



Product / Process Change Notification (PCN)

- ☐ Major Change
☒ Minor Change

PCN Number: PCN_CDIP_CDIS_20240715 Affected Series: WPME-CDIP, WPME-CDIS Affected Order Codes: 18024x15401x, 18014x15401x, 18012x15411x PCN Date: 2024-04-15 (YYYY-MM-DD) Effective Date: 2024-07-15 (YYYY-MM-DD)	Change Category: ☐ Equipment/Location ☒ General Data ☐ Material ☐ Process ☐ Product Design ☐ Shipping/Packaging ☐ Supplier ☐ Software
Contact: Product Management Phone: +49 (0) 7942 - 945 5001 Fax: +49 (0) 7942 - 945 5179 E-Mail: pcn.eisos@we-online.com	Datasheet Change: ☒ Yes ☐ No Attachment: ☒ Yes ☐ No
Description of Change: For the purpose of a datasheet information enlargement, Würth Elektronik has expanded the datasheet to include VDE reinforced and basic insulation safety certifications per the VDE 0884-17/DIN EN IEC 60747-17 standard. As a datasheet information amendment, Würth Elektronik has corrected the front page, updated the approvals table and removed the isolation voltage chapter. As a datasheet information amendment, Würth Elektronik has updated the operating specifications and added safety limiting curves for the WPME-CDIP series. All products will be affected by this change. This is a datasheet correction only. There will be no change in form, fit, function, quality or reliability of the product.	



Details of Change:

Changes 1 through 4 apply to all order codes indicated in this PCN.

- Added VDE 0884-17 reinforced insulation (all order codes of the WPME-CDIP series and the 18014x15401x order codes of the WPME-CDIS series) and basic insulation (18012x15411x order codes of the WPME-CDIS series) specifications and expanded IEC 60664-1 information in the isolation specification table.

18024x15401x

Before Change

Table 11: Isolation specification table.

SYMBOL	PARAMETER	TEST CONDITIONS	TYP ⁽³⁾	UNIT
CLR	External clearance	Shortest distance through air between terminals	8	mm
CPG	External creepage	Shortest distance across package surface between terminals	8	mm
DTI	Distance through the insulation	Minimum internal clearance	19	µm
CTI	Comparative tracking index	DIN EN 60112 (VDE 0303-11); IEC 60112	>600	V
	IEC 60664-1 overvoltage category	Rated mains voltage ≤ 300 V _{RMS}	I-IV	
		Rated mains voltage ≤ 400 V _{RMS}	I-IV	
		Rated mains voltage ≤ 600 V _{RMS}	I-IV	
		Rated mains voltage ≤ 1000 V _{RMS}	I-III	
UL1577				
V _{ISO(max)}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	5000	V _{RMS}

After Change

Table 11: Isolation specification table.

SYMBOL	PARAMETER	TEST CONDITIONS	VALUE	UNIT
CLR	External clearance	Shortest distance through air between terminals	8	mm
CPG	External creepage	Shortest distance across package surface between terminals	8	mm
C _{IO}	Barrier capacitance, input to output	V _{IO} = 0.4 x sin(2πft), f = 1MHz	3.5	pF
R _{IO}	Isolation resistance	V _{IO} = 500V, T _A = 25°C V _{IO} = 500V, 100°C ≤ T _A ≤ 125°C V _{IO} = 500V at T _A = 150°C	>10 ¹² >10 ¹¹ >10 ⁹	Ω
DTI	Distance through the insulation	Minimum internal clearance	19	µm
CTI	Comparative tracking index	DIN EN 60112 (VDE 0303-11); IEC 60112	>600	V
	IEC 60664-1 material group		I	
	IEC 60664-1 overvoltage category	Rated mains voltage ≤ 300 V _{RMS}	I-IV	
		Rated mains voltage ≤ 600 V _{RMS}	I-IV	
		Rated mains voltage ≤ 1000 V _{RMS}	I-III	
DIN EN IEC 60747-17 (VDE 0884-17):2021-10				
V _{ORM}	Max. repetitive peak isolation voltage	AC voltage (bipolar)	1414	V _{PK}
V _{OWM}	Max. working isolation voltage	AC voltage; Time-dependent dielectric breakdown (TDDB) test DC voltage	1000 1414	V _{RMS} V _{DC}
V _{OTM}	Max. transient isolation voltage	V _{TEST} = V _{OWM} , t = 60s (qualification); V _{TEST} = 1.2 x V _{OTM} , t = 1s (100% production)	7070	V _{PK}
V _{OSM}	Max. surge isolation voltage	Test method per IEC 60065, 1.2/50 µs waveform, V _{TEST} = 1.6 x V _{OSM} (qualification)	7070	V _{PK}
Q _{pd}	Apparent charge	Method a, after input/output safety test subgroup 2/3, V _{PH} = V _{OTM} , t _{PH} = 60s; V _{pd(n)} = 1.2 x V _{ORM} , t _n = 10s	≤5	pC
		Method a, after environmental tests subgroup 1, V _{PH} = V _{OTM} , t _{PH} = 60s; V _{pd(n)} = 1.6 x V _{ORM} , t _n = 10s	≤5	pC
		Method b1, at routine test (100% production) and preconditioning (type test), V _{PH} = 1.2 x V _{OTM} , t _{PH} = 1s; V _{pd(n)} = 1.875 x V _{ORM} , t _n = 1s	≤5	pC
	Pollution degree		2	
UL1577				
V _{ISO(max)}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	5000	V _{RMS}



