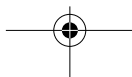
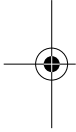


CHAPTER 1

OVERVIEW OF IC PACKAGES

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Overview of IC packages

Chapter 1

PACKAGE OVERVIEW

The development of the IC package is a dynamic technology. Applications that were unattainable only a few years ago are today common place thanks in part to advances in package design. From mobile telecommunications and satellite broadcasting to aerospace and automotive applications, each imposes its own individual demands on the electronic package.

To meet such a diverse range of application requirements, our IC package range encompasses over thirty different types, most of which are sub-divided into a number of outline versions. An overview of this range is shown in Fig.1, with packages classified into board mounting methods, construction form and power handling capability. The packages in these "power" categories offer a high thermal dissipation enabling IC usage in some of the most demanding application areas.

Notable extensions to our range since the last publication of this book include the Ball Gate Array (BGA) packages with their high pin count, and the miniature LFBGA packages.

A photograph of each package type is given on pages 1 - 4 and 1 - 5, and a package overview with lead count is presented in the tables on pages 1 - 6 to 1 - 8.

Overview of IC packages

Chapter 1

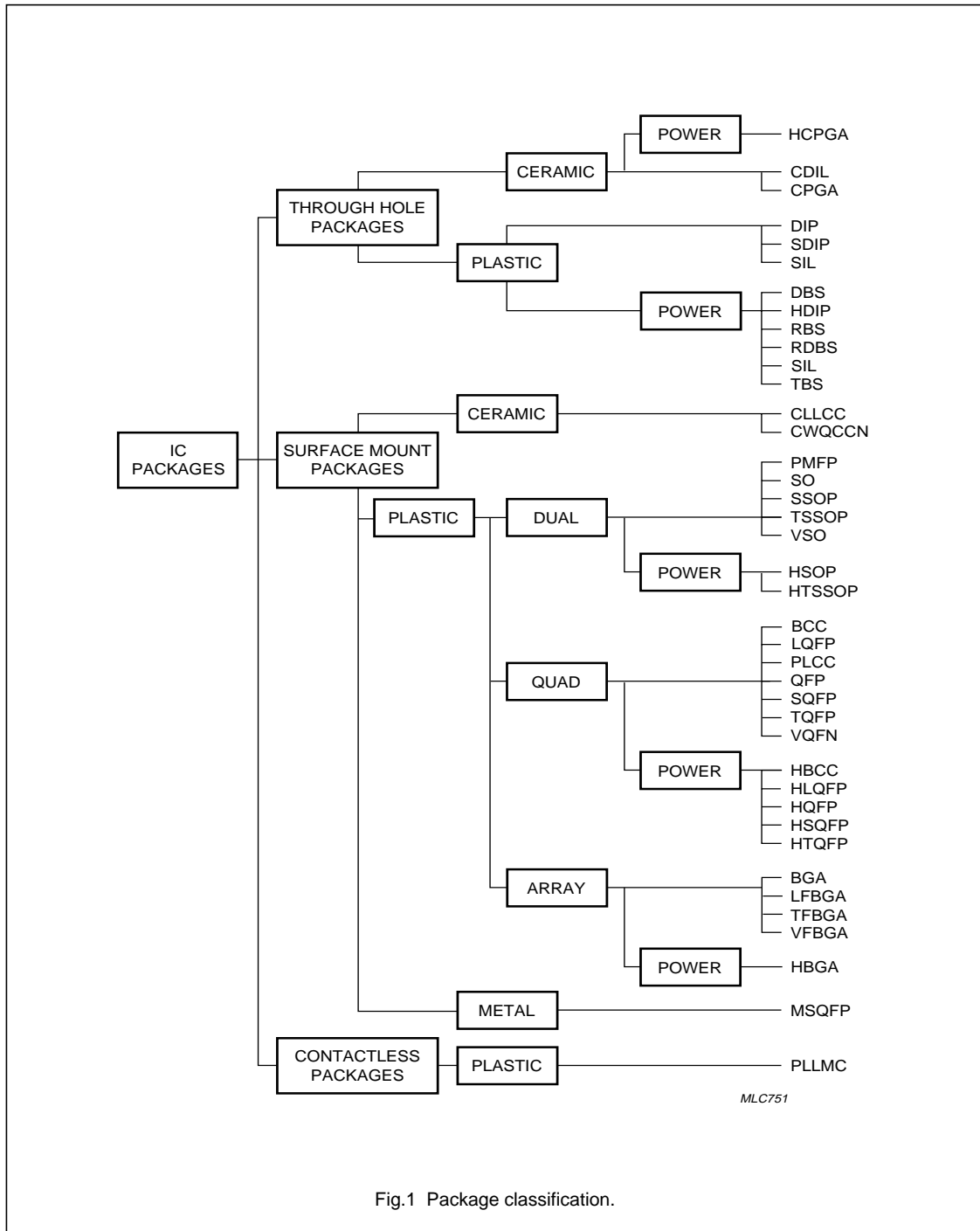
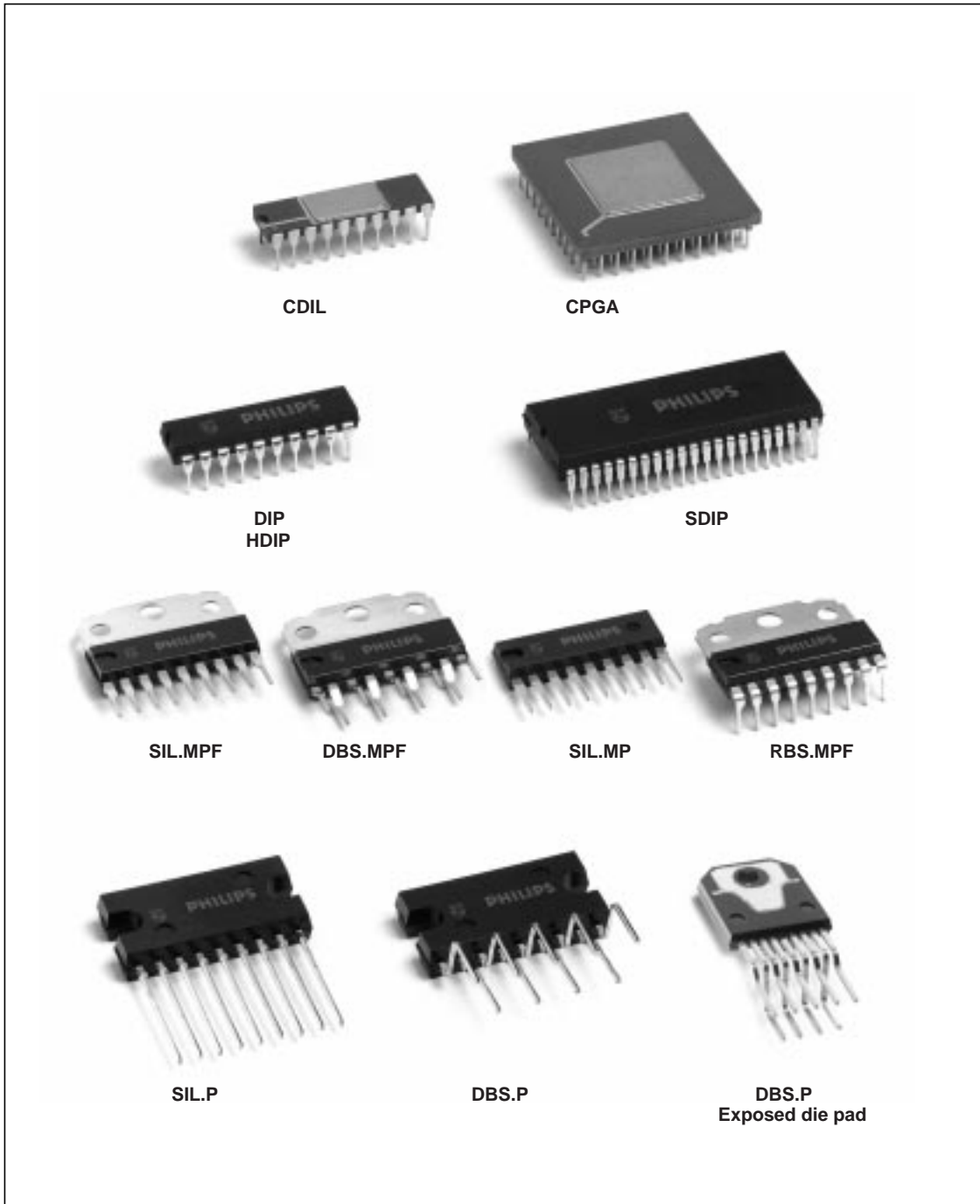


