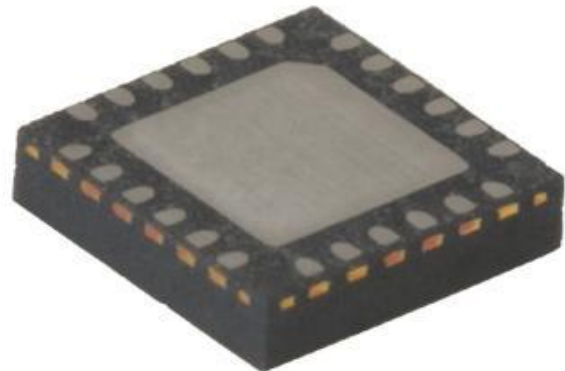




## TPS51621 Dual Phase, D-CAP+™ Step-Down Controller

### General Description:

The TPS51621 is a selectable dual or single-phase, fully compliant IMVP-6.5 step down controller with integrated gate drivers. Advanced control features such as D-CAP+ architecture and OSR overshoot reduction provide fast transient response, and lowest output capacitance. The TPS51621 also supports single-phase operation for light loads. The full complement of IMVP-6.5 I/O is integrated into the TPS51621, including VR<sub>TT</sub>, DPRSLPVR, PSI and output current monitoring (IMON). PSI is used to control the number of active phases. Transitioning into and out of dual-phase mode is exceptionally smooth.



Adjustable control of  $V_{\text{CORE}}$  slew rate and voltage positioning round out the IMVP-6.5 features. In addition, the TPS51621 includes two high-current MOSFET gate drivers to drive high- and low-side N-channel MOSFETs with exceptionally high speed and low switching loss.

### Key Features:

- Selectable Dual-or Single-Phase
- Selectable CPU or GPU Mode
- Minimum External Parts Count
- Full IMVP-6.5 Feature Set, Including VR<sub>TT</sub> and Output Current Monitor (IMON)
- $\pm 8$  mV  $V_{\text{CORE}}$  Accuracy Over Line/Load/Temp
- 7-Bit DAC
- Optimized Efficiency at Light and Heavy Loads
- Patented Output Overshoot Reduction (OSR) Reduces Output Capacitance
- Accurate, Adjustable Voltage Positioning
- Selectable 200/300/400/500 kHz Frequency
- Pat. Pending AutoBalance Phase Balancing
- Selectable 8-Level Current Limit
- 3-V to 28-V Conversion Voltage Range
- Fast MOSFET Driver w/Integrated Boost Diode
- Integrated Overvoltage Protection (OVP)
- Small 6 x 6, 40-Pin QFN PowerPAD Package

## Applications:

- IMVP-6.5  $V_{CORE}$  Applications for Adapter, Battery, NVDC or 3 V/5 V/12 V Rails

## Related Products Information:

Mfr Part #	Farnell #	Newark #	Description
TPS51621RHAT	1783847	51R6144	Dual Phase, D-CAP+™Mode Step-Down Controller for IMVP6.5 CPU/GPU Vcore