

NXP 5A DCM PFC Diodes, BYV25X-600, BYV25D-600



New additions to NXP's DCM PFC diode family, matching the power supply development trends

Power supply with output powers from 75 Watts to 150 Watts account for the major share of SMPS applications, -e.g. small size LCD TVs, PC adaptors, HID ballasts, etc. In these applications, boost converters normally operate in Discontinuous Current Mode (DCM) and use PFC diodes with 5A ~ 8A forward current range. NXP introduces new 5A DCM PFC diode with forward voltage drop of 0.97V to help engineers to implement high efficiency power supplies.

What's the BYV25 series

- ▶ A new 5A DCM PFC diode in isolated TO-220 package and DPAK package

Key features

- ▶ Low V_f 0.97V
- ▶ Average forward current up to 5A
- ▶ Reverse voltage up to 600V
- ▶ Ultrafast soft recovery time 50ns
- ▶ Isolated package
- ▶ Low thermal resistance - $R_{th(j-h)} = 5.5K/W$ for BYV25X-600, $R_{th(j-mb)} = 3.0K/W$ for BYV25D-600
- ▶ High thermal cycling performance

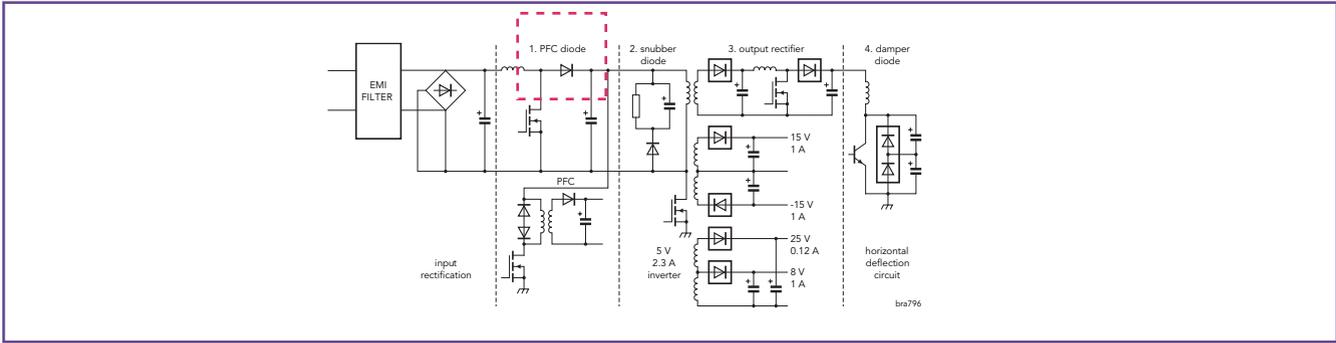
Key benefits

- ▶ Meeting the power supply design trends
- ▶ Applicable to implement Interleaved topology
- ▶ Small package (DPAK) helps realize compact power supplies

	BYV25 series
V_{RRM}	600V
I_F (AV)	5A
V_f (typ)	0.97V
t_{rr} (typ)	50ns
I_{FSM}	60A (t = 10ms), 66A (t = 8.3ms)
I_{RM}	50uA ($V_R = 600V$)
T_j	150°C
Package	SOD113 (2-pin SOT186A), SOT428 (DPAK)

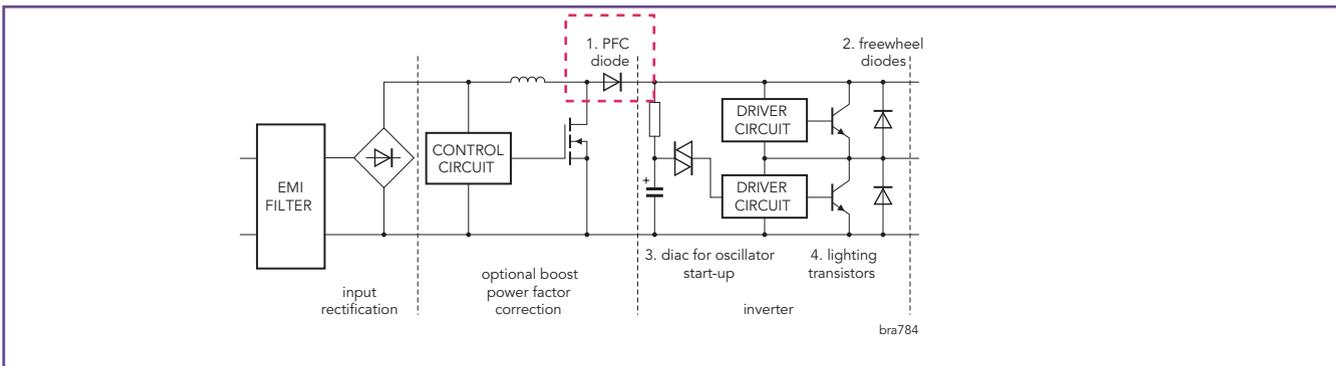
Key applications

► LCD TV



Power supply applicable to LCD TVs with screen size up to 32 inches

► HID Ballast



Suitable for lamp powers up to 150 W

Low power DCM diode realizes interleaved function

► What...

- The interleaved boost converter consists of two boost converters operating 180 degrees out of phase

► Why...

- Reduces inductor magnetic volume
- Reduces the ripple current in the boost capacitor
- Higher efficiencies at the same / lower system cost expense
- Achieves EN61000-3-2 Class D current-harmonic specifications

► How...

- Two 5A DCM PFC diodes implement interleaved topology

