

## Product Overview

### NCP1937: Combination Power Factor Correction & Quasi-Resonant Flyback Controller

For complete documentation, see the data sheet.



This combination IC integrates power factor correction (PFC) and quasi-resonant flyback functionality necessary to implement a compact and highly efficient Switched Mode Power Supply for an adapter application.

The PFC stage exhibits near-unity power factor while operating in a Critical Conduction Mode (CrM) with a maximum frequency clamp. The circuit incorporates all the features necessary for building a robust and compact PFC stage while minimizing the number of external components.

The quasi-resonant current-mode flyback stage features a proprietary valley-lockout circuitry, ensuring stable valley switching. This system works down to the 4th valley and toggles to a frequency foldback mode with a minimum frequency clamp beyond the 4th valley to eliminate audible noise. Skip mode operation allows excellent efficiency in light load conditions while consuming very low standby power consumption.

#### Features

- <10mW No Load Standby Performance
- High Voltage Startup Circuit and Active Input Filter Capacitor Discharge Circuitry
- High Voltage Line Voltage Detector
- Integrated High Voltage Switch Disconnects PFC Feedback Resistor Divider
- Fault Input for Severe Fault Conditions
- Bi-Level Line-Dependent Output Voltage
- Boost Diode Short-Circuit Protection
- Adjustable PFC Disable Threshold Based on Output Power
- Frequency Foldback with Minimum Frequency Clamp
- Minimum Frequency Clamp

For more features, see the data sheet

#### Benefits

- Lowest no load performance
- Eliminates the need for an external HV startup circuit and X2 resistors.
- Optimize performance based on 110 v or 220 V ac mains
- Reduces no load standby power
- Enhanced protection capability
- Optimized system with different input voltages
- Enhanced protection features
- Optimized system to improve efficiency
- Enhanced efficiency at light and no load
- Eliminates audible noise

#### Applications

- Adapters
- Combo PFC+QR

#### End Products

- All-In-One (AIO) Computers
- High Power Notebook Adapters

## Part Electrical Specifications

Product	Compliance	Status	PFC Mode	Frequency Operation	Control Mode	Topology	f <sub>sw</sub> Typ (kHz)	V <sub>cc</sub> Max (V)	Drive Cap. (mA)	UVLO (V)	Latch	UVP	Inhibition	Package Type
NCP1937A1DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes	Yes	Yes	Yes	SOIC-20 NB
	Halide free													
NCP1937A2DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													
NCP1937A3DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													
NCP1937B1DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes	Yes	Yes	Yes	SOIC-20 NB
	Halide free													
NCP1937B2DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													
NCP1937B3DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													
NCP1937C1DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes	Yes	Yes	Yes	SOIC-20 NB
	Halide free													
NCP1937C4DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													
NCP1937C61DR2G	Pb-free	Active	CRM	Variable	Current Mode	Flyback	Variable	30	0.5	Yes				SOIC-20 NB
	Halide free													

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