142
Gilliam, J. E.	206	Schmidt, K. P.	169
Goldberger, A.	28	Seltzer, Jeff	233
Goodhart, J. L.	28	Siewert, I. S.	11
Hadley, L. J.	180	Simons, H.	38
Haenen, G.	38	Straaten, J. van	150
Hafemeister, Th.	201	Sved, A.	80
Hampson, L.	100	Teuling, D. J. A.	72
Herceg, E. E.	180	Verschoor, J. Th.	215
Heijden, B. F. van der	227	Woodworth, A.	2
Hill, B.	169	Zeppenfeld, K.	185

Electronic Components & Applications is published four times a year by Philips Electronic Components and Materials Division (Elcoma), The Netherlands, in cooperation with associated companies such as Mullard Ltd. in England and Valvo in Germany.

It is intended for those who have a professional need to keep up to date on electronic component and circuit developments.

Its contents are gathered from research, application and quality control laboratories and the factories of the Elcoma organisation around the globe.

Technical enquiries and requests for rights to reprint or translate articles should be addressed to the Editor, EC&A, Philips Electronic Components and Materials Division, Marketing Communications, Eindhoven, The Netherlands.

Abstracts or references should mention title, author, and the source: Electronic Components & Applications, published by Philips Electronic Components and Materials Division, The Netherlands.

Subscription

The subscription rate for Volume 5 is \$15.00/£8.00/Hfl.40.00, postage paid; supplementary charge for airmail to countries outside Europe, \$6.00.

Subscription enquiries should be addressed to D. A. Roubos, Building BA, Philips Electronic Components and Materials Division, Eindhoven, The Netherlands; Telex 35000 phtc nl; Tel. +31 40 72 34 12.

Electronic components & applications

Index to Volume 5

1983

Contents

NUMBER 1		
Non-linear resistors for protection of telephone equipment <i>J. P. Coulmance and J. C. van Loon</i>	2	CMOS gate arrays – the fast way to semi-custom logic 124
D.C. controlled volume and tone control ICs <i>W. Eckert</i>	7	Research News 125
Small area networks for serial data transfer <i>A. Goldberger, C. Kaplinski and A. P. M. Moelands</i>	15	
High-speed CMOS <i>R. Croes</i>	23	NUMBER 3
Long-term reliability of linear bipolar ICs <i>F. W. Ohlenroth</i>	33	CMOS gate arrays – the fast way to semi-custom logic 130
Semiconductor laser with collimating optics <i>L. J. van Ruyven</i>	42	<i>R. Croes</i>
Dual-gate MOSFETs for u.h.f. and v.h.f. applications <i>J. Houthoff and T. H. Uittenbogaard</i>	46	Data communications 142
One IC and a SAW filter in a high-performance vision i.f. channel <i>P. J. M. Sijbers and J. Zeelen</i>	56	<i>Alex Goldberger</i>
		The magnetoresistive sensor – a sensitive device for detecting magnetic field variations 148
		<i>U. Dibbern and A. Petersen</i>
		Circulators and isolators for reducing transmitter intermodulation 154
		<i>W. Golombek</i>
		A complete f.m. radio on a chip 159
		<i>W. H. A. van Dooremolen and M. Hufschmidt</i>
		Progress in SMPS magnetic component optimisation 171
		<i>L. P. M. Bracke</i>
		Data converters for robotics 181
		<i>Stephan Ohr</i>
		Brief items of interest 188
NUMBER 2		
Bipolar IC merges telephone dialling and speech <i>F. van Dongen, J. J. A. Geboers and H. J. M. Otten</i>	66	
Circuits for modular design of consumer and industrial products – the CLIPS system <i>E. T. Keve</i>	78	NUMBER 4
Microwave integrated circuits – design and realisation <i>W. Goedbloed and S. D. Vriesendorp</i>	85	Cobalt rare-earth high energy permanent magnets 194
Fast and undistorted data transfer in noisy environments <i>J. Exalto</i>	100	<i>N. A. Anderson</i>
High-resolution monitor tube <i>L. J. W. Versnel</i>	108	Multiple loudspeaker arrays using Bessel coefficients 200
Microcomputer peripheral IC tunes and controls a tv set <i>K. H. Seidler</i>	113	<i>W. J. W. Kitzen</i>
Next generation microcontroller <i>K. A. H. Noach</i>	117	Silicon temperature sensors 206
A complete fm radio on a chip	123	<i>A. Petersen</i>
		I ² C bus in consumer applications 214
		<i>A. Moelands</i>
		High-voltage power transistor quality 222
		<i>J. Dijk</i>
		Liquid crystal displays 233
		<i>A. D. Schelling</i>
		Recent developments in wet a aluminium electrolytics 246
		<i>A. Otten, H. Schwickl and J. Slakhorst</i>

