

ADSP-2185L

Parameter	Min	Max	Unit
IDMA Write, Long Write Cycle			
<i>Timing Requirements:</i>			
t_{IKW}	$\overline{\text{IACK}}$ Low before Start of Write ¹	0	ns
t_{IKSU}	IAD15-0 Data Setup before $\overline{\text{IACK}}$ Low ^{2, 3, 4}	$0.5t_{CK} + 10$	ns
t_{IKH}	IAD15-0 Data Hold after $\overline{\text{IACK}}$ Low ^{2, 3, 4}	2	ns
<i>Switching Characteristics:</i>			
t_{IKLW}	Start of Write to $\overline{\text{IACK}}$ Low ⁴	$1.5t_{CK}$	ns
t_{IKHW}	Start of Write to $\overline{\text{IACK}}$ High	15	ns

NOTES

¹Start of Write = $\overline{\text{IS}}$ Low and $\overline{\text{IWR}}$ Low.

²If Write Pulse ends before $\overline{\text{IACK}}$ Low, use specifications t_{IDSU} , t_{IDH} .

³If Write Pulse ends after $\overline{\text{IACK}}$ Low, use specifications t_{IKSU} , t_{IKH} .

⁴This is the earliest time for $\overline{\text{IACK}}$ Low from Start of Write. For IDMA Write cycle relationships, please refer to the *ADSP-2100 Family User's Manual, Third Edition*.

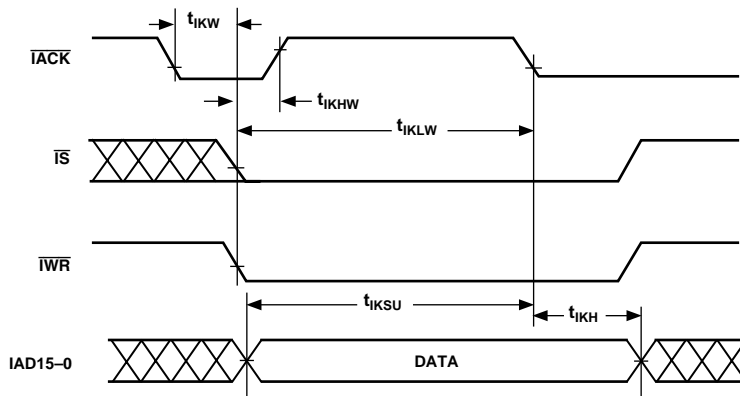


Figure 27. IDMA Write, Long Write Cycle

Parameter	Min	Max	Unit
IDMA Read, Long Read Cycle			
<i>Timing Requirements:</i>			
t_{IKR} \overline{IACK} Low before Start of Read ¹	0		ns
t_{IRK} End of Read after \overline{IACK} Low ²	2		ns
<i>Switching Characteristics:</i>			
t_{IKHR} \overline{IACK} High after Start of Read ¹	4	15	ns
t_{IKDS} IAD15-0 Data Setup before \overline{IACK} Low	$0.5t_{CK} - 7$		ns
t_{IKDH} IAD15-0 Data Hold after End of Read ²	0		ns
t_{IKDD} IAD15-0 Data Disabled after End of Read ²		10	ns
t_{IRDE} IAD15-0 Previous Data Enabled after Start of Read	0		ns
t_{IRDV} IAD15-0 Previous Data Valid after Start of Read		15	ns
t_{IRDH1} IAD15-0 Previous Data Hold after Start of Read (DM/PM1) ³	$2t_{CK} - 5$		ns
t_{IRDH2} IAD15-0 Previous Data Hold after Start of Read (PM2) ⁴	$t_{CK} - 5$		ns

NOTES

¹Start of Read = \overline{IS} Low and \overline{IRD} Low.

²End of Read = \overline{IS} High or \overline{IRD} High.

³DM read or first half of PM read.

⁴Second half of PM read.

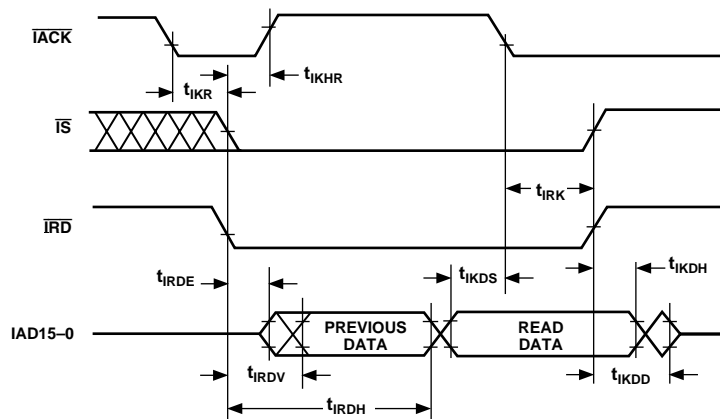


Figure 28. IDMA Read, Long Read Cycle

ADSP-2185L

Parameter	Min	Max	Unit
IDMA Read, Short Read Cycle			
<i>Timing Requirements:</i>			
t_{IKR}	\overline{IACK} Low before Start of Read ¹	0	ns
t_{IRP}	Duration of Read	15	ns
<i>Switching Characteristics:</i>			
t_{IKHR}	\overline{IACK} High after Start of Read ¹	4	15
t_{IKDH}	IAD15-0 Data Hold after End of Read ²	0	ns
t_{IKDD}	IAD15-0 Data Disabled after End of Read ²	0	10
t_{IRDE}	IAD15-0 Previous Data Enabled after Start of Read	0	ns
t_{IRDV}	IAD15-0 Previous Data Valid after Start of Read	0	15

NOTES

¹Start of Read = \overline{IS} Low and \overline{IRD} Low.