18014x15401x

Before Change

Table 11: Isolation specification table.

SYMBOL	PARAMETER	TEST CONDITIONS	TYP ⁽³⁾	UNIT
CLR	External clearance	Shortest distance through air between terminals	8	mm
CPG	External creepage	Shortest distance across package surface between terminals	8	mm
DTI	Distance through the insulation	Minimum internal clearance	28	µm
CTI	Comparative tracking index	DIN EN 60112 (VDE 0303-11); IEC 60112	>600	V
IEC 60664-1 overvoltage category		Rated mains voltage ≤ 300 V _{RMS}	I-IV	
		Rated mains voltage ≤ 400 V _{RMS}	I-IV	
		Rated mains voltage ≤ 600 V _{RMS}	I-IV	
		Rated mains voltage ≤ 1000 V _{RMS}	I-III	
UL1577				
V _{(50)max}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	5000	V _{RMS}

After Change

Table 11: Isolation specification table.

SYMBOL	PARAMETER	TEST CONDITIONS	VALUE	UNIT
CLR	External clearance	Shortest distance through air between terminals	8	mm
CPG	External creepage	Shortest distance across package surface between terminals	8	mm
C _{IO}	Barrier capacitance, input to output	V _{IO} = 0.4 x sin (2πft), f = 1MHz	1	pF
R _{IO}	Isolation resistance	V _{IO} = 500V, T _A = 25°C	>10 ¹²	Ω
		V _{IO} = 500V, 100°C ≤ T _A ≤ 125°C	>10 ¹¹	Ω
		V _{IO} = 500V at T _A = 150°C	>10 ⁹	Ω
DTI	Distance through the insulation	Minimum internal clearance	28	µm
CTI	Comparative tracking index	DIN EN 60122 (VDE 0303-11); IEC 60122	>600	V
	IEC 60664-1 material group		I	
	IEC 60664-1 overvoltage category	Rated mains voltage ≤ 150 V _{RMS}	I-IV	
		Rated mains voltage ≤ 300 V _{RMS}	I-IV	
		Rated mains voltage ≤ 600 V _{RMS}	I-IV	
		Rated mains voltage ≤ 1000 V _{RMS}	I-III	
DIN EN IEC 60747-17 (VDE 0884-17):2021-10				
V _{ORM}	Max. repetitive peak isolation voltage	AC voltage (bipolar)	1414	V _{PK}
V _{OWM}	Max. working isolation voltage	AC voltage; Time-dependent dielectric breakdown (TDDb) test	1000	V _{RMS}
		DC voltage	1414	V _{DC}
V _{OTM}	Max. transient isolation voltage	V _{TEST} = V _{ORM} , t = 60s (qualification); V _{TEST} = 1.2 x V _{OTM} , t = 1s (100% production)	7070	V _{PK}
V _{OSM}	Max. surge isolation voltage	Test method per IEC 60065, 1.2/50 µs waveform, V _{TEST} = 1.6 x V _{OSM} (qualification)	7070	V _{PK}
q _{sd}	Apparent charge	Method a, after input/output safety test subgroup 2/3, V _{RI} = V _{OTM} , t _{RI} = 60s; V _{pd(n)} = 1.2 x V _{ORM} , t _n = 10s	≤5	pC
		Method a, after environmental tests subgroup 1, V _{RI} = V _{OTM} , t _{RI} = 60s; V _{pd(n)} = 1.6 x V _{ORM} , t _n = 10s	≤5	pC
		Method b1, at routine test (100% production) and preconditioning (type test), V _{RI} = 1.2 x V _{OTM} , t _{RI} = 1s; V _{pd(n)} = 1.875 x V _{ORM} , t _n = 1s	≤5	pC
	Pollution degree		2	
UL1577				
V _{(50)max}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	5000	V _{RMS}



