

NCV78723MW5 Addendum to NCV78723MW2 Datasheet

NCV78723-ADD/D

The device NCV78723MW5 is based on NCV78723MW2, with difference that transition into fixed Toff time when $VLED < VLED_LMT$ is disabled and Toff time is always based on “Toff x $VLED = constant$ ”.

There are the following differences between NCV78723MW5 and NCV78723MW2 devices:

- Different behavior when $VLED < VLED_LMT$ (see detailed description and Table 1 of this addendum)
- Different REVID (see new REVID information in this addendum)
- Different Package marking
- Test hot temperature $Thot$ is $155^{\circ}C$ for $TC_VERSION = 0$

For the common specification of the parameters for NCV78723MW5 and NCV78723MW2, please refer to the attached datasheet for NCV78723MW2.

Advantages of NCV78723MW5 compared to NCV78723MW2:

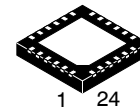
- No transition effects by the matrix switches (current regulation mode does not change)

Disadvantages of NCV78723MW5 compared to NCV78723MW2:

- Toff time can be longer than original fixed Toff time for very low VLED voltage (in situation when zero cross detector does not act sooner)

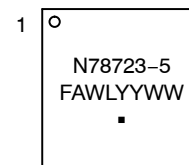
ADDENDUM

PACKAGE PICTURE



QFNW24 5x5 0.65P
CASE 484AF

MARKING DIAGRAM



- N78723 = Specific Device Code
- F = Fab Indicator
- A = Assembly Location
- WL = Wafer Lot
- YY = Year
- WW = Work Week
- = Pb-Free Package

Table 1. ORDERING INFORMATION

Device	Marking	Package	Shipping
NCV78723MW5R2G	N78723-5	QFNW24 5 × 5 with Step-Cut Wettable Flank (Pb-Free)	5,000 / Tape & Reel
NCV78723MW5AR2G*	N78723-5	QFNW24 5 × 5 with Step-Cut Wettable Flank (Pb-Free)	5,000 / Tape & Reel
NCV78723MW5BR2G*	N78723-5	QFNW24 5 × 5 with Step-Cut Wettable Flank (Pb-Free)	5,000 / Tape & Reel

*Devices NCV78723MW5A and NCV78723MW5B have optimized quiescent current from M3V regulator in off mode.

NCV78723-ADD/D

Transition into fixed Toff time disabled when VLED < VLED_LMT

On NCV78723MW5 fixed Toff time regulation is disabled for $VLED < VLED_LMT$ and Toff time is always based on “Toff x VLED = constant”. However Toff time can be terminated sooner by zero cross detector when current drops to zero.

The accuracy of Toff generation in new region is defined in this addendum:

Table 2. BUCK PARAMETRIC INFORMATION

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
TOFF time relative error (Notes 1, 2)	TOFF_ERR		-20		20	%

1. $TC = Toff * VLED @ 1 V < VLED < 1.8 V$.

2. TOFF_ERR for $VLED < 1 V$ can't be guaranteed.

The short detection feedback to the SPI registers is kept the same as on NCV78723MW2 device. When the VLED voltage drops below the VLED_LMT minimum threshold (typical 1.8 V), the SHORTLEDx flag is set.

New REVID

REVID[7:0] for NCV78723MW5 device is 15hex (723 = 0, Full Mask Version = 2, N78723 - 2 = 1, Metal Tune = 1)

Test hot temperature T_{hot} is 155°C for TC_VERSION = 0

TC_VERSION register (Bit 0 – ADDR_0x1D) on NCV78723MW5 device is 0. Testing hot temperature T_{hot} is 155°C instead of 125°C. This delta in T_{hot} temperatures can slightly affect final current accuracy. See chapter “SW Compensation of the Buck Current Accuracy” in datasheet for original values.

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