



## New Product Announcement

AP3790  
/APS39903

### Pump Express™ Compatible AC-DC PSR Controller

The AP3790/APS39903 are high accuracy, and low cost switching mode power supply controllers/switchers to drive bipolar power transistors for battery charger/adaptor applications.

The controller regulates the output voltage and current in the primary side by piece-wise Pulse Frequency Modulation (p-PFM) in discontinuous conduction mode (DCM).

The controller uses adaptive source current to optimize driving current thus reducing driving losses. The system operating frequency reduces linearly from heavy load to light load in each interval of the p-PFM, and enters constant current mode when the load current is equal to the maximum system output current.

The AP3790/APS39903 output voltage can be adjusted based on the patterns of load current aligned to MediaTek's Pump Express protocol.

The AP3790 is packaged in SO-8. The APS39903 is packaged in SO-7.



#### The Diodes' Advantage

AP3790 and APS39903 are AC-DC controllers compatible with MediaTek's ground-breaking Pump Express™ rapid charge technology for smartphones and tablets. Integrated into the primary side of wall chargers, the controllers help to achieve a reduction in mobile battery recharge time of up to 45% compared to standard USB chargers.

- **Compatible with MediaTek Pump Express™ Protocol**  
45% charge time reduction
- **Valley-turn On**  
Reduces switching loss and beneficial for EMI
- **Piece-wise Pulse Frequency Modulation (p-PFM)**  
Audio Noise Suppression
- **Multi Protection**  
Open Circuit Protection (OCkP)  
Over Voltage Protection (OVP)  
Over Temperature Protection (OTP)  
Short Circuit Protection (SCP)

#### Applications

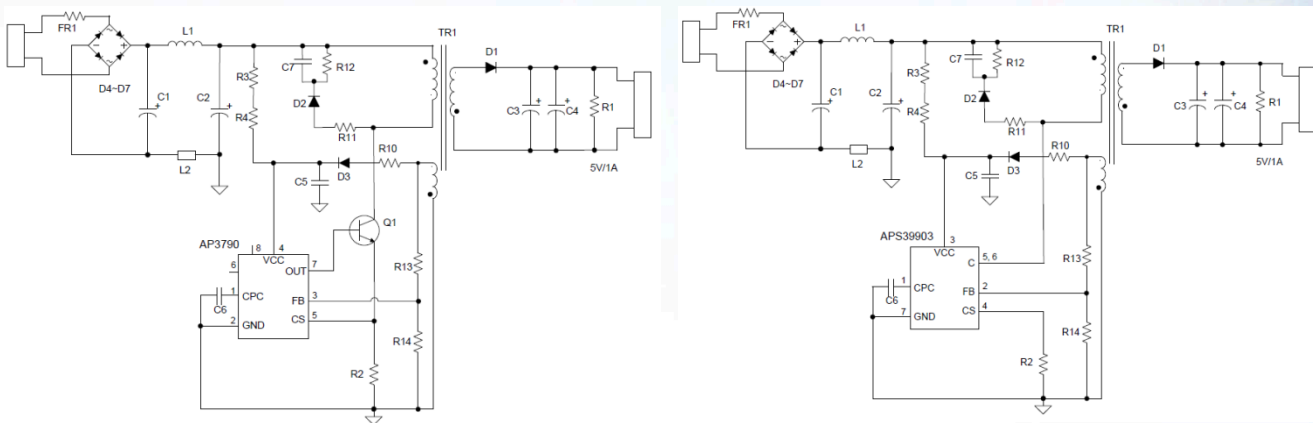
- Charger/adapters with MediaTek Pump Express™ Protocol



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## Typical Application Schematic



## Product Portfolio

Part Number	BJT/MOSFET Integrated	Vcc Max (V)	Startup Current ( $\mu$ A)	UVLO Threshold on/off (V)	Power Rating (W)	Standby Power (mW)	Cable Compensation Voltage
AP3790	No	35	0.2	15.5/5.8	8[W]	<75	6%
APS39903	BJT	35	0.2	15.5/5.8	5[W]	<75	6%

## Ordering Information

Part Number	Package	Temperature Range	Marking ID	Packing
AP3790MTR-G1	SO-8	-40 to +150°C	3790M-G1	4000/Tape & Reel
APS39903MTR-G1	SO-7	-40 to +150°C	39903M-G1	4000/Tape & Reel