Würth Elektronik eiSos GmbH & Co. KG
EMC & Inductive Solutions
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WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

Product / Process Change Notification (PCN)

☒ Major Change
☐ Minor Change

PCN Number:	PCN_WPME-VDLM_20241130
Affected Series:	WPME-VDLM
Affected Order Codes:	171013801, 171023801, 171033801
PCN Date:	2024-08-30 (YYYY-MM-DD)
Effective Date:	2024-11-30 (YYYY-MM-DD)

Change Category:

☒ Equipment/Location
☐ General Data
☒ Material
☐ Process
☐ Product Design
☐ Shipping/Packaging
☐ Supplier
☐ Software

Contact:	Product Management
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Datasheet Change:
☒ Yes ☐ No

Attachment:
☒ Yes ☐ No

Description of Change:

To increase the production capability, Würth Elektronik eiSos has shifted the production of the affected order codes to a new factory location.
With the aim of an extended product applicability, Würth Elektronik eiSos has updated the switching regulator IC used in the module to ensure the best performance and the electrical specifications and protection features sections have been expanded to included output overvoltage protection. The datasheet with the changes is attached to this PCN. This is only a revision of the existing IC and not a change to a new IC.
There will be no change in form, fit, quality or reliability of the product.
The new revision of the affected order codes will be sent out after the previous revision is out of stock (according to FIFO - first-in, first-out).

Details of Change:

All changes indicated below apply to all order codes in this PCN.

Previous production line	New production line
Lot number beginning with: 416xxxxxxxxxxx Country of origin: Taiwan	Lot number beginning with: 640xxxxxxxxxxx Country of origin: Taiwan

Würth Elektronik eiSos GmbH & Co. KG Sitz Waldenburg, Registergericht Stuttgart HRA 580801
Komplementär Würth Elektronik eiSos Verwaltungs-GmbH, Sitz Waldenburg, Registergericht Stuttgart HRB 581033
Geschäftsführer Thomas Wild, Alexander Gerfer, Dirk Knorr, Josef Wörner
Bankverbindung UniCredit Bank AG Stuttgart, Konto 322 620 136, BLZ 600 202 90, IBAN DE86 6002 0290 0322 6201 36, SWIFT/BIC HYVEDEMM473
USt.-IdNr. DE220618976

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The datasheet electrical specifications have been expanded to include output overvoltage protection relevant values.

BEFORE

I_{OC}	Overcurrent limit	No slope contribution	—	4.6	—	A
T_{ON_MIN}	Minimum on-time		—	75	—	ns
T_{OFF_MIN}	Minimum off-time		—	200	—	ns
Enable						
V_{EN}	Enable threshold	Rising	1.08	1.2	1.32	V
		Hysteresis	—	0.2	—	V
VCC Regulator						
V_{CC}	LDO output voltage		3	3.3	3.6	V
Input Quiescent, No Load and Shutdown Current						
I_{SD}	Shutdown current from V_{IN}	V_{EN} = GND	—	2	—	µA
I_Q	Quiescent current from V_{IN}	$V_{OUT} \leq 3.2V$, no switching	20	35	60	µA
		$V_{OUT} > 3.2V$, no switching	1	3.5	6	µA
I_{IN-NL}	No load input current	V_{OUT} = 3.3V	—	15.3	—	µA
Output Voltage						
V_{FB}	Voltage reference	$T_J = -40°C \leq T_J \leq 125°C$	0.842	0.85	0.858	V

AFTER

I_{OC}	Overcurrent limit	No slope contribution	—	4.6	—	A
I_{RC}	Reverse current limit	OVP	—	1.5	—	A
T_{ON_MIN}	Minimum on-time		—	75	—	ns
T_{OFF_MIN}	Minimum off-time		—	200	—	ns
Enable						
V_{EN}	Enable threshold	Rising	1.08	1.2	1.32	V
		Hysteresis	—	0.2	—	V
VCC Regulator						
V_{CC}	LDO output voltage		3	3.3	3.6	V
Input Quiescent, No Load and Shutdown Current						
I_{SD}	Shutdown current from V_{IN}	V_{EN} = GND	—	2	—	µA
I_Q	Quiescent current from V_{IN}	$V_{OUT} \leq 3.2V$, no switching	20	35	60	µA
		$V_{OUT} > 3.2V$, no switching	1	3.5	6	µA
I_{IN-NL}	No load input current	V_{OUT} = 3.3V	—	15.3	—	µA
Output Voltage						
V_{FB}	Voltage reference	$T_J = -40°C \leq T_J \leq 125°C$	0.842	0.85	0.858	V
V_{OVP}	V_{FB} overvoltage threshold		115	120	125	%
V_{OVP_Hys}	V_{FB} overvoltage hysteresis		1	2	6	%

The datasheet protections section has been expanded to include the output overvoltage protection feature.

BEFORE

No content regarding overvoltage protection.

AFTER

18.2 Output Overvoltage Protection (OVP)

The MagI³C power module integrates an output overvoltage protection feature. This feature is implemented by monitoring the feedback pin and comparing it to the internal reference. When the feedback pin voltage is 20% higher than the reference voltage, the low side switch is turned on to discharge the output capacitor. There is also a negative current limit set on the low side switch to prevent overcurrent stress when this protection feature activates.

Reliability / Qualification of Change:

An additional reliability testing was performed and approved.

Additional details of the tests can be found in the table below:

Test Item	Sample Size	Reference	Test Conditions	Acceptance
Preconditioning	25	JESD22-A113G J-STD-020	MSL 3 preconditioning	Approved
Temperature Cycling	25	JESD22-A104	Condition G: -40 °C / 125 °C 1000 cycles, 3 cycles/h, soak mode 1	Approved
High Temperature Storage Lifetime	25	JESD22-A103	Tamb = 125 °C, 1000 h	Approved
Low Temperature Storage Lifetime	25	JESD22-A119A	Tamb = -40 °C, 1000 h	Approved
Unbiased Temperature Humidity	25	JESD22-A118B	110 °C, 85% RH, 264 h	Approved
Five Times Reflow	30	Internal Standard	5x reflow using recommended reflow profile, X-Rays performed after each cycle	Approved