Subject Index

Capacitors	
Recent developments in wet aluminium electrolytics	246
Data processing	
Circuits for modular design of consumer and industrial products – the CLIPS system	78
Data communications	142
Data converters for robotics	181
Fast and undistorted data transfer in noisy environments	100
I ² C bus in consumer applications	214
Next generation microcontroller	117
Small area networks for serial data transfer	15
Display	
High-resolution monitor tube	108
Liquid crystal displays	233
Instrumentation and control	
Silicon temperature sensors	206
The magnetostrictive sensor – a device for detecting magnetic field variations	148
Integrated circuit technology	
CMOS gate arrays – the fast way to semicustom logic	124, 130
Fast electron lithography – another step toward LSI	125
High-speed CMOS	23
Microwave integrated circuits – design and realisation	85
Optoelectronics	
Semiconductor laser with collimating optics	42
Materials	
Cobalt rare-earth high energy permanent magnets	194
Progress in SMPS magnetic component optimisation	171
Quality	
High-voltage power transistor quality	222
Long-term reliability of linear bipolar ICs	33
Telecommunications	
Bipolar IC merges telephone dialling and speech	66
Circulators and isolators for reducing transmitter intermodulation	154
Non-linear resistors for protection of telephone equipment	2
Television, radio, audio	
A complete f.m. radio on a chip	123, 159
D.C. controlled volume and tone control ICs	7
Dual-gate MOSFETs for u.h.f. and v.h.f. applications	46
Microcomputer peripheral IC tunes and controls a tv set	113
Multiple loudspeaker arrays using Bessel coefficients	200
One IC and a SAW filter in a high-performance vision i.f. channel	56

Contributor Index

Andersen, N. A.	194	Kitzen, W. J. W.	200
Bracke, L. P. M.	171	Loon, J. C. van	2
Coulmance, J. P.	2	Moelands, A.	15, 214
Croes, R.	23, 130	Noach, K. A. H.	117
Dibbern, U.	148	Ohlenroth, F. W.	33
Dijk, J.	222	Ohr, S.	181
Dongen, F. van	66	Otten, A.	66, 246
Dooremolen, W. H. A. van	159	Petersen, A.	148, 206
Eckert, W.	7	Ruyven, L. J. van	42
Exalto, J.	100	Schelling, A. D.	233
Geboers, J. J. A.	66	Schmidl, H.	246
Goedbloed, W.	85	Seidler, K. H.	113
Goldberger, A.	15, 142	Sijbers, P. J. M.	56
Golombek, W.	154	Slakhorst, J.	246
Houthoff, J.	46	Uittenbogaard, T. H.	46
Hufschmidt, W. H. A.	159	Versnel, L. J. W.	108
Kaplinski, C.	15	Vriesendorp, S. D.	85
Keve, E. T.	78	Zeelen, J.	56

Electronic Components & Applications is published four times a year by Philips Electronic Components and Materials Division (Elcoma), The Netherlands, in cooperation with associated companies such as Mullard Ltd. in England and Valvo in Germany.

It is intended for those who have a professional need to keep up to date on electronic component and circuit developments.

Its contents are gathered from research, application and quality control laboratories and the factories of the Elcoma organisation around the globe.

Technical enquiries and requests for rights to reprint or translate articles should be addressed to the Editor, EC&A, Philips Electronic Components and Materials Division, Marketing Communications, Eindhoven, The Netherlands.

Abstracts or references should mention title, author, and the source: Electronic Components & Applications, published by Philips Electronic Components and Materials Division, Eindhoven, The Netherlands.

Subscription

The subscription rate for Volume 6 is \$15.00/£8.00/Hfl.40.00, postage paid; supplementary charge for airmail to countries outside Europe, \$6.00.

Subscription enquiries should be addressed to D. A. Roubos, Building BA, Philips Electronic Components and Materials Division, Eindhoven, The Netherlands; Telex 35000 phtcnl; Tel. +31 40 72 34 12.

