

**Production Discontinuation of CC-Link Remote I/O Station Communication LSIs
in September 2025**

■Date of Issue

September 2024

■Relevant Models

A6GA-CCMFP2ANN60FN and A6GA-CCMFP2ANN300FN

Thank you for your continued support of Mitsubishi Electric programmable controllers.

This technical bulletin informs you that production of the following CC-Link remote I/O station communication LSIs will be discontinued.

1 MODELS TO BE DISCONTINUED

Product	Model	Number of packaged units
CC-Link remote I/O station communication LSI MFP2AN (PC18006E)	A6GA-CCMFP2ANN60FN	60
	A6GA-CCMFP2ANN300FN	300

2 SCHEDULE

Order acceptance: Until February 28, 2025

Production discontinuation: September 30, 2025

3 REASON FOR DISCONTINUATION

This product will be discontinued due to the closure of the production line.

4 REPAIR SUPPORT

Repair support period: Until September 30, 2032 (for seven years after the discontinuation of production)

Communication LSIs cannot be repaired, so an alternative model will be returned after the failure is investigated.

5 ALTERNATIVE MODELS

Product	Model	Number of packaged units
CC-Link remote I/O station communication LSI MFP2AN (PC18006E-A)*1	A6GA-CCMFP2ANN60F1	60
	A6GA-CCMFP2ANN300F1	300

*1 The product is scheduled to be released in April 2025.

5.1 When Replacing the CC-Link Remote I/O Station Communication LSI MFP2AN (PC97007N)

The following models were discontinued in March 2023. We have requested that these models should be replaced with the CC-Link remote I/O station communication LSI MFP2AN (PC18006E). But the MFP2AN (PC18006E) is scheduled to be discontinued as informed in this technical bulletin.

Product	Model	Number of packaged units
CC-Link remote I/O station communication LSI MFP2AN (PC97007N)	A6GA-CCMFP2ANN60F	60
	A6GA-CCMFP2ANN300F	300

If you use the above models, please refer to Page 5 Electrical Characteristics for more information. The electrical characteristics have changed due to replacement with the models shown in Page 1 MODELS TO BE DISCONTINUED.

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6 COMPARISON OF SPECIFICATIONS

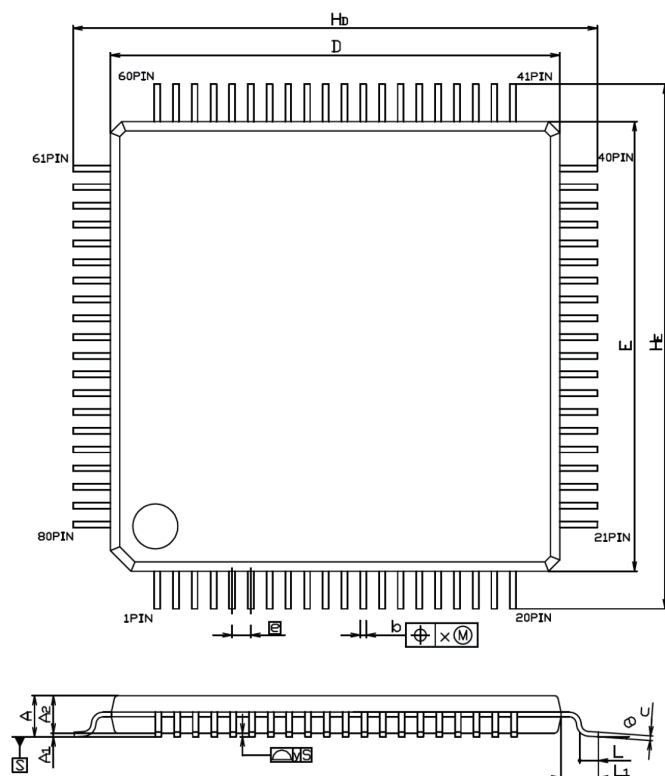
The alternative models differ from the discontinued models in external dimensions and printing.

There is no difference in electrical characteristics.