Fig.1 Package classification.

Overview of IC packages

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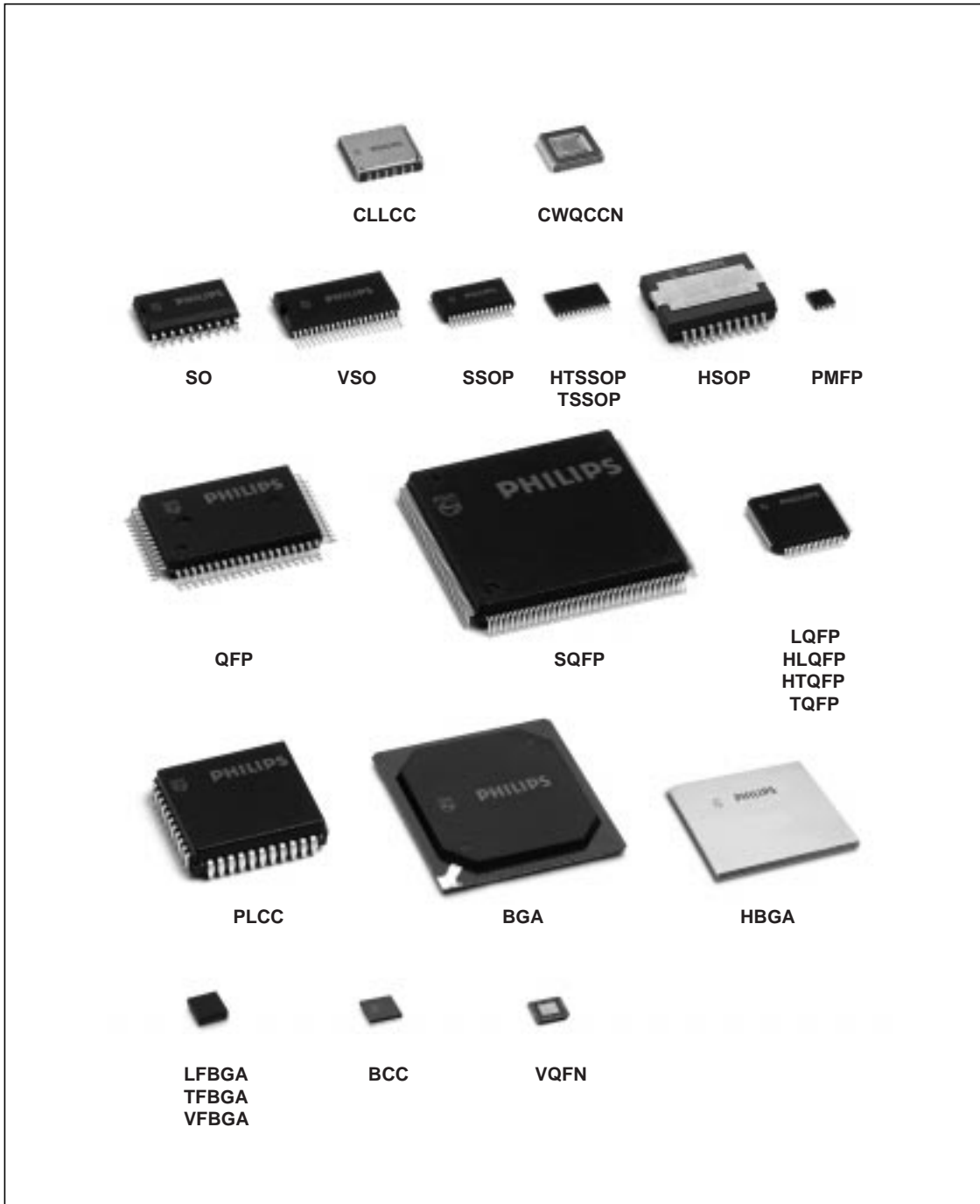
TROUGH-HOLE MOUNT PACKAGES