²End of Read = \overline{IS} High or \overline{IRD} High.

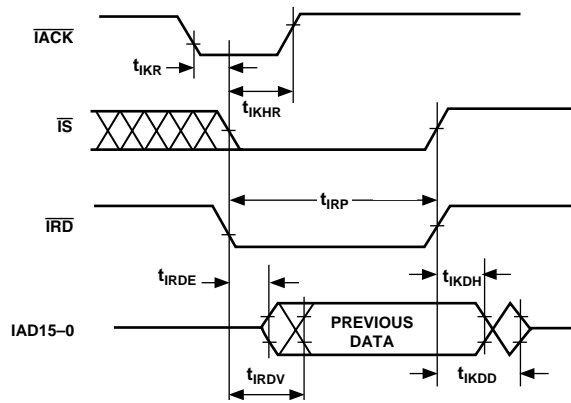
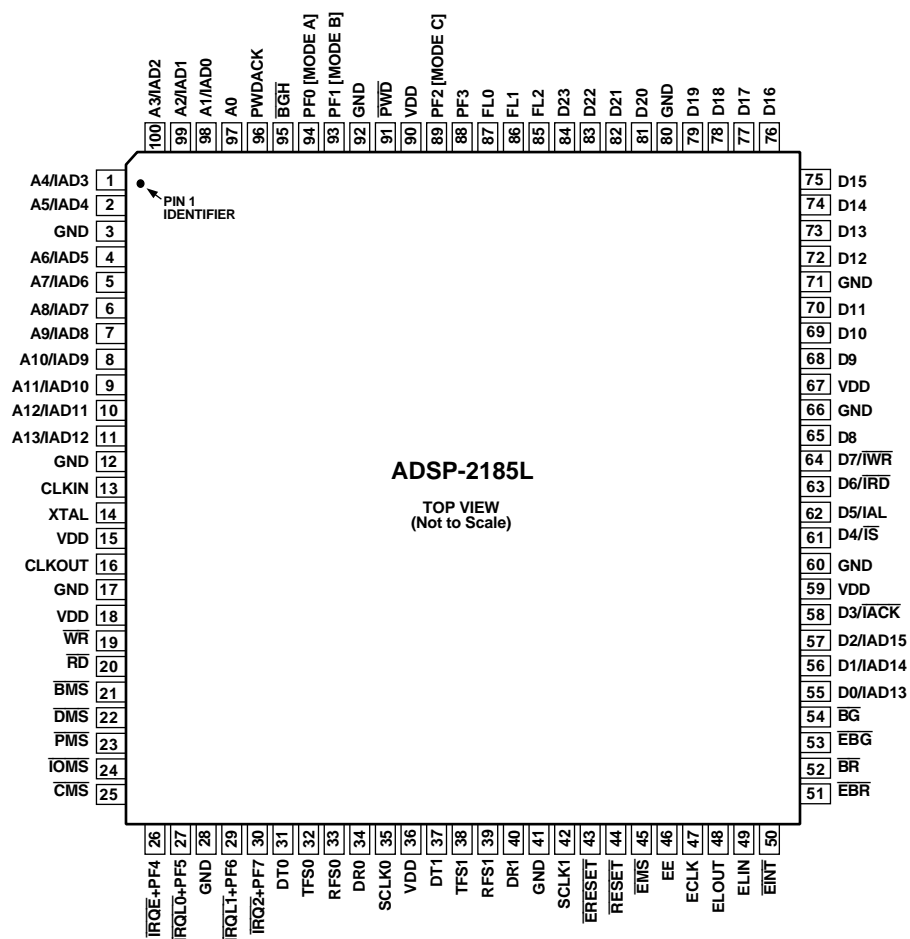


Figure 29. IDMA Read, Short Read Cycle

100-Lead LQFP Package Pinout



ADSP-2185L

The ADSP-2185L package pinout is shown in the table below. Pin names in **bold** text replace the plain text named functions when Mode C = 1. A + sign separates two functions when either function can be active for either major I/O mode. Signals enclosed in brackets [] are state bits latched from the value of the pin at the deassertion of RESET.

