

# CPX3 PLC PMOD Evaluation Kit

R12AN0112EG0100

Rev.1.00

## Y-PMOD-OFDM-PLC-X3 Schematics and BOM

Oct 22, 2020

### Introduction

This document describes the schematics and the bill of materials of GCPX3 Evaluation Kit J70D1

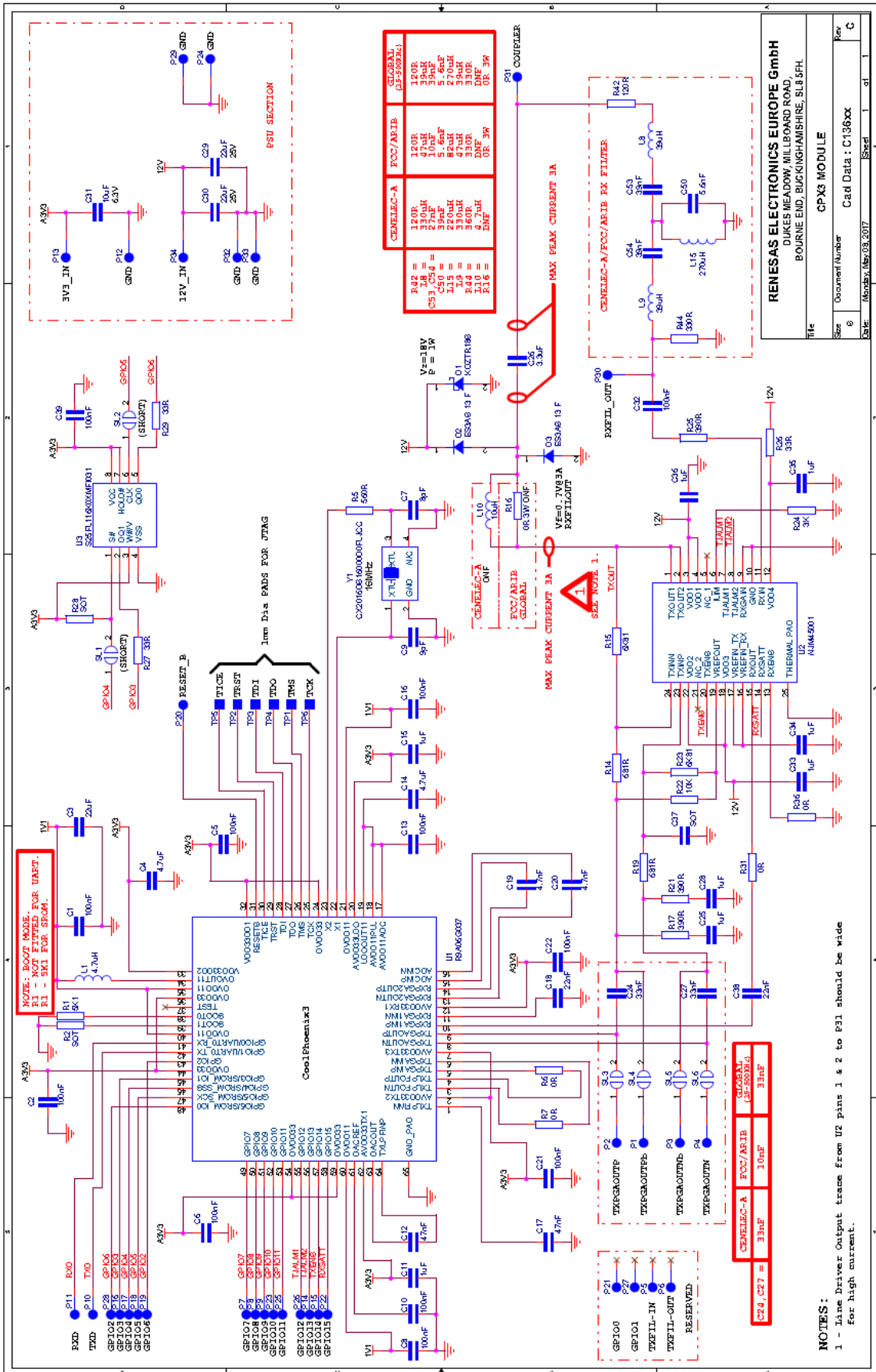
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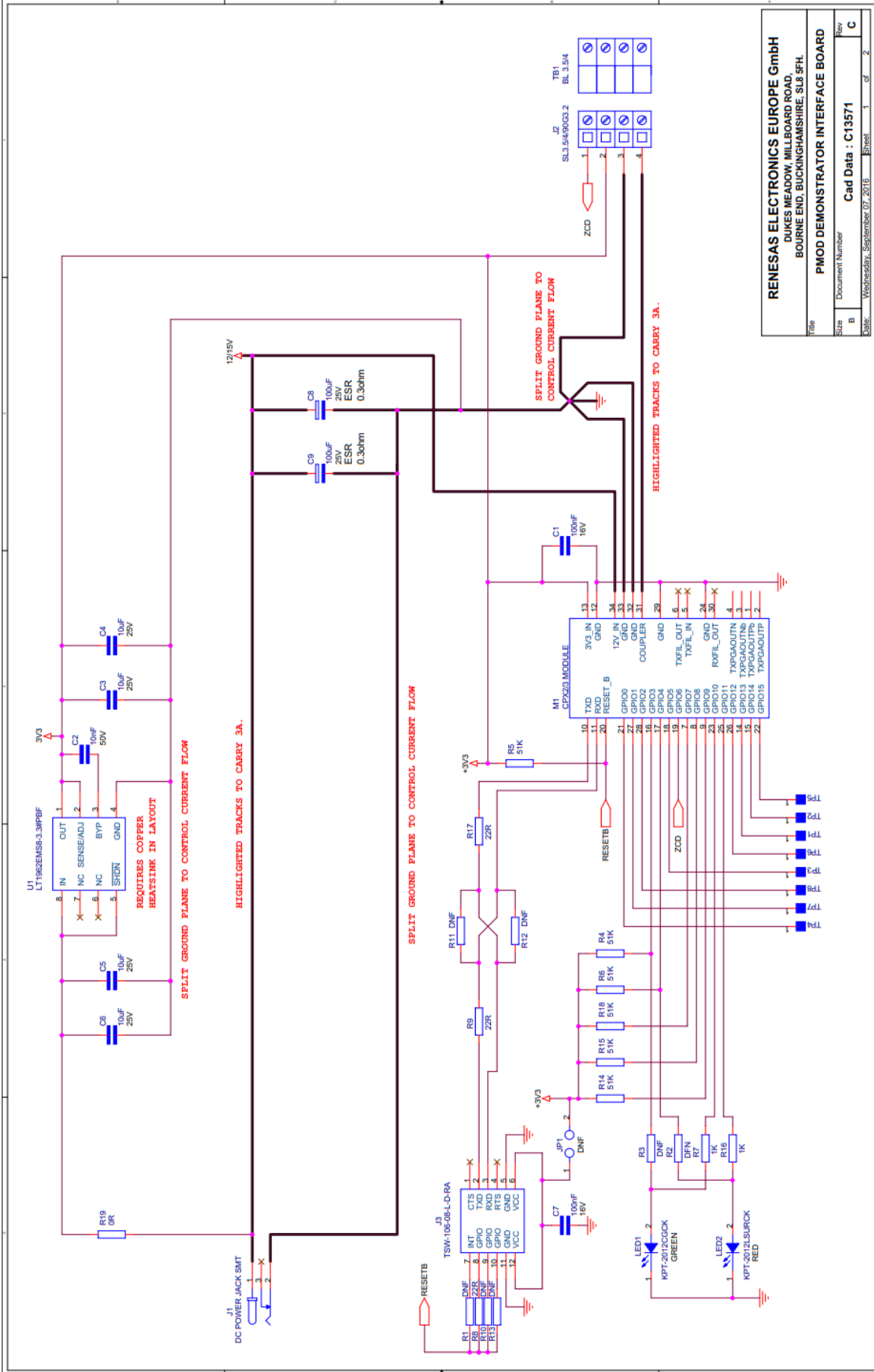
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1. Schematics