6.1 Appearance and Print

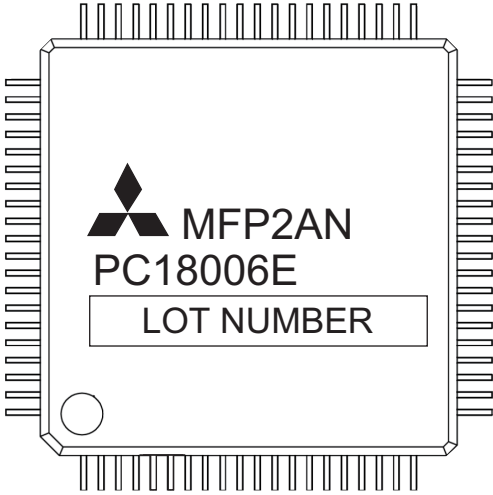
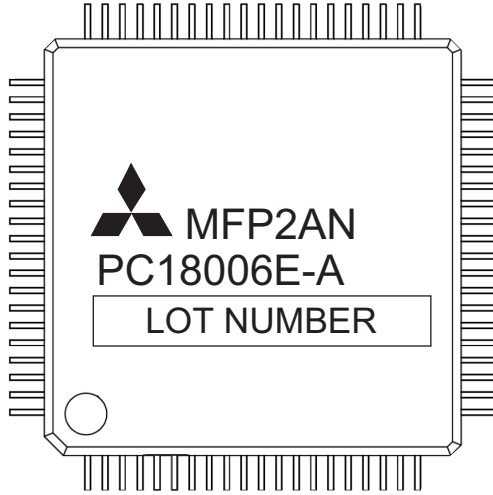
External dimensions

MFP2AN



Symbol	Model to be discontinued (PC18006E)			Alternative model (PC18006E-A)			Unit
	Min.	Normal	Max.	Min.	Normal	Max.	
E	11.90	12.00	12.10	11.90	12.00	12.10	mm
D	11.90	12.00	12.10	11.90	12.00	12.10	mm
A	—	—	1.20	—	—	1.70	mm
A ₁	0.00	0.10	0.20	0.00	0.10	0.20	mm
A ₂	0.90	1.00	1.10	1.30	1.40	1.50	mm
e	—	0.50	—	—	0.50	—	mm
b	0.17	0.22	0.27	0.13	0.20	0.27	mm
C	0.09	0.15	0.20	0.09	0.15	0.20	mm
θ	0	3	8	0	5	10	°
L	0.30	0.50	0.75	0.30	0.50	0.75	mm
L ₁	0.80	1.00	1.20	0.80	1.00	1.20	mm
H _E	13.60	14.00	14.40	13.60	14.00	14.40	mm
H _D	13.60	14.00	14.40	13.60	14.00	14.40	mm
x	—	—	0.08	—	—	0.08	mm
y	—	—	0.08	—	—	0.08	mm

Print specifications

MFP2AN	
Model to be discontinued (PC18006E)	Alternative model (PC18006E-A)
 <p>The diagram shows a square integrated circuit package with pins on all four sides. The top surface features the Mitsubishi logo, the text 'MFP2AN', 'PC18006E', and a rectangular box labeled 'LOT NUMBER'. A small circle is located in the bottom-left corner of the package.</p>	 <p>The diagram shows a square integrated circuit package with pins on all four sides. The top surface features the Mitsubishi logo, the text 'MFP2AN', 'PC18006E-A', and a rectangular box labeled 'LOT NUMBER'. A small circle is located in the bottom-left corner of the package.</p>
<p>The product is compliant with lead-free specifications, so the lead-free/RoHS directive compliant identification dot mark is not indicated.</p>	<p>The product is compliant with lead-free specifications, so the lead-free/RoHS directive compliant identification dot mark is not indicated.</p>

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6.2 Electrical Characteristics

When replacing the CC-Link remote I/O station communication LSI MFP2AN (PC97007N), note that the electrical characteristics have changed due to replacement with the models shown in Page 1 MODELS TO BE DISCONTINUED (PC18006E).

Buffer type list

MFP2AN			
I/O	Buffer type	PC97007N	PC18006E
I/O	I/O Buffer (CMOS Schmitt in: CMOS 3-state out: $I_{OL} = 24\text{mA}$) (Low Noise)	OB32	BH4BT_SP2
I	Input Buffer (CMOS in)	FI01	IBC_SP1
I	Input Buffer (CMOS in) with Pull-Up Resistor $5\text{k}\Omega$	FIW1	IBCP3_SP1
I	Input Buffer (CMOS Schmitt in)	OFI7	IBH_SP1
I	Input Buffer (TTL Schmitt in)	FIS2	IBS_SP1
I	Input Buffer (TTL in)	FI02	IBT_SP1
I	Input Buffer (CMOS Schmitt in) with Pull-Up Resistor $5\text{k}\Omega$	FWS1	IBHP3_SP2
O	Output Buffer (CMOS out: $I_{OL} = 4\text{mA}$)	FO01	OB1T_SP2
O	Output Buffer (CMOS out: $I_{OL} = 12\text{mA}$)	FO03	OB3BT_SP1
O	Output Buffer (Nch open drain) ($I_{OL} = 18\text{mA}$)	EXT5	OD3T_SP1
O	Output Buffer (CMOS out: $I_{OL} = 8\text{mA}$)	FO02	OB2T_SP2