18012x15411x				
Before Change			After Change	
Table 10: Isolation specification table.				
SYMBOL	PARAMETER	TEST CONDITIONS	TYP ⁽³⁾	UNIT
CLR	External clearance	Shortest distance through air between terminals	4	mm
CPG	External creepage	Shortest distance across package surface between terminals	4	mm
DTI	Distance through the insulation	Minimum internal clearance	19	µm
CTI	Comparative tracking index	DIN EN 60112 (VDE 0303-11); IEC 60112	>600	V
	IEC 60664-1 overvoltage category	Rated mains voltage ≤ 300 V _{RMS} Rated mains voltage ≤ 400 V _{RMS}	I-III I-III	
UL1577				
V _{ISO(max)}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	3750	V _{RMS}

Table 10: Isolation specification table.				
SYMBOL	PARAMETER	TEST CONDITIONS	VALUE	UNIT
CLR	External clearance	Shortest distance through air between terminals	4	mm
CPG	External creepage	Shortest distance across package surface between terminals	4	mm
C _{IO}	Barrier capacitance, input to output	V _{IO} = 0.4 x sin (2πft), f = 1MHz	1	pF
R _{IO}	Isolation resistance	V _{IO} = 500V, T _A = 25° C V _{IO} = 500V, 100° C ≤ T _A ≤ 125° C V _{IO} = 500V at T _A = 150° C	>10 ¹² >10 ¹¹ >10 ⁹	Ω
DTI	Distance through the insulation	Minimum internal clearance	28	µm
CTI	Comparative tracking index	DIN EN 60112 (VDE 0303-11); IEC 60112	>600	V
	IEC 60664-1 material group		I	
	IEC 60664-1 overvoltage category	Rated mains voltage ≤ 150 V _{RMS} Rated mains voltage ≤ 300 V _{RMS}	I-IV I-III	
DIN EN IEC 60747-17 (VDE 0884-17):2021-10				
V _{ORM}	Max. repetitive peak isolation voltage	AC voltage (bipolar)	566	V _{PK}
V _{OWM}	Max. working isolation voltage	AC voltage; Time-dependent dielectric breakdown (TDDB) test DC voltage	400 566	V _{RMS} V _{DC}
V _{OTM}	Max. transient isolation voltage	V _{TEST} = V _{OTM} , t = 60s (qualification); V _{TEST} = 1.2 x V _{OTM} , t = 1s (100% production)	5300	V _{PK}
V _{OSM}	Max. surge isolation voltage	Test method per IEC 60065, 1.2/50 µs waveform, V _{TEST} = 1.3 x V _{OSM} (qualification)	5000	V _{PK}
Q _{pd}	Apparent charge	Method a, after input/output safety test subgroup 2/3, V _{RI} = V _{OTM} , t _{RI} = 60s; V _{pd(ri)} = 1.2 x V _{ORM} , t _{RI} = 10s	≤5	pC
		Method a, after environmental tests subgroup 1, V _{RI} = V _{OTM} , t _{RI} = 60s; V _{pd(ri)} = 1.6 x V _{ORM} , t _{RI} = 10s	≤5	pC
		Method b1, at routine test (100% production) and preconditioning (type test), V _{RI} = 1.2 x V _{OTM} , t _{RI} = 1s; V _{pd(ri)} = 1.5 x V _{ORM} , t _{RI} = 1s	≤5	pC
	Pollution degree		2	
UL1577				
V _{ISO(max)}	Max. withstanding isolation voltage	V _{TEST} = V _{ISO} , t = 60s (qualification), V _{TEST} = 1.2 x V _{ISO} , t = 1s (100% production)	3750	V _{RMS}

2. Corrected front page dimensions to accurately reflect the physical dimensions of the component.

18024x15401x, 18014x15401x	
Before Change	After Change
The digital isolator is available in an SOIC-16WB package (10.3 x 7.5 x 2.5)mm.	The digital isolator is available in an SOIC-16WB package (10.3 x 10.3 x 2.65)mm.