Electronic components & applications

Index to Volume 6

Contents

NUMBER 1

Versatile speech/transmission ICs suit all telephone architectures <i>P. Sijbers</i>	2
Fault-tolerant software in real-time single-chip microcontroller systems <i>N. Q. Burnham and C. F. Cowling</i>	7
Computer controlled teletext <i>J. R. Kinghorn</i>	15
Fast co-processor meets factory's real-time needs <i>J. K. Chay</i>	30
New techniques for accurately tuning a.m. and f.m. radios <i>J. W. Beunders and A. Garskamp</i>	37
Modifying Teradyne 283 programs to test high-speed CMOS logic ICs <i>J. Exalto and H. Kern</i>	45
Twin-switch power pack for 110° colour tv <i>C. H. J. Bergmans</i>	48
Wideband i.f. amplifier for satellite tv receiving system <i>P. Moors and T. H. Uittenbogaard</i>	56

NUMBER 2

Surface-mounted devices in printed circuit board assembly	66
Video display and attributes controller ICs <i>H. Eng, A. Goldberger and J. Goodhart</i>	71
The 68000 microprocessor design philosophy <i>M. Klewer and B. Vernooy</i>	79
VHF power amplifiers with broadband input circuitry <i>H. Fiedeldij</i>	83
Two-chip modem for FSK data transfer <i>R. Blauschild and R. Fabbri</i>	87
The BTV60 – first in a new generation of GTOs <i>A. Woodworth</i>	93
Thermal aspects of flange-mounted r.f. power transistors <i>J. G. A. Scholten</i>	96
A new stereo decoder IC suits all classes of radio <i>W. H. A. van Dooremolen</i>	107
Quality of small-signal, low and medium power diodes <i>G. Hine</i>	112

NUMBER 3

An architectural contrast – 68000 versus iAPX286 <i>B. Vernooy</i>	130
Interfacing different local area networks <i>Jeff Seltzer and Nasser Siddique</i>	141
The KP100A monolithic pressure sensor <i>Gerd Keitel</i>	149
New implosion technology to meet explosion in diode demand <i>Graham Hine</i>	155
HCMOS – fast but cool logic ICs <i>J. Exalto</i>	159
EUROM – a single-chip colour c.r.t. controller <i>R. E. F. Bugg</i>	166
Backup support gives VMEbus powerful multiprocessing architecture <i>Graig Mackenna, Rick Main and John Black</i>	178
Epitaxial diodes – rectifiers compatible with today's fast switches <i>Arthur Woodworth</i>	186

NUMBER 4

Disk controller supports both rigid and floppy drives <i>Guy Thomsen</i>	194
Liquid-crystal displays for automotive applications <i>E. Loward and P. Streit</i>	202
An integrated approach to CD players Part 1: The optical pickup Part 2: The decoding electronics <i>J. Nijhof</i>	209 216
The frame-transfer sensor – an attractive alternative to the tv camera tube <i>U. Feddern and S. Zur Verth</i>	223
DMA Interface for 68000 systems <i>Guy Thomsen and Bart Vernooy</i>	230
Interfacing HCMOS with other logic families <i>J. P. Exalto</i>	239
High-voltage rectifier stacks for diode-split transformer <i>Graham Hine</i>	246

Subject Index

Broadcast systems		
The frame-transfer sensor – an attractive alternative to the tv camera tube	223	
VHF power amplifiers with broadband input circuitry	83	
Data display		
Liquid-crystal displays for automotive applications	202	
Video display and attributes controller ICs	71	
Data processing		
An architectural contrast – 68000 versus iAPX	286	130
Backup support gives VMEbus powerful multiprocessing architecture	178	
Disk controller supports both rigid and floppy drives	194	
DMA Interface for 68000 systems	230	
Fast co-processor meets factory's real-time needs	30	
Fault-tolerant software in real-time single-chip microcontroller systems	7	
Interfacing different local area networks	141	
The 68000 microprocessor design philosophy	79	
Two-chip modem for FSK data transfer	87	
Logic		
HCMOS – fast but cool logic ICs	159	
Interfacing HCMOS with other logic families	239	
Modifying Teradyne 283 programs to test high-speed CMOS logic ICs	45	
Radio, audio		
A new stereo decoder IC suits all classes of radio	107	
An integrated approach to CD players	209	
Part 1: The optical pickup	209	
Part 2: The decoding electronics	216	
New techniques for accurately tuning a.m. and f.m. radios	37	
Semiconductors		
Epitaxial diodes – rectifiers comparable with today's fast switches	186	
High-voltage rectifier stacks for diode-split transformer	246	
New implosion technology to meet explosion in diode demand	155	
Quality of small-signal, low and medium power diodes	112	
Thermal aspects of flange mounted RF power transistors	96	
Sensors		
The KP100A monolithic pressure sensor	149	
Surface-mounted devices		
Surface-mounted devices in printed circuit board assembly	66	
Telephony		
Versatile speech/transmission ICs suit all telephone architectures	2	
Television		
Computer-controlled teletext	15	
EUROM – a single-chip colour c.r.t. controller	166	
Twin-switch power pack for 110° colour tv	48	
Wideband i.f. amplifier for satellite-tv receiving system	56	