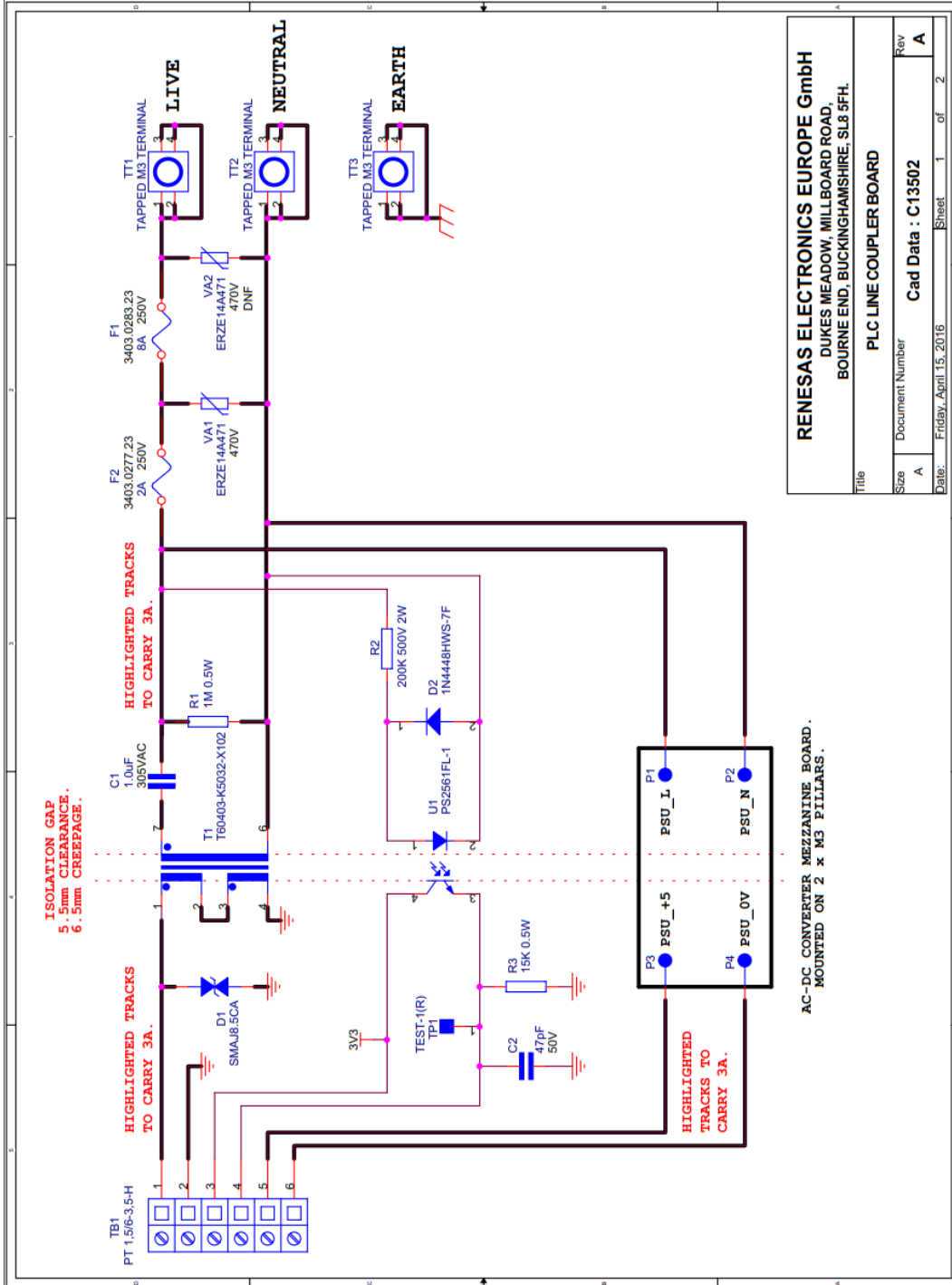
1.1 CPX3 Modem Module



1.2 CPX3 PMOD Demonstrator Interface Board



### 1.3 CPX3 PLC Line Coupler Board



## 2. Bill of Materials

### 2.1 CPX3 Modem Module

Quantity	Reference	Part	Manufacturer	Part Number	Voltage	No Fit
12	C1,C2,C5,C6,C8,C10,C13,C16,C21,C22,C32,C39	100nF	TAIYO YUDEN	UMK105B7104KV-FR	50V	
1	C3	22uF	TDK	C2012X7S0J226M125AC	6.3V	
2	C4,C14	4.7uF	TAIYO YUDEN	LMK105BBJ475MVLF	10V	
1	C7	8pF	TDK	C1005C0G1H080C050BA	50V	
1	C9	9pF	TDK	C1005C0G1H090C050BA	50V	
8	C11,C15,C25,C28,C33,C34,C35,C36	1uF	TDK	C1005X5R1E105K050BC	25V	
2	C12,C17	47nF	TDK	C1005X7R1H473K050BB	50V	
2	C18,C38	22nF	TDK	C1005X7R1H223K050BB	50V	
2	C19,C20	4.7nF	TAIYO YUDEN	UMK105B7472KV-F	50V	
2	C24,C27	33nF	TDK	C1005X7R1H333K050BB	50V	
1	C26	3.3uF	TDK	CGA6P3X7R1H335K250AB	50V	
2	C29,C30	22uF	MURATA	GRM21BR61E226ME44L	25V	
1	C31	10uF	TAIYO YUDEN	JMK212B7106KG-T	6.3V	
3	R2,R28,C37	SOT				DNF
1	C50	5.6nF	TDK	C1608C0G1H562J080AA	50V	
2	C53,C54	39nF	MURATA	GRM188R71H393KA61D	50V	
1	D1	KDZTR18B	ROHM	KDZTR18B		
2	D2,D3	ES3AB-13-F	DIODES INC	ES3AB-13-F		
