

TOP252-262 TOPSwitch™-HX Family



Enhanced EcoSmart™, Integrated Off-Line Switcher with
Advanced Feature Set and Extended Power Range

Product Highlights

Lower System Cost, Higher Design Flexibility

- Multi-mode operation maximizes efficiency at all loads
- New eSIP-7F and eSIP-7C packages
 - Low thermal impedance junction-to-case (2 °C per watt)
 - Low height is ideal for adapters where space is limited
 - Simple mounting using a clip to aid low cost manufacturing
 - Horizontal eSIP-7F package ideal for ultra low height adapter and monitor applications
 - Extended package creepage distance from DRAIN pin to adjacent pin and to heat sink
- No heat sink required up to 35 W using P, G and M packages with universal input voltage and up to 48 W at 230 VAC
- Output overvoltage protection (OVP) is user programmable for latching/non-latching shutdown with fast AC reset
 - Allows both primary and secondary sensing
- Line undervoltage (UV) detection prevents turn-off glitches
- Line overvoltage (OV) shutdown extends line surge limit
- Accurate programmable current limit
- Optimized line feed-forward for line ripple rejection
- 132 kHz frequency (254Y-258Y and all E/L packages) reduces transformer and power supply size
 - Half frequency option for video applications
- Frequency jittering reduces EMI filter cost

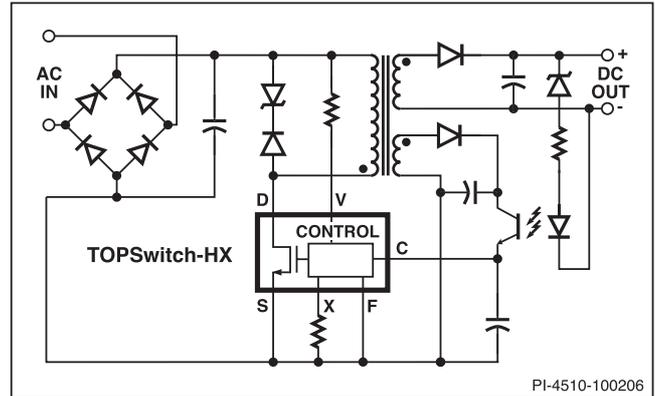


Figure 1. Typical Flyback Application.

- Heat sink is connected to SOURCE for low EMI
- Improved auto-restart delivers <3% of maximum power in short circuit and open loop fault conditions
- Accurate hysteretic thermal shutdown function automatically recovers without requiring a reset
- Fully integrated soft-start for minimum start-up stress
- Extended creepage between DRAIN and all other pins improves field reliability

Output Power Table

Product ⁵	230 VAC ±15% ⁴			85-265 VAC			Product ⁵	230 VAC ±15%		85-265 VAC	
	Adapter ¹	Open Frame ²	Peak ³	Adapter ¹	Open Frame ²	Peak ³		Adapter ¹	Open Frame ²	Adapter ¹	Open Frame ²
TOP252PN/GN	9 W	15 W	21 W	6 W	10 W	13 W	TOP252EN/EG	10 W	21 W	6 W	13 W
TOP252MN			21 W			13 W	TOP253EN/EG	21 W	43 W	13 W	29 W
TOP253PN/GN			15 W			25 W	38 W	9 W	15 W	25 W	TOP254EN/YN/EG
TOP253MN	43 W	29 W		TOP255EN/YN/EG	40 W		81 W			26 W	57 W
TOP254PN/GN	16 W	28 W		47 W	11 W		20 W			30 W	TOP255LN
TOP254MN			62 W	40 W		TOP256EN/YN/EG		60 W	119 W	40 W	86 W
TOP255PN/GN			19 W	30 W		54 W		13 W	22 W	35 W	TOP256LN
TOP255MN	81 W	52 W			TOP257EN/YN/EG	85 W	157 W			55 W	119 W
TOP256PN/GN	21 W	34 W			63 W	15 W	26 W			40 W	TOP257LN
TOP256MN			98 W	64 W	TOP258EN/YN/EG			105 W	195 W	70 W	148 W
TOP257PN/GN			25 W	41 W	70 W			19 W	30 W	45 W	TOP258LN
TOP257MN	119 W	78 W			TOP259EN/YN/EG	128 W	238 W			80 W	171 W
TOP258PN/GN	29 W	48 W			77 W	22 W	35 W			50 W	TOP259LN
TOP258MN			140 W	92 W	TOP260EN/YN/EG			147 W	275 W	93 W	200 W
										TOP260LN	147 W
							TOP261EN/YN/EG	177 W	333 W	118 W	254 W
							TOP261LN	177 W	244 W	118 W	177 W
							TOP262EN ⁶	177 W	333 W	118 W	254 W
							TOP262LN ⁶	177 W	244 W	118 W	177 W

Table 1. Output Power Table. (for notes see page 2).

EcoSmart™ – Energy Efficient

- Energy efficient over entire load range
- No-load consumption
 - Less than 200 mW at 230 VAC
- Standby power for 1 W input
 - >600 mW output at 110 VAC input
 - >500 mW output at 265 VAC input

Description

TOPSwitch-HX cost effectively incorporates a 700 V power MOSFET, high voltage switched current source, PWM control, oscillator, thermal shutdown circuit, fault protection and other control circuitry onto a monolithic device.

Notes for Table 1:

1. Minimum continuous power in a typical non-ventilated enclosed adapter measured at +50 °C ambient. Use of an external heat sink will increase power capability.
2. Minimum continuous power in an open frame design at +50 °C ambient.
3. Peak power capability in any design at +50 °C ambient.
4. 230 VAC or 110/115 VAC with doubler.
5. Packages: P: DIP-8C, G: SMD-8C, M: SDIP-10C, Y: TO-220-7C, E: eSIP-7C, L: eSIP-7F.
See part ordering information.
6. TOP261 and TOP262 have the same current limit set point. In some applications TOP262 may run cooler than TOP261 due to a lower $R_{DS(ON)}$ for the larger device.

Y Package Option for TOP259-261

In order to improve noise-immunity on large TOPSwitch-HX Y package parts, the F pin has been removed (TOP259-261YN are fixed at 66 kHz switching frequency) and replaced with a SIGNAL GROUND (G) pin. This pin acts as a low noise path for the C pin capacitor and the X pin resistor. It is only required for the TOP259-261YN package parts.

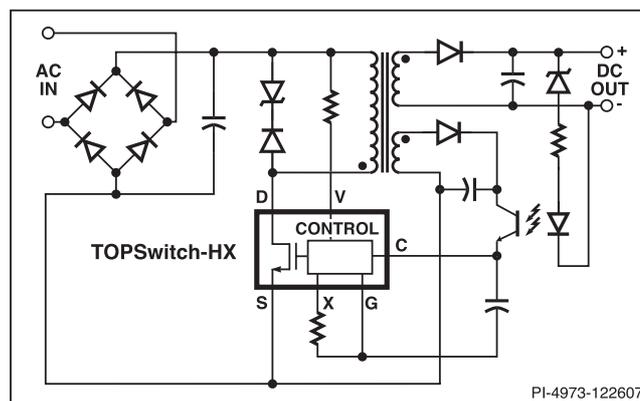


Figure 2. Typical Flyback Application TOP259YN, TOP260YN and TOP261YN.