Comparison of the absolute maximum rated values

MFP2AN								
Item	PC97007N			PC18006E			Unit	
	Symbol	Rated value		Symbol	Rated value			
		Min.	Max.		Min.	Max.		
Power supply voltage	V_{DD}	-0.5	6.0	V_{DD}	$V_{SS} - 0.5$	7.0	V	
Input voltage	V_I	-0.5	$V_{DD} + 0.5$	V_I	$V_{SS} - 0.5$	$V_{DD} + 0.5$	V	
Output voltage	V_O	-0.5	$V_{DD} + 0.5$	V_O	$V_{SS} - 0.5$	$V_{DD} + 0.5$	V	
Output current	$I_{OL} = 4\text{mA}$ type	I_{OUT}	—	± 12	I_{OUT}	—	± 30	mA
	$I_{OL} = 8\text{mA}$ type		—	± 24		—	—	mA
	$I_{OL} = 12\text{mA}$ type		—	± 36		—	—	mA
	$I_{OL} = 18\text{mA}$ type (Used only for N-Ch Open Drain)		—	± 36		—	± 40	mA
	$I_{OL} = 24\text{mA}$ type		—	± 48		—	± 50	mA
Storage temperature	T_{stg}	-65	150	T_{stg}	-65	150	°C	

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Comparison of the recommended operating conditions

MFP2AN											
Item		PC97007N			PC18006E			Unit			
		Symbol	Rated value			Symbol	Rated value				
			Min.	TYP	Max.		Min.			TYP	Max.
Power supply voltage		V_{DD}	4.5	5.0	5.5	V_{DD}	4.5	5.0	5.5	V	
Operating temperature		T_A	-40	—	85	T_A	-40	25	110	°C	
Input rising time	Schmitt	t_{r1}	0	—	10	t_{r1}	0	—	10	ms	
	Normal	t_{r2}	0	—	200	t_{r2}	0	—	200	ns	
Input falling time	Schmitt	t_{f1}	0	—	10	t_{f1}	0	—	10	ms	
	Normal	t_{f2}	0	—	200	t_{f2}	0	—	200	ns	

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Comparison of the electrical characteristics