1	L1	4.7uH	TDK	VLF3010AT-4R7MR70		
2	L8,L9	39uH	TDK	NLV32T-390J-EF		
1	L10	10uH	BOURNS	SRN5040-100M		DNF
1	L15	270uH	TDK	NLV32T-271J-EF		
34	P1,P2,P3,P4,P5,P6,P7,P8,P9,P10,P11,P12,P13,P14,P15,P16,P17,P18,P19,P20,P21,P22,P23,P24,P25,P26,P27,P28,P29,P30,P31,P32,P33,P34	CASTELLATED PAD				DNF
1	R1	5K1	MULTICOMP	MC00625W040215K1		
1	R5	560R	MULTICOMP	MC00625W04021560R		
4	R6,R7,R31,R36	0R	MULTICOMP	MC00625W040210R		
2	R14,R19	681R	MULTICOMP	MC00625W04021681R		
2	R15,R23	6K81	MULTICOMP	MC00625W040216K81		
1	R16	0R 3W	TE CONNECTIVITY	3522ZR		
3	R17,R21,R25	390R	MULTICOMP	MC00625W04021390R		
1	R22	10K	MULTICOMP	MC00625W0402110K		
1	R24	3K	MULTICOMP	MC00625W040213K		
3	R26,R27,R29	33R	MULTICOMP	MC00625W0402133R		
1	R42	120R	MULTICOMP	MC00625W04021120R		

1	R44	330R	MULTICOMP	MC00625W04021330R		
6	SL1,SL2,SL3,SL4,SL5,SL6	SOLDER LINK SM				DNF
6	TP1,TP2,TP3,TP4,TP5,TP6	TEST POINT				DNF
1	U1	R9A06G037	RENESAS	R9A06G037		
1	U2	NJM45001	NEW JAPAN RADIO	NJM45001		
1	U3	S25FL116K0XMF1041	MICRO	S25FL116K0XMF1041		
1	Y1	CX2016DB16000D0FLJCC	AVX	CX2016DB16000D0FLJCC		