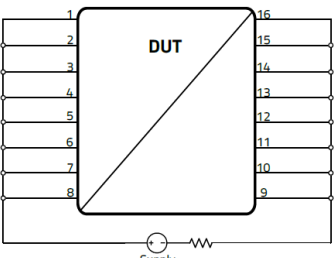
18012x15411x	
Before Change	After Change
The digital isolator is available in an SOIC-8NB package (4.9 x 3.9 x 1.5)mm.	The digital isolator is available in an SOIC-8NB package (4.9 x 6.0 x 1.8)mm.

3. Updated approvals section to show the relevant certification numbers for VDE and UL.

18024x15401x, 18014x15401x													
Before Change	After Change												
9 APPROVALS Table 12: Approvals. <table><tr><th>SYMBOL</th><th>STANDARD</th><th>DESCRIPTION</th></tr><tr><td></td><td>UL 1577, 5th Edition</td><td>Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m</td></tr></table>	SYMBOL	STANDARD	DESCRIPTION		UL 1577, 5 th Edition	Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m	9 APPROVALS Table 12: Approvals. <table><tr><th>STANDARD</th><th>DESCRIPTION</th></tr><tr><td>UL 1577</td><td>UL File No: E535458</td></tr><tr><td>DIN EN IEC 60747-17 (VDE 0884-17):2021-10</td><td>VDE certification number: 40058069</td></tr></table>	STANDARD	DESCRIPTION	UL 1577	UL File No: E535458	DIN EN IEC 60747-17 (VDE 0884-17):2021-10	VDE certification number: 40058069
SYMBOL	STANDARD	DESCRIPTION											
	UL 1577, 5 th Edition	Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m											
STANDARD	DESCRIPTION												
UL 1577	UL File No: E535458												
DIN EN IEC 60747-17 (VDE 0884-17):2021-10	VDE certification number: 40058069												

18012x15411x														
Before Change		After Change												
8 APPROVALS Table 12: Approvals. <table><tr><th>SYMBOL</th><th>STANDARD</th><th>DESCRIPTION</th></tr><tr><td></td><td>UL 1577, 5th Edition</td><td>Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m</td></tr></table>		SYMBOL	STANDARD	DESCRIPTION		UL 1577, 5 th Edition	Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m	8 APPROVALS Table 12: Approvals. <table><tr><th>STANDARD</th><th>DESCRIPTION</th></tr><tr><td>UL 1577</td><td>UL File No: E535458</td></tr><tr><td>DIN EN IEC 60747-17 (VDE 0884-17):2021-10</td><td>VDE certification number: 40058073</td></tr></table>	STANDARD	DESCRIPTION	UL 1577	UL File No: E535458	DIN EN IEC 60747-17 (VDE 0884-17):2021-10	VDE certification number: 40058073
SYMBOL	STANDARD	DESCRIPTION												
	UL 1577, 5 th Edition	Nonoptical Isolating Devices – Component UL Category: FPPT2 & FPPT8 UL File No: E535458 Applicable for altitudes up to 2000m												
STANDARD	DESCRIPTION													
UL 1577	UL File No: E535458													
DIN EN IEC 60747-17 (VDE 0884-17):2021-10	VDE certification number: 40058073													

4. Removed Isolation Voltage chapter.

18024x15401x, 18014x15401x	
Before Change	After Change
13 ISOLATION VOLTAGE 13.1 Isolation Voltage Testing To verify the integrity of the isolation, a test voltage is applied for a specified time across a component that is designed to provide electrical isolation. This test is known as 'High Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' or 'Isolation Test Voltage'. All digital isolators are 100% production tested at their stated isolation voltage. This is 6 kV_{ins} for 1 seconds⁽¹⁾. The isolation test voltage indicated in this datasheet is for voltage transient immunity only. It does not allow this part to be used within a safety isolation system. The digital isolator will function properly with several hundreds of volts applied continuously across the isolation barrier, however surrounding components must be individually analyzed to ensure proper insulation. Isolation measures must be taken into account to prevent any user-accessible circuitry from causing harm. 13.2 Dielectric Test Setup (High Pot Test) Connect all input terminals together then all output terminals together (see figure below) before connecting the supply voltage. When testing, set the cut-off current to 1mA with a test voltage of 6kV_{ins} and test time of 1s⁽¹⁾.  Figure 3: Dielectric test setup. 13.3 Repeated High-Voltage Isolation Testing Typically, parts can withstand multiples of their stated test voltage and still perform optimally. However, repeated exposure to high voltage test conditions will degrade the component's isolation capabilities. It is recommended to keep high voltage isolation testing to a minimum to limit degradation of the device before its installation in an application. If repeated high voltage isolation testing is required, consider reducing the voltage by a significant amount (e.g. 20%) from the stated test voltage within the datasheet.	The entire section has been removed.

