

Product Overview

NCP12400: Fixed Frequency Current Mode Controller for Flyback Converters (Integrated HV Startup and X2 Discharge Circuit)

For complete documentation, see the data sheet.

The NCP12400 is a new fixed-frequency current-mode controller featuring the Dynamic Self-Supply. This function greatly simplifies the design of the auxiliary supply and the VCC capacitor by activating the internal startup current source to supply the controller during start-up, transients, latch, stand-by etc. This device contains a special HV detector which detects the application unplug from the ac input line and triggers the X2 discharge current. This HV structure allows the brown-out detection as well. It features a timer-based fault detection that ensures the detection of overload and an adjustable compensation to help keep the maximum power independent of the input voltage. Due to frequency foldback, the controller exhibits excellent efficiency in light load condition while still achieving very low standby power consumption. Internal frequency jittering, ramp compensation, and a versatile latch input make this controller an excellent candidate for the robust power supply designs. A dedicated Off Mode allows to reach the extremely low no load input power consumption via "sleeping" whole device and thus minimize the power consumption of the control circuitry. In addition, the NCP12400 features a quiet skip mode which locks the skip frequency below audible range. This feature greatly reduces audible noise caused by the switching pulses during skip mode.

Features

- Integrated HV Start-up and X2 Discharge
- Quiet Skip Feature
- Frequency Foldback and Skip Mode
- Timer-Based Overload Protection with Latched Or Auto-recovery
- Fault Input for Overvoltage and Over Temperature Protection
- Adjustable Overpower Protection Dependant on the Mains Voltage
- No Load Standby Power < 30 mW
- Frequency Modulation for Softened EMI Signature

Benefits

- Reduces Overall System Cost and Complexity
- Ensures Skip Mode Operation Outside Audible Range
- Average Efficiency Meets CoC Tier 2 Compliance
- Configurable Protection Tailored for Application Needs.
- Meets Safety Requirements
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- Meets CoC Tier 2 Compliance
- Meets EMI Compliance

Applications

- Auxiliary Power Supply for Computing Device
- General 20 W to 65 W AC-DC Adapter

End Products

- Offline Adapters for Notebooks, LCD, and Printers
- Offline Battery Chargers
- Consumer Electronic Power Supplies

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	Control Mode	f _{sw} Typ (kHz)	Stand-by Mode	UVLO (V)	Short Circuit Protection	Latch	Soft Start	V _{CC} Max (V)	Drive Cap. (mA)	Package Type
NCP12400BAHAB0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	Yes	Yes	28	500 / 800	SOIC-7
NCP12400BAHBB0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	Yes	Yes	28	500 / 800	SOIC-7
NCP12400BBBBA0DR2G		Pb-free Halide free	Active											SOIC-7
NCP12400BBBBB2DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65/100	No	8.9	Yes	No	Yes	28	500 / 800	SOIC-7
NCP12400BBHAA1DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	100	No	8.9	Yes	No	Yes	28	500 / 800	SOIC-7
NCP12400CAHAB0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	Yes	Yes	28	500 / 800	SOIC-7
NCP12400CBAAB0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	No	Yes	28	500 / 800	SOIC-7
NCP12400CBBAB0DR2G	0.32	Pb-free Halide free	Active											SOIC-7
NCP12400CBHAA0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	No	Yes	28	500 / 800	SOIC-7
NCP12400EAHBB0DR2G	0.32	Pb-free Halide free	Active	Flyback	Current Mode	65	No	8.9	Yes	Yes	Yes	28	500 / 800	SOIC-7

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