## 2.2 CPX3 PMOD Demonstrator Interface Board

Quantity	Reference	Part	Manufacturer	Part Number	Voltage	No Fit
2	C1,C7	100nF	AVX	0603YC104KAT2A	16V	
1	C2	10nF	KEMET	C0603C103K5RACAUTO	50V	
4	C3,C4,C5,C6	10uF	MURATA	GRM219R61E106KA12D	25V	
2	C8,C9	100uF	KEMET	T491X107K025AT	25V	
1	JP1	JUMPER_2	TE CONNECTIVITY	826629-2		DNF
1	J1	DC POWER JACK SMT	WURTH	694103107102		
1	J2	SL3.5/4/90G3.2	WEIDMULLER	SL3.5/4/90G3.2		
1	J3	TSW-106-08-L-D-RA	SAMTEC	TSW-106-08-L-D-RA		
1	LED1	KPT-2012CGCK	KINGBRIGTH	KPT-2012CGCK		
1	LED2	KPT-2012LSURCK	KINGBRIGTH	KPT-2012LSURCK		
1	M1	CPX2/3 MODULE	CAD Data	C13483/C13484		
7	R1,R10,R11,R12,R13,R2,R3	SOT				DNF
2	R7,R16	1K	MULTICOMP	MC0063W060311K		
6	R4,R5,R6,R14,R15,R18	51K	MULTICOMP	MC0063W0603151K		
3	R8,R9,R17	22R	MULTICOMP	MC0063W0603522R		
1	R19	0R0	MULTICOMP	MC01W08050R		
1	U1	LT1962EMS8-3.3#PBF	LINEAR TECHNOLOGY	LT1962EMS8-3.3#PBF		

### 2.3 CPX3 PLC Line Coupler Board

Quantity	Reference	Part	Manufacturer	Part Number	Voltage	No Fit
1	C1	0.47uF	EPCOS	B32922C3474M189	305VAC	
1	C2	47pF	MULTICOMP	MC1206N470J500CT	50V	
1	D1	SMAJ8.5CA	MULTICOMP	SMAJ8.5CA		
1	D2	1N4448HWS-7F	DIODES INC	1N4448HWS-7-F		
1	F1	8A	SCHURTER	3403.0283.23	250V	
1	F2	2A	SCHURTER	3403.0277.23	250V	
1	R1	1M 0.5W	PANASONIC	ERJU14F1004U		
1	R2	200K 500V 2W	VISHAY	PR02000202003JR500		
1	R3	15K 0.5W	MULTICOMP	MCHP06W2F1502T5E		
3	TT1,TT2,TT3	TAPPED M3 TERMINAL	TRUCONNECT	PCB-1		
1	T1	T60403-K5032-X102	VACUUMSCHMELZE	T60403-K5032-X102		
1	U1	PS2561L-1	CALIFORNIA EASTERN LABS	PS2561L-1		
1	VA1	ERZE14A471	PANASONIC	ERZE14A471	470V	



## Website and Support

Renesas Electronics Website

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**Revision History**

<b>Rev.</b>	<b>Date</b>	<b>Description</b>	
		<b>Section</b>	<b>Summary</b>
1	Oct 22, 2020	All	First release

## General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

### 1. Handling of Unused Pins

Handle unused pins in accordance with the directions given under Handling of Unused Pins in the manual.

- The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible. Unused pins should be handled as described under Handling of Unused Pins in the manual.

### 2. Processing at Power-on

The state of the product is undefined at the moment when power is supplied.

- The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the moment when power is supplied.

In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the moment when power is supplied until the reset process is completed.

In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the moment when power is supplied until the power reaches the level at which resetting has been specified.

### 3. Prohibition of Access to Reserved Addresses

Access to reserved addresses is prohibited.

- The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

### 4. Clock Signals

After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has stabilized.

- When the clock signal is generated with an external resonator (or from an external oscillator) during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Moreover, when switching to a clock signal produced with an external resonator (or by an external oscillator) while program execution is in progress, wait until the target clock signal is stable.

### 5. Differences between Products

Before changing from one product to another, i.e. to a product with a different part number, confirm that the change will not lead to problems.

- The characteristics of Microprocessing unit or Microcontroller unit products in the same group but having a different part number may differ in terms of the internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.