Contributor Index

Bergmans, C. H. J.	48	Kern, H.	45
Beunders, J. W.	37	Kinghorn, J. R.	15
Black, J.	178	Klewer, M.	79
Blauschild, R.	87	Loward, E.	202
Bug, R. E. F.	166	Mackenna, G.	178
Burnham, N. Q.	7	Main, R.	178
Chay, J. C.	30	Moors, P.	56
Cowling, C. F.	7	Nijhof, J.	209, 216
Dooremolen, W. H. A. van	107	Scholten, J. G. A.	96
Eng, H.	71	Seltzer, J.	141
Exalto, J.	45, 159, 239	Siddique, N.	141
Fabbri, R.	87	Sijbers, P.	2
Feddern, U.	223	Streit, P.	202
Fiedeldij, H.	83	Thomsen, G.	194, 230
Garskamp, A.	37	Uittenbogaard, T. H.	56
Goldberger, A.	71	Vernooij, B.	79, 130, 230
Goodhart, J.	71	Woodworth, A.	93, 186
Hine, G.	112, 155, 246	Zur Verth, S.	223
Keitel, G.	149		

Electronic Components & Applications is published four times a year by Philips Electronic Components and Materials Division (Elcoma), The Netherlands, in cooperation with associated companies such as Mullard Ltd. in England, Valvo in Germany and Signetics in the USA.

It is intended for those who have a professional need to keep up to date on electronic component and circuit developments.

Its contents are gathered from research, application and quality control laboratories and the factories of the Elcoma organisation around the globe.

Technical enquiries and requests for rights to reprint or translate articles should be addressed to the Editor, EC&A, Philips Electronic Components and Materials Division, Marketing Communications, Eindhoven, The Netherlands.

Abstracts or references should mention title, author, and the source: Electronic Components & Applications, published by Philips Electronic Components and Materials Division, Eindhoven, The Netherlands.

Subscription

The subscription rate for Volume 7 is \$15.00/£8.00/Hfl.40.00, postage paid; supplementary charge for airmail to countries outside Europe, \$6.00.

Subscription enquiries should be addressed to D. A. Roubos, Building BA, Philips Electronic Components and Materials Division, Eindhoven, The Netherlands; Telex 35000 phtcnl; Tel. +31 40 72 34 12.

Electronic components & applications

Index to Volume 7

Contents

NUMBER 1

Stand-alone speech development system using a personal computer <i>Menno ten Have and Jos den Ouden</i>	2
Quality - high-speed CMOS <i>G. Schonk</i>	7
Datacomm peripherals for the 68000 microprocessor <i>Jim Magill and Guy Thomsen</i>	17
Single-chip multi-standard colour decoder <i>Andries Smaal</i>	24
RF ICs for portable communications equipment <i>Donald Anderson and Robert J. Zavrel</i>	37
Integrated a.m. receiver TDA1072A <i>J. Schuylenburg</i>	45
Memory-access controllers give microcomputers a minicomputer's throughput <i>Cecil Kaplinski and Martin Freeman</i>	52