MFP2AN										
Item		PC97007N				PC18006E				Unit
		Symbol	Rated value			Symbol	Rated value			
			Min.	TYP	Max.		Min.	TYP	Max.	
"H" input voltage	CMOS	V _{IH1}	0.7V _{DD} (min: 3.15)	—	V _{DD}	V _{IH1}	3.5	—	V _{DD} + 0.3	V
	TTL	V _{IH2}	2.2	—	V _{DD}	V _{IH2}	2.29	—	V _{DD}	V
"L" input voltage	CMOS	V _{IL1}	0	—	0.3V _{DD} (MAX: 1.65)	V _{IL1}	0	—	1.65	V
	TTL	V _{IL2}	0	—	0.8	V _{IL2}	0	—	0.77	V
CMOS Schmitt trigger (I/O)	Positive trigger voltage	V _{T1+}	2.3	—	4.05	V _{T1+}	2.3	—	4.05	V
	Negative trigger voltage	V _{T1-}	0.9	—	1.92	V _{T1-}	0.9	—	1.92	V
	Hysteresis voltage	ΔV	1.1	—	2.35	ΔV	1.1	—	—	V
CMOS Schmitt trigger (FUSEL)	Positive trigger voltage	V _{T1+}	2.3	—	4.05	V _{T1+}	2.55	—	3.75	V
	Negative trigger voltage	V _{T1-}	0.9	—	1.92	V _{T1-}	1.15	—	2.05	V
	Hysteresis voltage	ΔV	1.1	—	2.35	ΔV	1.1	—	—	V
CMOS Schmitt trigger (RST)	Positive trigger voltage	V _{T1+}	1.8	—	4	V _{T1+}	1.8	—	4	V
	Negative trigger voltage	V _{T1-}	0.6	—	3.1	V _{T1-}	0.6	—	3.1	V
	Hysteresis voltage	ΔV	0.3	—	1.5	ΔV	0.3	—	—	V
TTL Schmitt trigger	Positive trigger voltage	V _{T2+}	1.2	—	2.4	V _{T2+}	1.38	—	2.55	V
	Negative trigger voltage	V _{T2-}	0.6	—	1.8	V _{T2-}	0.64	—	1.33	V
	Hysteresis voltage	V _{H2}	0.3	—	1.5	V _{H2}	0.64	—	—	V
Input leak current		I _{L1}	-10	±10 ⁻⁵	10	I _{L1}	-5	—	5	μA
Off-state output current		I _{OZ}	-10	—	10	I _{OZ}	-5	—	5	μA
Pull-up resistor 50kΩ		R _{PU}	25	50	100	R _{PU}	15	38	100	kΩ
Pull-up resistor 5kΩ			2.5	5.0	10		2.5	5.0	12.9	kΩ
"L" output current	I _{OL} = 4mA type	I _{OL}	4.0	—	—	I _{OL}	4.0	—	—	mA
	I _{OL} = 8mA type		8.0	—	—		8.0	—	—	mA
	I _{OL} = 12mA type		12.0	—	—		12.0	—	—	mA
	I _{OL} = 18mA type (Used only for N-Ch Open Drain)		18.0 (V _{OL} = 0.6V)	—	—		18.0	—	—	mA
	I _{OL} = 24mA type		24.0	—	—		24.0	—	—	mA
"H" output current	I _{OL} = 4mA type	I _{OH}	-2.0	—	—	I _{OH}	-2.0	—	—	mA
	I _{OL} = 8mA type		-4.0	—	—		-4.0	—	—	mA
	I _{OL} = 12mA type		-6.0	—	—		-12.0	—	—	mA
	I _{OL} = 24mA type		-12.0	—	—		-12.0	—	—	mA
"L" output current (I _{OL} = current value of each specifications)		V _{OL}	—	—	0.4	V _{OL}	—	—	0.4	V
"H" output current (I _{OH} = current value of each specifications)		V _{OH}	V _{DD} - 0.4	—	—	V _{OH}	V _{DD} - 0.4	—	—	V

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Comparison of the AC characteristics

MFP2AN

PC97007N ($T_A = -40$ to $+85^\circ\text{C}$, $V_{DD} = 5V \pm 10\%$), PC18006E ($T_A = 25^\circ\text{C}$, $V_{DD} = 5V$)

Item	Condition	PC97007N				PC18006E				Unit
		Symbol	Rated value			Symbol	Rated value			
			Min.	TYP	Max.		Min.	TYP	Max.	
Output rising time	$C_L = 15\text{pF}$	t_r	—	3.6	—	t_r	—	2.5	—	ns
Output falling time		t_f	—	2.7	—	t_f	—	2.5	—	ns

Comparison of the I/O capacity characteristics

MFP2AN

 $(T_A = +25^\circ\text{C}, V_{DD} = 0V)$

Item	Condition	PC97007N				PC18006E				Unit
		Symbol	Rated value			Symbol	Rated value			
			Min.	TYP	Max.		Min.	TYP	Max.	
Input capacity	$f = 1\text{MHz}, V_{DD} = 0V$	C_i	—	10	20	C_i	—	—	10	pF
Output capacity		C_o	—	10	20	C_o	—	—	10	pF
I/O capacity		C_{iO}	—	10	20	C_{iO}	—	—	10	pF

6.3 Specified Parts (Crystal Oscillation)

MFP2AN (PC97007N)		MFP2AN (PC18006E)	
Model	Manufacturer	Model	Manufacturer
DSO751SB 80MHz ^{*1}	Daishinku Corporation www.kds.info	DSO751SBM 80MHz	Daishinku Corporation www.kds.info
DSO751SBM 80MHz		DSO321SBN 80MHz	
DSO321SBN 80MHz			

*1 Discontinued product

6.4 Precautions for Handling

Recommended conditions

Item	MFP2AN (PC97007N)	MFP2AN (PC18006E)
After unpacked	Within 7 days	Within 7 days
Baking	10 to 72h at 125°C	20 to 36h at 125°C
Maximum temperature (surface temperature of the product)	260°C or lower	260°C or lower
Preheating time	60 to 120s	60 to 120s
Main heating time	60s or shorter at 220°C	60s or shorter at 220°C
Maximum number of reflows	3 times or less	2 times or less

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REVISIONS

Version	Date of Issue	Revision
A	September 2024	First edition

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