Voltage Regulator

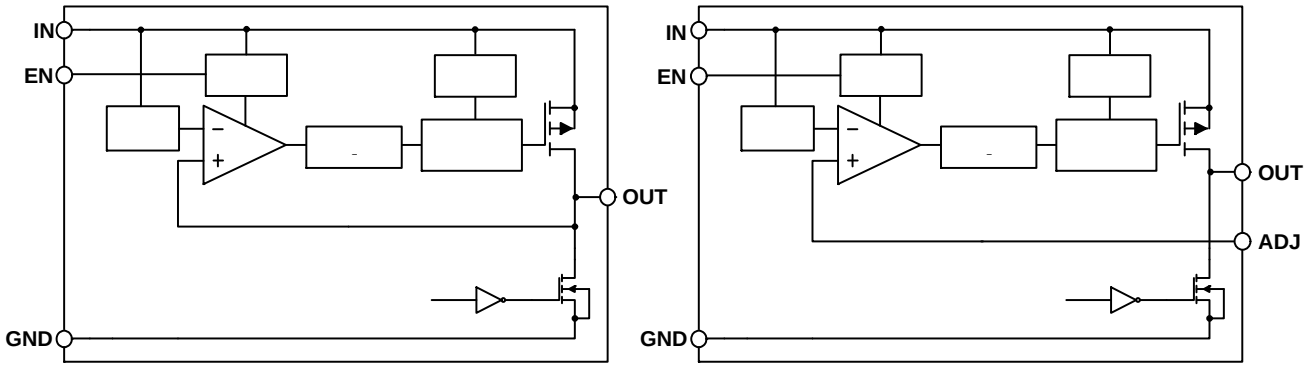

Figure 2. Simplified Block Diagram

Table 1. PIN FUNCTION DESCRIPTION

Pin No. (WDFN6)	Pin No. (TSOT−23−5)	Pin Name	Description
			–

TYPICAL CHARACTERISTICS

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Figure 3. Output Voltage vs. Temperature − V_{OUT} = 1.2 V

Figure 4. Quiescent Current vs. Input Voltage

Figure 5. Disable Current vs. Temperature

Figure 6. Current to Enable Pin vs. Temperature

TYPICAL CHARACTERISTICS

Figure 9. SOA Current Limit vs. Differential Voltage

Figure 10. Dropout Voltage vs. Output Current − V_{OUT} = 2.5 V

APPLICATIONS INFORMATION

The NCP718 is the member of new family of Wide Input Voltage Range Low Dropout Regulators which delivers Ultra Low Ground Current consumption, Good Noise and Power Supply Rejection Ratio Performance. The NCP718 incorporates EN pin and soft−start feature for simple controlling by microprocessor or logic.

Input Decoupling (C_{IN})

It is recommended to connect at least 1 μF ceramic X5R or X7R capacitor between IN and GND pin of the device. This capacitor will provide a low impedance path for any unwanted AC signals or noise superimposed onto constant input voltage. The good input capacitor will limit the influence of input trace inductances and source resistance during sudden load current changes.

Higher capacitance and lower ESR capacitors will improve the overall line transient response.

Output Decoupling (C_{OUT})

The NCP718 does not require a minimum Equivalent Series Resistance (ESR) for the output capacitor. The device is designed to be stable with standard ceramics capacitors with values of 1 μF or greater. The X5R and X7R types have the lowest capacitance variations over temperature thus they are recommended.

Power Dissipation and Heat Sinking

The maximum power dissipation supported by the device is dependent upon board design and layout. Mounting pad configuration on the PCB, the board material, and the ambient temperature affect the rate of junction temperature rise for the part. For reliable operation junction temperature should be limited to +125 C.

The maximum power dissipation the NCP718 can handle is given by:

$$= \frac{\left[\quad - \quad \right]}{\theta}$$

The power dissipated by the NCP718 for given application conditions can be calculated from the following equations:

$$\approx \quad \left(\quad \right) + \quad \left(\quad - \quad \right)$$

or

$$\approx \frac{+ \left(\quad \times \quad \right)}{+}$$

Hints

VIN and GND printed circuit board traces should be as wide as possible. When the impedance of these traces is high, there is a chance to pick up noise or cause the regulator to malfunction. Place external components, especially the output capacitor, as close as possible to the NCP718, and make traces as short as possible.

ADJUSTABLE VERSION

The output voltage can be set by using a resistor divider as shown in Figure 15 with a range of 1.2 V to 5 V. The appropriate resistor divider can be found by solving the equation below, while V_{REF} = 1.2 V

$$= \quad \cdot \frac{+}{\quad} = \quad \cdot \left(\quad + — \right)$$

Value of R1 and R2 is recommended to keep below 100 kΩ for R1 and below 1 MΩ for R2 to avoid influence of current I_{ADJ} variation over temperature range.

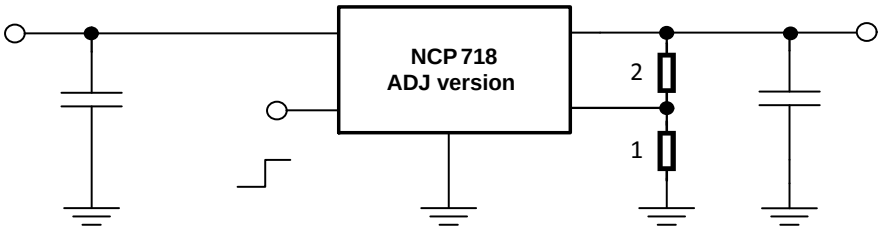

Figure 15. Adjustable Version Connection Schematic

Please note that output noise is amplified by V_{OUT} / V_{ADJ} ratio. For simplified calculation, output noise is equal to 30 V_{RMS} * V_{OUT}. Do not operate the device at output voltage about 5.2 V, as device can be damaged.

ORDERING INFORMATION

Device Part No.	Voltage Option	Marking	Option	Package	Shipping†
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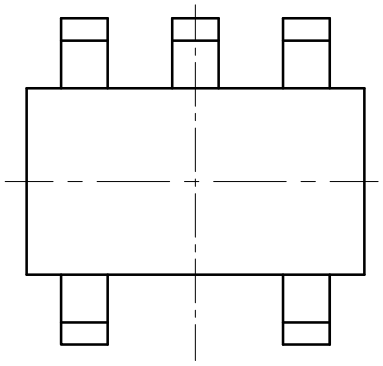
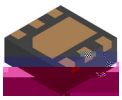
				– –	
				–	

TSOT−23, 5 LEAD
CASE 419AE−01
ISSUE O

DATE 19 DEC 2008





WDFN6 2x2, 0.65P
CASE 511BR
ISSUE C

DATE 01 DEC 2021

TOP

GENERIC
MARKING DIAGRAM*

XX = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.