NUMBER 2

Astable multivibrators using HCMOS ICs <i>Rob Volgers</i>	66
Crystal oscillators using HCMOS ICs <i>Jan Exalto</i>	73
Automatic placement machine for hybrid-circuit assembly	77
MOS-XY, interline and frame-transfer sensors compared <i>Max Collet</i>	81
Controller IC contends with multiple protocols <i>Jim Magill</i>	89
Alloy bonding for power semiconductors <i>A. Jonas and D. Onck</i>	95
VMEbus interface ICs for simpler asynchronous systems <i>S. Baliga</i>	106
Manually testing the a.c. characteristics of ECL ICs <i>C. Hamelin</i>	112
Indoor unit for satellite-ready tv <i>A. Dolstra</i>	116
Recent publications	119
Research News	122

NUMBER 3

HCMOS low-power logic ICs that set the standard <i>Henri Molko</i>	130
HCMOS Schmitt-trigger applicationos <i>Jan Exalto</i>	144
Using 74HCT HCMOS to replace LSTTL and drive transmission lines <i>Rob Volgers</i>	151
Protection of HCMOS logic ICs in the automotive environment <i>Jan Exalto</i>	163
Modifying LSTTL test programs to test HCMOS logic ICs <i>Henk Kloen</i>	170
Battery backup of HCMOS logic ICs <i>Rob Croes</i>	179
Standardizing latch-up immunity tests for HCMOS logic ICs <i>Rob Croes and P. M. Hendriks</i>	187

NUMBER 4

Parallel processing and pipelining usher DSP into the future <i>Peter Anders and Ton van Kampen</i>	202
Thermal resistance of SO and PLCC packages <i>Paul Melville</i>	208
ZrO ₂ oxygen sensor <i>C. Franx</i>	217
State-of-the art ICs simplify SSB receiver design <i>Robert Zavrel</i>	223
Speech synthesis: the complete approach <i>Menno ten Have</i>	229
Line-locked digital colour decoding <i>Ton Nillesen</i>	239
In-line system for surface-mount assembly accepts large circuit boards <i>J. J. de Jong</i>	246
Insulated encapsulations for easier mounting of power semiconductors	250
YJ1600 magnetron for microwave heating up to 6 kW <i>P. F. de Jongh and S. B. Worm</i>	256

Subject Index

Broadcast systems		
MOS-XY, interline and frame-transfer sensors compared	81	
Data processing		
Datacomm peripherals for the 68000 microprocessor	17	
Memory-access controllers give microcomputers a minicomputer's throughput	52	
Controller IC contends with multiple protocols	89	
VMEbus interface ICs for simpler asynchronous systems	106	
Parallel processing and pipelining usher DSP into the future	202	
Industrial heating		
YJ1600 magnetron for microwave heating up to 6 kW	256	
Logic		
Quality - high-speed CMOS	7	
Astable multivibrators using HCMOS ICs	66	
Crystal oscillators using HCMOS ICs	73	
Manually testing the a.c. characteristics of ECL ICs	112	
HCMOS low-power logic ICs that set the standard	130	
HCMOS Schmitt-trigger applications	144	
Using 74HCT HCMOS to replace LSTTL and drive transmission lines	151	
Protection of HCMOS logic ICs in the automotive environment	163	
Modifying LSTTL test programs to test HCMOS logic ICs	170	
Battery backup of HCMOS logic ICs	179	
Standardizing latch-up immunity tests for HCMOS logic ICs	187	
Radio, audio		
RF ICs for portable communications equipment	37	
Integrated a.m. receiver TDA1072A	45	
State-of-the art ICs simplify SSB receiver design	223	
Semiconductors		
Alloy bonding for power semiconductors	95	
Insulated encapsulations for easier mounting of power semiconductors	250	
Sensors		
ZrO ₂ oxygen sensor	217	
Speech synthesis		
Stand-alone speech development system using a personal computer	2	
Speech synthesis: the complete approach	229	
Surface-mounted devices		
Automatic placement machine for hybrid-circuit assembly	77	
Thermal resistance of SO and PLCC packages	208	
In-line system for surface-mount assembly accepts large circuit boards	246	
Television		
Single-chip multi-standard colour decoder	24	
Indoor unit for satellite-ready tv	116	
Line-locked digital colour decoding	239	