Overview of IC packages

Chapter 1

SURFACE MOUNT PACKAGES



2000 May 10

PACKAGE TYPE OVERVIEW WITH LEAD COUNT

Surface mount packages (part 1 of 2)

PACKAGE NAME	NUMBER OF LEADS																																
	4	8	9	10	13	14	16	20	24	28	30	32	38	40	44	48	52	56	64	68	80	81	84	96	100	114	120	128	132	144	156	160	
BGA																																X	
HBCC							X	X			X					X																	
HBGA																																	
HLQFP																									X						X		
HQFP																																X	
HSOP							X	X																									
HSQFP																																	
HTQFP											X				X		X		X						X								
HTSSOP							X				X																						
LFBGA																	X	X			X	X	X		X								
LQFP											X			X	X		X		X					X			X		X		X	X	
MSQFP																																	
PLCC							X		X					X		X			X				X										
PMFP		X																															
QFP														X	X	X	X							X		X	X		X		X	X	
SMS.P			X		X																												
SO	X	X				X	X	X	X	X	X																						
SOJ														X																			
SQFP																																	
SSOP						X	X	X	X	X						X	X																
TFBGA																	X	X		X				X	X				X	X			
TQFP															X			X	X						X			X					
TSSOP		X		X		X	X	X	X	X	X	X	X			X	X																
VSO														X				X															
VFBGA																	X																
VQFN								X			X																						

1 - 6

Overview of IC packages

Chapter 1

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Surface mount packages (part 2 of 2)

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PACKAGE NAME	NUMBER OF LEADS																											
	176	180	208	240	256	272	280	292	304	316	324	329	352	388	420	456	492	504	516	553	596	600	656	776	1140	1160	1312	
BGA			X		X	X		X	X	X		X	X	X		X	X		X	X	X		X	X				
HBCC																												
HBGA					X			X	X				X		X			X				X				X	X	X
HLQFP																												
HQFP																												
HSOP																												
HSQFP			X	X																								
HTQFP																												
HTSSOP																												
LFBGA													X															
LQFP	X		X																									
MSQFP				X																								
PLCC																												
PMFP																												
QFP																												
SMS.P																												
SO																												
SOJ																												
SQFP			X	X					X																			
SSOP																												
TFBGA		X	X				X																					
TQFP																												
TSSOP																												
VSO																												
VFBGA																												
VQFN																												

1 - 7

Trough-hole mount packages

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PACKAGE NAME	NUMBER OF LEADS																					
	3	7	8	9	13	14	16	17	18	20	22	23	24	27	28	32	40	42	48	52	56	64
DBS.MP				X																		
DBS.MPF				X																		
DBS.P		X		X	X			X				X		X								
DIP			X			X	X		X	X	X		X		X	X	X		X			X
HDIP									X													
RBS.MPF				X																		
RDBS.P					X			X														
SDIP													X			X		X		X	X	X
SIL.MP				X																		
SIL.MPF				X																		
SIL.P				X	X																	
TBS.P					X																	
TO-92	X																					

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Overview of IC packages

Chapter 1

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