

Type of Change		
Publication Date: 2024.05.14 <yyyy.mm.dd>	Document Number: LPN-637e_1	
<b>Discontinuation and Allocation of ON Semiconductor Switching Regulator NCP1532 (FR464)</b>		
<input checked="" type="checkbox"/> Major Change <input type="checkbox"/> Minor Change		
<p><b>Description of Change:</b>            The NCP1532MUAATXG (PHYTEC internal number FR464) has been discontinued and PHYTEC is switching to the ISL8088IRZ-T7A (PHYTEC internal number FR644), which was released in 2021, depending on the supply situation and inventory levels. At this time, information about the changeover can be found via LPN-525.</p> <p>This part can be used without any changes to the PCB circuitry. It is slightly taller but still lower than the tallest IC of the PCB. Jumper configuration of mode selection at pin 6 has to be changed to from a high to low level to meet the same functionality (forced PWM mode).</p> <p>There is one observed functional difference on reset out pin 8 (named <math>\bar{P}OR</math> on FR464, and PG on FR644) when the device is set into OFF state with EN1 and EN2 signals. FR464 will stay on a high level but FR644 will generate a low level which result in a global Reset on X_nRESET_OUT after 300 ms.</p> <p>This OFF state can be reached either when powering off the controller with X_ONOFF signal or by software command "poweroff" or "shutdown now". This is usually the case when you want to reduce power consumption as much as possible. This topic is not relevant for standard standby mode.</p> <p>At the moment, we don't see any side effects on i.MX 6UL/ULL SNVS LP or HP registers. LP register will hold as long as VDD_SNVS is supplied. HP registers will be reset in both cases during the next start up.</p> <p>We have tested this component intensively and don't see any effect to fit, form, or function beside the previous mentioned behaviors. Due to this, PHYTEC will change the revision number of the affected products.</p> <p>The adaptation concerns the module (product group: PCL-063). Further listed product groups include the module as part of the Bill of Material (BOM). PHYTEC recommends testing the new module incl. your complete system/device.</p> <p>In the event that a component/article is not marked as subject to approval in the KSM/KSP version (KSM/KSP document) of the product concerned, PHYTEC reserves the right to change the component/part in the event of a non-functionally relevant change (minor change).</p> <p>If you have any questions, please do not hesitate to contact our Sales department.</p>		
<b>Type of Change:</b> Component Change	<b>Impacted Component:</b> Switching Regulator	<b>Software Update necessary:</b> No

Affected Product	
<b>Affected PHYTEC product group:</b>	phyBOARD® Segin, phyCORE®-i.MX 6UL/ULL
<b>Affected PHYTEC product group part:</b>	PB-02013, PCL-063
Affected Product Number	Replacement Product Number
PCL-063-xy.Ax	PCL-063-xy.Ax +1
PB-02013-xy.Ax	PB-02013-xy.Ax+1
PCL-063-KSMxy.Az	PCL-063-KSMxy.Az+1
PCL-063-KSPxy.Az	PCL-063-KSPxy.Az+1

Possible Options	
<input checked="" type="checkbox"/>	Change to new product revision with replacement
<input type="checkbox"/>	Change to different PHYTEC product
<input type="checkbox"/>	Change to different option of product
<input type="checkbox"/>	Final stock

Schedule	
<b>Last Time Buy (current product version):</b> (Last date to set an order for the current product version)	. . . <yyyy.mm.dd> <b>ORDERS ARE NON-CANCELABLE AND NON-RETURNABLE.</b>
<b>Samples of new PHYTEC product revision orderable:</b>	Only for customer specific versions possible
<b>Planned mass production of new PHYTEC product revision:</b>	Depending on stock

Anticipated Impact on Form, Fit, Function, EMC, Quality or Reliability
(1) No impact in fit or form (2) Impact in function not expected

Engineering Change (Component, Firmware, Process, other)		
Current Part		New Part
Dual Output Step-Down Converter	<b>Description</b>	Dual Output Step-Down Converter
ON Semiconductor	<b>Manufacturer</b>	Renesas
NCP1532MUAATXG	<b>Manufacturer Part #</b>	ISL8088IRZ-T7A
FR464	<b>PHYTEC Internal Part #</b>	FR644

Technical Parameters			
Parameter	Original NCP1532MUAATXG	Replacement ISL8088IRZ-T7A	Assess- ment <sup>1</sup>
Package, pitch, form (mm)	UDFN10, 3 x 3 x 0.5	10LD 3x3 DFN, 3 x 3 x 0.9	2
Operating Temperature (°C)	-40 to +85	-40 to +85	2
Supply voltage (V)	2.7 to 5.5	2.75 to 5.5	2
Switching Frequency (MHz)	2.25, 180° out of phase	2.25	2
Max. current for both channels (A)	1.6	1.6	2
Features	Thermal limit protection Short circuit protection Undervoltage protection	Thermal limit protection Short circuit protection Undervoltage protection	2
Thermal Resistance (°C/W)	Junction-to-Air: 200	Junction-to-Air: 49	2
<b>Referenced Documents:</b> Datasheet NCP1532MUAATXG and ISL8088IRZ-T7A			

**Note:**

Technical differences and similarities in the tables above may not be complete. Please refer to the manufacture datasheets for a complete comparison.

<sup>1</sup> Assessments:  
1: Effects are to be expected  
2: No negative effects are to be expected

PHYTEC Qualification	
The new product(s) were qualified according to our company qualification procedure and best practices.	
<input type="checkbox"/> PCB redesign was necessary:	<input type="checkbox"/> Software adaption was necessary:
<input checked="" type="checkbox"/> Release tests were conducted with: BSP used: PD19.1.1 Barebox: v2019.01.0 Linux: Linux Mainline Kernel v4.14.184 PD21.2-rc3 Barebox: v2021.04.0-phy5 Linux: Linux Mainline Kernel v5.10.76  Test programs: Stress and Boot tests in climate chamber (-40 °C to +85 °C)	

Recommended Measures for Customer
<input type="checkbox"/> Software update or patch <input type="checkbox"/> Linux BSP: <input type="checkbox"/> Backward compatible Link:
<input type="checkbox"/> Update Programming Tool
Test the recommended measures in combination with your system and use case. PHYTEC recommends that customers take this opportunity to review these changes against their specifications, system design considerations, and environment conditions to assess impact (if any) to their application.

Please contact our order team to ask for an interims or final stock for components or PHYTEC products, if this option is offered. Please contact our support, if you need any further information.

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**Purpose:** This Product Change Notification (PCN) is to provide notification to PHYTEC customers of component, process, or other relevant engineering changes on a PHYTEC hardware subassembly. Impact, qualification, validation, and approval of this change shall be documented on the corresponding Customer-Specific Modification (KSM/KSP) form for the PHYTEC hardware subassembly.

Per JEDEC Standard JESD46-D Section 3.2.3; lack of acknowledgment of this PCN within 30 days constitutes acceptance of change.

Revision History of the Document
_1: Initial document