Contributor Index

Anders, P.	202	Kaplinski, C.	52
Anderson, D.	37	Kloen, H.	170
Baliga, S.	106	Magill, J.	17, 89
Collet, M.	81	Melville, P.	208
Croes, R.	179, 187	Molko, H.	130
Dolstra, A.	116	Nillesen, A. H. H. J.	239
Exalto, J.	73, 144, 163	Onck, D.	951
Franx, C.	217	Ouden, J. den	2
Freeman, M.	52	Schonk, G.	7
Hamelin, C.	112	Schuylenburg, J.	45
Have, M. ten	2, 229	Smaal, A.	24
Hendriks, P. M.	187	Thomsen, G.	17
Jonas, A.	95	Volgers, R.	66, 151
Jong, J. J. de	246	Worm, S. B.	256
Jongh, P. F. de	256	Zavrel, R. J.	37, 223
Kampen, T. van	202		

Electronic Components & Applications is published four times a year by Philips Electronic Components and Materials Division (Elcoma), The Netherlands, in cooperation with associated companies such as Mullard Ltd. in England, Valvo in Germany and Signetics in the USA.

It is intended for those who have a professional need to keep up to date on electronic component and circuit developments.

Its contents are gathered from research, application and quality control laboratories and the factories of the Elcoma organisation around the globe.

Technical enquiries and requests for rights to reprint or translate articles should be addressed to the Editor, EC&A, Philips Electronic Components and Materials Division, Marketing Communications, Eindhoven, The Netherlands.

Abstracts or references should mention title, author, and the source: Electronic Components & Applications, published by Philips Electronic Components and Materials Division, Eindhoven, The Netherlands.

Subscription

The subscription rate for Volume 8 is \$15.00/£8.00/Hfl.40.00, postage paid; supplementary charge for airmail to countries outside Europe, \$6.00.

Subscription enquiries should be addressed to D. A. Roubos, Building BA, Philips Electronic Components and Materials Division, Eindhoven, The Netherlands; Telex 35000 phtcnl; Tel. + 3140723412.

ELECTRONIC COMPONENTS & APPLICATIONS

Index to Volume 8

Contents

NUMBER 1

High-speed 12-bit tracking ADC using programmable logic sequences

D. Wong

Ceramic-chip capacitors – high-rel products with a promising future

W. Langenhorst and R. Waser

Stereo sound generator for sound effects and music synthesis

M. Roberts

Harvard architecture pushes microcontroller IC into high-speed realm

G. Goodhue, J. Jenkins and A. Khan

Integrated video programming system (VPS) decoder

A. Lentzer and G. Stäcker

High-temperature electrolytic capacitors

A. Otten and J. Slakhorst

Integrated Services Terminal (IST) Bus - the low-cost LAN and associated interface

R. Kohlman

NUMBER 2

ACL...Advanced CMOS Logic that lengthens the stride of low-power systems

R. Croes and A. de Pagter

Microcontroller eases I/O processing burden

S. Baliga, G. Goodhue and J. Jenkins

Breakover diodes for the protection of telephone equipment

D. Haslem and M.J. Hill

Quality – dry reed switches

F.A. Pieters

The SCC68070 – a monolithic 68000 CPU and peripherals

G. Conn

Cascode-driven SMPS with high-voltage darlington transistors

101

T. v.d. Wouw

2

Fast controller converts large static RAMs to FIFO

buffers

109

N. Siddique and F. Krupecki

15

Managing graphics displays using a microcontroller

113

S. Baliga

21

Improved varicaps for TV tuners

118

D. Eckstein and R.W. Stamer

32

NUMBER 3

Two-chip modem for high-speed LAN systems

130

P.M. Shah

Multiple-step stress testing proves the reliability of solid aluminium capacitors

137

E. Decker and H. Schmickl

52

Third-generation decoding ICs for CD players

145

R. Finck and D. Slowgrove

Single-heterojunction GaAlAs - a new technology for infrared LEDs and optocouplers