18012x15411x

Before Change

12 ISOLATION VOLTAGE

12.1 Isolation Voltage Testing

To verify the integrity of the isolation a test voltage is applied for a specified time across a component that is designed to provide electrical isolation. This test is known as 'High Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' or 'Isolation Test Voltage'.

All digital isolators are 100% production tested at their stated isolation voltage. This is 4.5kV_{RMS} for 1s.^[8]

The isolation test voltage indicated in this data sheet is for voltage transient immunity only. It does not allow this part to be used within a safety isolation system.

The digital isolator will function properly with several hundreds of volts applied continuously across the isolation barrier, however surrounding components must be individually analyzed to ensure proper insulation. Isolation measures must be taken into account to prevent any user-accessible circuitry from causing harm.

12.2 Dielectric Test Setup (High Pot Test)

Connect all input terminals together then all output terminals together (see figure below) before connecting the supply voltage. When testing, set the cut-off current to 1mA with a test voltage of 4.5kV_{RMS} and test time of 1s.^[8]

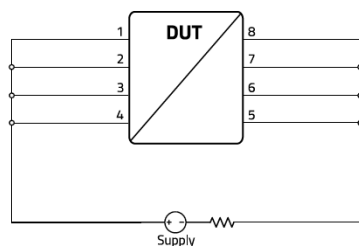


Figure 3: Dielectric test setup.

12.3 Repeated High-Voltage Isolation Testing

Typically, parts can withstand multiples of their stated test voltage and still perform optimally. However, repeated exposure to high voltage test conditions will degrade the component's isolation capabilities. It is recommended to keep high voltage isolation testing to a minimum to limit degradation of the device before its installation in an application. If repeated high voltage isolation testing is required, consider reducing the voltage by a significant amount (e.g. 20%) from the stated test voltage within the datasheet.

After Change

The entire section has been removed.

Changes 5 and 6 only apply to the WPME-CDIP series and order codes.

5. Added note to specify allowable input and output voltage combinations.

Before Change

Table 5: Operating conditions.

SYMBOL	PARAMETER	MIN ⁽¹⁾	TYP ⁽²⁾	MAX ⁽¹⁾	UNIT
V _{CC}	Supply voltage	3.15	—	5.5	V

After Change

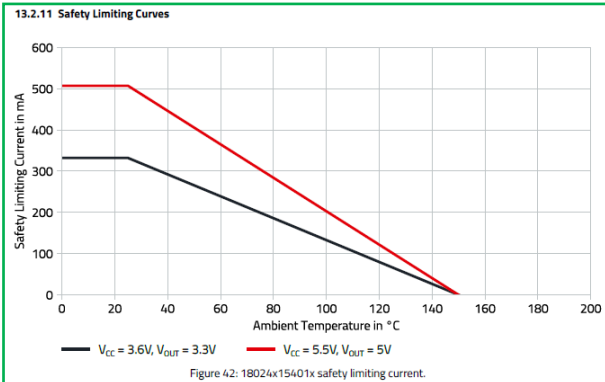
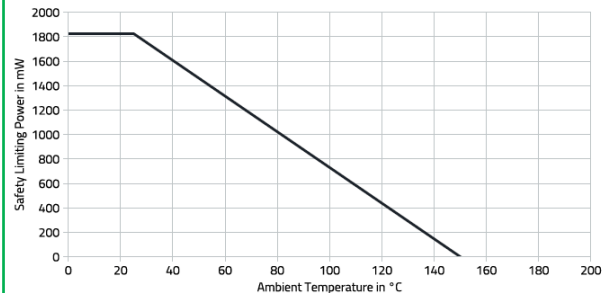
Table 5: Operating conditions.

SYMBOL	PARAMETER	MIN ⁽¹⁾	TYP ⁽²⁾	MAX ⁽¹⁾	UNIT
V _{CC}	Supply voltage ⁽⁹⁾	3.15	—	5.5	V

(9)

The supply voltage must always be equal to or greater than the selected output voltage. The device is incapable of boost operation (e.g. V_{CC} = 3.3V and V_{OUT} = 5V) and should never be used in such a configuration.

6. Added safety limiting current and safety limiting power graphs.

Before Change		After Change	
		 Figure 42: 18024x15401x safety limiting current.  Figure 43: 18024x15401x safety limiting power.	

Reliability / Qualification of Change:

There will be no change to any of the products, therefore no additional reliability or qualification testing was performed.