



NXP UHF/DVB-T power LDMOS transistor BLF888A(S)

The most powerful LDMOS broadcast transistor delivering 125 W output power

Designed for broadband operation (470 and 860 MHz), this LDMOS transistor boasts one-octave wideband operation, extremely good ruggedness, very high output power, high efficiency, high gain, and outstanding linearity.

Key features

- ▶ DVB-T performance at 858 MHz (in a common source narrow band test circuit, a drain-source voltage V_{DS} of 50 V and a PAR of the input signal at 0.01% probability on CCDF of 9.5 dB):
 - Average power = 125 W
 - Power gain = 21 dB
 - Drain efficiency = 32,5%
 - $IMD_{Shoulder} = -30$ dBc (4.3 MHz from center frequency)
- ▶ Integrated ESD protection
- ▶ Advanced flange material for very low thermal resistance
- ▶ Outstanding ruggedness & reliability (VSWR > 40:1)
- ▶ Excellent production consistency
- ▶ Compliant to Directive 2002/95/EC, regarding Restriction of Hazardous Substances (RoHS)

Key applications

- ▶ Digital broadcast transmitter applications in the UHF band
- ▶ Industrial applications in the UHF band

The BLF888A is a 600 W LDMOS RF power transistor for broadcast transmitter and industrial applications. It is built in NXP's high-voltage 50 V LDMOS technology.

LDMOS transistors are the technology of choice for broadcast applications where the requirements of bandwidth, efficiency, and ruggedness are all equally critical. With the BLF888A, NXP has managed to meet all these requirements in one device, thus offering greater design flexibility.

Due to the high power levels handled by the devices, the thermal resistance of the transistor is critical to reliable device operation. Special attention has been paid to reduce this parameter in line with the requirements of the application. A value as low as 0.15 K/W has been obtained for the BLF888A(S).



As a prime example of NXP's advanced high-voltage LDMOS technology, the BLF888A is a matched device, so it is optimized for digital signal broadcasting and can deliver 120 W average DVB-T output power over the full UHF band with 20 dB gain and 31% efficiency. The excellent ruggedness of this device (it withstands a VSWR in excess of 40:1) makes it an ideal choice for the final stage in digital transmitter applications - especially when accompanied by the BLF881 as the driver. It has proven to be virtually indestructible in the field. The BLF888A is also available as an earless device, denoted BLF888AS. The earless package enables surface-mount assembly processes and takes optimum advantage of the very low thermal resistance package.

Design support and tooling

To help RF system engineers complete design-in and integration in the shortest time possible, we offer various design and data documents such as layout files, best-in-class large signal models, and loadpull data.

NXP provides fully physics based electro thermal models for its RF power transistors. These models are available for Advanced Design System (ADS)[®] from Agilent and for Microwave Office (MWO)[®] from Applied Wave Research (AWR). These models yield the most reliable simulation results over a wide range of electrical conditions. The available models come with all necessary libraries and documentation, and can be downloaded from NXP's website.

Typical DVB-T power amplifier diagram