153

M.C. Boissy

66

Highly-accelerated humidity testing of CMOS

ICs

156

W. Nachbauer

76

New pinouts for ACL add reliability and simplicity to logic systems

167

R. Croes and A. de Pagter

81

Video ADCs using folding and interpolation techniques

171

P. Piver

87

Enhanced computer-controlled Teletext circuit

175

SAA5243

J. Kinghorn

95

First multistandard decoder chip-set for DBS TV

186

Research News

189

NUMBER 4

SAL capacitors for automotive applications <i>E. Dekker</i>	194	Diodes	Breakover diodes for the protection of telephone equipment	81
Redesign of small-signal switching diodes in SOT packages <i>C. Hartman and M. Hillen</i>	208		Redesign of small-signal switching diodes in SOT packages	208
Blind and buried vias for multilayer PCBs <i>A. Goberecht</i>	212	Display systems	Managing graphics displays using a microcontroller	113
An angle on the corners the new approach in shadow-mask design <i>C. Admiraal and H. Bongenaar</i>	215		An angle on the corners the new approach in shadow-mask design	215
The magnetoresistive sensor a sensitive device for detecting magnetic-field variations <i>A. Petersen</i>	222	Logic families	ACL...Advanced CMOS Logic that lengthens the stride of low-power systems	66
HCMOS FIFOs and their applications <i>R. Volgers</i>	239		New pinouts for ACL add reliability and simplicity to logic systems	167
			HCMOS FIFOs and their applications	239
		Optoelectronics	Single-heterojunction GaAlAs - a new technology for infrared LEDs and optocouplers	153
		Power supplies	Cascade-driven SMPS with high-voltage darlington transistors	101

Subject Index

ASICs

High-speed 12-bit tracking ADC using programmable logic sequences

Audio

Stereo sound generator for sound effects and music synthesis
Third-generation decoding ICs for CD players

Capacitors

Ceramic-chip capacitors – high-rel products with a promising future
High-temperature electrolytic capacitors
Multiple-step stress testing proves the reliability of solid aluminium capacitors
SAL capacitors for automotive application

Data Processing

Harvard architecture pushes microcontroller IC into high-speed realm
Microcontroller eases I/O processing burden
The SCC68070 – a monolithic 68000 CPU and peripherals
Fast controller converts large static RAMs to FIFO buffers
Two-chip modem for high-speed LAN systems

Printed circuit boards

Blind and buried vias for multilayers PCBs

212

Quality

Quality – dry reed switches

Highly-accelerated humidity testing of CMOS ICs

156

Sensors

The magnetoresistive sensor

a sensitive device for detecting magnetic-field variations

222

Telecom

Integrated Services Terminal (IST) Bus – the low-cost LAN and associated interface

137

194

Television, video

Integrated video programming system (VPS)

decoder

39

Improved varicaps for TV tuners

118

Video ADCs using folding and interpolation

techniques

171

Enhanced computer-controlled Teletext circuit

SAA5243

175

First multistandard decoder chip-set for DBS TV

186

Contributor Index

Admiraal C.	215	Langenhorst W.	15
Baliga S.	76, 113	Lentzer A.	39
Boissy M.C.	153	Nachbauer W.	156
Bongenaar H.	215	Otten A.	45
Conn G.	95	Pagter A. de	66, 167
Croes R.	66, 167	Petersen A.	222
Dekker E.	137, 194	Pieters F.A.	87
Eckstein D.	118	Piver P.	171
Finck R.	145	Roberts M.	21
Goberecht A.	212	Schmidl H.	137
Goodhue G.	32, 76	Shah P.M.	130
Hartman C.	208	Siddique N.	109
Haslem D.	81	Slakhorst J.	45
Hill M.J.	81	Slowgrove D.	145
Hillen M.	208	Stäcker G.	39
Jenkins J.	32, 76	Stamer R.W.	118
Khan A.	32	Volgers R.	239
Kinghorn J.	175	Waser R.	15
Kohlman R.	52	Wong D.	2
Krupecki E.	109	Wouw T. v.d.	101

Electronic Components & Applications is published four times a year by Philips Components, The Netherlands, in cooperation with associated companies in England, Germany and the USA.

It is intended for those who have a professional need to keep up to date on electronic component and circuit developments.

Its contents are gathered from research, application and quality control laboratories and the factories of Philips Components around the globe.

Technical enquiries and requests for rights to reprint or translate articles should be addressed to the Editor, EC&A, Philips Components, Marketing Communications, Eindhoven, The Netherlands.

Abstracts or references should mention title, author, and the source: Electronic Components & Applications, published by Philips Components, Eindhoven, The Netherlands.

Subscription

The subscription rate for Volume 8 is \$15.00/£8.00/Hfl.40.00, postage paid; supplementary charge for airmail to countries outside Europe, \$6.00.

Subscription enquiries should be addressed to Philips Components, Marketing Communications, Building BA, 5600 MD Eindhoven, The Netherlands.

Att. Mr. Jan van den Boom, Telex 35000 phtcnl.