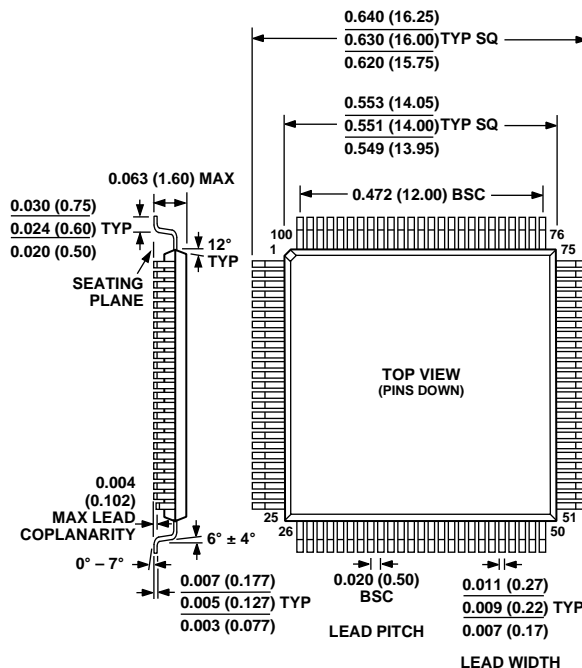
LQFP Pin Configurations

LQFP Number	Pin Name	LQFP Number	Pin Name	LQFP Number	Pin Name	LQFP Number	Pin Name
1	A4/ IAD3	26	$\overline{\text{IRQE}}$ + PF4	51	$\overline{\text{EBR}}$	76	D16
2	A5/ IAD4	27	$\overline{\text{IRQL0}}$ + PF5	52	$\overline{\text{BR}}$	77	D17
3	GND	28	GND	53	$\overline{\text{EBG}}$	78	D18
4	A6/ IAD5	29	$\overline{\text{IRQL1}}$ + PF6	54	$\overline{\text{BG}}$	79	D19
5	A7/ IAD6	30	$\overline{\text{IRQ2}}$ + PF7	55	D0/ IAD13	80	GND
6	A8/ IAD7	31	DT0	56	D1/ IAD14	81	D20
7	A9/ IAD8	32	TFS0	57	D2/ IAD15	82	D21
8	A10/ IAD9	33	RFS0	58	D3/ IACK	83	D22
9	A11/ IAD10	34	DR0	59	VDD	84	D23
10	A12/ IAD11	35	SCLK0	60	GND	85	FL2
11	A13/ IAD12	36	VDD	61	D4/ $\overline{\text{IS}}$	86	FL1
12	GND	37	DT1	62	D5/ IAL	87	FL0
13	CLKIN	38	TFS1	63	D6/ IRD	88	PF3
14	XTAL	39	RFS1	64	D7/ IWR	89	PF2 [Mode C]
15	VDD	40	DR1	65	D8	90	VDD
16	CLKOUT	41	GND	66	GND	91	$\overline{\text{PWD}}$
17	GND	42	SCLK1	67	VDD	92	GND
18	VDD	43	$\overline{\text{ERESET}}$	68	D9	93	PF1 [Mode B]
19	$\overline{\text{WR}}$	44	RESET	69	D10	94	PF0 [Mode A]
20	$\overline{\text{RD}}$	45	$\overline{\text{EMS}}$	70	D11	95	$\overline{\text{BGH}}$
21	$\overline{\text{BMS}}$	46	EE	71	GND	96	PWDACK
22	$\overline{\text{DMS}}$	47	ECLK	72	D12	97	A0
23	$\overline{\text{PMS}}$	48	ELOUT	73	D13	98	A1/IAD0
24	$\overline{\text{IOMS}}$	49	$\overline{\text{ELIN}}$	74	D14	99	A2/IAD1
25	CMS	50	$\overline{\text{EINT}}$	75	D15	100	A3/IAD2

OUTLINE DIMENSIONS

Dimensions shown in inches and (mm).

100-Lead Metric Thin Plastic Quad Flatpack (LQFP) (ST-100)



NOTE:
THE ACTUAL POSITION OF EACH LEAD IS WITHIN (0.08)
0.0032 FROM ITS IDEAL POSITION WHEN MEASURED IN THE
LATERAL DIRECTION.
CENTER FIGURES ARE TYPICAL UNLESS OTHERWISE NOTED

ORDERING GUIDE

Part Number	Ambient Temperature Range	Instruction Rate (MHz)	Package Description	Package Option*
ADSP-2185LKST-115	0°C to +70°C	28.8	100-Lead LQFP	ST-100
ADSP-2185LBST-115	-40°C to +85°C	28.8	100-Lead LQFP	ST-100
ADSP-2185LKST-133	0°C to +70°C	33.3	100-Lead LQFP	ST-100
ADSP-2185LBST-133	-40°C to +85°C	33.3	100-Lead LQFP	ST-100
ADSP-2185LBST-160	-40°C to +85°C	40	100-Lead LQFP	ST-100
ADSP-2185LKST-210	0°C to +70°C	52	100-Lead LQFP	ST-100
ADSP-2185LBST-210	-40°C to +85°C	52	100-Lead LQFP	ST-100

*ST = Plastic Thin Quad Flatpack (LQFP).