

# Contents

<b>1</b>	<b>Introduction</b>	1
1.1	Printing Technology in Electronics Manufacturing	1
1.2	PE Technology and Its Benefits	5
1.3	PE Products and Trends	8
1.3.1	Lighting	9
1.3.2	Organic/Inorganic Photovoltaics	10
1.3.3	Displays	13
1.3.4	Integrated Smart Systems	15
1.3.5	Other Electronics and Components	18
	References	22
<b>2</b>	<b>Printing Technology</b>	23
2.1	Printing Parameters	23
2.2	Screen Printing	30
2.3	Inkjet Printing	32
2.4	Fast Printing: Flexo Printing and Offset-Gravure Printing	35
2.5	Fine Pattern Printing: Nanoimprint, $\mu$ CP, and Electrostatic Inkjet	40
2.6	Laser-Induced Forward Transfer	43
2.7	Posttreatment Process	44
	References	48
<b>3</b>	<b>Conducting Materials for Printed Electronics</b>	49
3.1	Variety of Conducting Materials	49
3.2	Metallic Nanoparticles	49
3.3	Metal-Organic Decomposition Ink	56
3.4	Nanowires	58
3.5	Other Conductive Materials	60

3.6	Other Conductive Nanomaterials and Applications to Transparent Conductive Films .....	62
3.7	Low Temperature Fabrication of Metal Nanowire TCF .....	68
	References .....	72
<b>4</b>	<b>Semiconductor Materials</b> .....	75
4.1	Material Category and Some History .....	75
4.2	Organic Semiconductors .....	76
4.3	Oxide Semiconductors .....	81
4.4	Other Semiconductors .....	83
	References .....	84
<b>5</b>	<b>Substrate and Barrier Film</b> .....	87
5.1	Substrate .....	87
5.2	Barrier Film Technology .....	91
	References .....	94
<b>6</b>	<b>Interconnection</b> .....	95
6.1	Choice of Interconnection Methods .....	95
6.2	Soldering .....	96
6.3	Conductive Adhesives .....	99
6.3.1	Isotropic Conductive Adhesives .....	99
6.3.2	Anisotropic Conductive Adhesives .....	104
6.4	Interconnection Reliability .....	107
	References .....	116
<b>7</b>	<b>Next Step</b> .....	119
	References .....	124

Introduction to Printed Electronics

Suganuma, K.

2014, VI, 124 p. 148 illus., 29 illus. in color., Softcover

ISBN: 978-1-4614-9624-3