ELECTRONIC COMPONENTS & APPLICATIONS

Index to Volume 9

Contents

NUMBER 1

- Engine management with the PCB83C552 single-chip 8-bit microcontroller
D. Metzemaekers and E. van Veldhuizen
- Inexpensive monochrome tv camera design – brings CCD imaging into everyday applications
T. Westendorff
- HCMOS Analog Switches and Analog Multiplexers/Demultiplexers
R. Volgers
- The polygon gun...
...for a cleaner, sharper electron spot
J. Gerritsen and E. Himmelbauer
- Integrated SMPS control circuit TDA8380
N. Pichowicz
- GTO as a fast thyristor
A. Woodworth

NUMBER 2

- All-digital phase-locked loops using the 74HC/HCT297
W. Rosink
- PLL design program
- MOSFETs control motors in automotive applications
A. Woodworth
- Focusing semiconductor laser diodes in barcode readers
P. Chall
- Innovations in oscilloscope tubes
P. Aerssens and K. Zeppenfeld
- New chip-set reduces the power consumption of radio pagers
S. Drude and T. Rudolph

NUMBER 3

- LCD flat panels
D. Ruigt
- 3E3 Ferrite – at the core of advanced SMPS design
W. Waanders
- EFD – for low profile DC-DC converters
W. Waanders
- Controller Area Network (CAN) components
H. Ey
- SCC66470 Video and System Controller...
...replaces up to 30 ICs in display systems
J.C. Six
- Short-wavelength semiconductor lasers for fibre-optic communication systems
P. Chall
- ICs for satellite TV reception
J. Verhoeckx
- ICs for NICAM 728 digital sound in TV sets
D. Slowgrove
- Visible wavelength laser diodes and collimator pens

NUMBER 4

- Analog multi-standard colour decoder ICs TDA4650 and TDA4660
E. Bruns and K. Juhnke
- Logic-level FETs
A. Woodworth
- ICs for electronically tuned car radios
A. Garskamp
- Chip-on-foil – the flexible approach to LCD modules
W. Stijns
- ICs and Discrete Semiconductors for TV and VCR Tuners
N. Baars

Subject index

Audio		
ICs for electronically tuned car radios	211	
Automotive systems		
Controller Area Network (CAN) components	155	
Logic-level FETs	208	
Data Processing		
Engine management with the PCB83C552 single-chip 8-bit microcontroller	2	
Display systems		
The polygon gun...	31	
...for a cleaner, sharper electron spot	107	
Innovations in oscilloscope tubes	130	
LCD flat panels	225	
Chip-on-foil – the flexible approach to LCD modules		
Imaging systems		
Inexpensive monochrome tv camera design – brings CCD imaging into everyday applications	14	
Logic families		
HCMOS Analog Switches and Analog Multiplexers/ Demultiplexers	19	
All-digital phase-locked loops using the 74HC/HCT297	66	
PLL design program	90	
Optoelectronics		
Focusing semiconductor laser diodes in barcode readers	101	
Short-wavelength semiconductor lasers for fibre-optic communication systems	166	
Visible wavelength laser diodes and collimator pens	187	
Power supplies		
Integrated SMPS control circuit TDA8380	35	
GTO as a fast thyristor	56	
MOSFETs control motors in automotive applications	91	
3F3 Ferrite – at the core of advanced SMPS design	146	
EFD – for low profile DC-DC converters	151	
Telecom		
New chip-set reduces the power consumption of radio pagers		112
Television, video		
SCC66470 Video and System Controller... ...replaces up to 30 ICs in display systems		159
ICs for satellite TV reception		177
ICs for NICAM 728 digital sound in TV sets		183
Analog multi-standard colour decoder ICs TDA4650 and TDA4660		194
ICs and Discrete Semiconductors for TV and VCR Tuners		240

Contributor index

Aerssens P.	107
Baars N.	240
Bruns E.	194
Chall P.	101, 166
Drude S.	112
Ey H.	155
Garskamp A.	211
Gerritsen J.	31
Himmelbauer E.	31
Juhnke K.	194
Metzgermaekers D.	2
Pichowicz N.	35
Rosink W.	66
Rudolph T.	112
Ruigt D.	130
Six J.C.	159
Slowgrove D.	183
Stijns W.	225
Veldhuizen E. van	2
Verhoeks J.	177
Volgers R.	19
Waanders W.	146, 151
Westendorff T.	14
Woodworth A.	56, 91, 208
Zeppenfeld K.	107