

Description of Circuitry

This fluorescent lamp was equipped with an electronic ballast ESB-18A.

120V / 60Hz power supply firstly pass an over-load protection fuse (2.5A/125Vac). then enter the EMI/RFI filter composed by a choke (25mHx 2)and 2 CY capacitors (222/250Vac) and a CX capacitor (104/275Vac) with a discharge resistor (1.0MΩ 1/4W).

Then, enter the rectifier consisting of 2 parts .One is the rectifier doubler component by 2 diodes (1N4007) and 2 capacitors (33uF/200V) for raising the voltage from 120V AC to 260V DC. One is the rectifier filter composed by a " I "type core (6.0mH) and 2 capacitors (473/400V + 10uF/400V) for smoothing the wave shape.

Now, full-wavely rectified 260V DC the filtered supply is divided into two branches. One passes through the resistor R2 (470K) for trigger start circuit. The trigger start circuit composed by a trigger (DB3) and a capacitor (104/100V) and a choke TK1 . Another is a push-pull output which is supplied to Q₁ and Q₂ (IRF830). Then, 260V DC enter the frequency converter composed by 2 MOSFET (IRF830) and a pulse-transformer (TK1: 21T:4T:21T) . There is a transistor protection circuitry composed by 2 Zener diodes (18V 1/2W) for preventing the reverse peak voltage exceeding the rated value of 2 MOSFET transistors. The frequency converter is a multi-harmonic oscillator used to convert said 260V DC to 260V AC with a frequency of about 29 KHz enter the fluorescent tube (18W). There is a fluorescent tube protection circuitry composed by PTC for Filament preheat start and a Silicon-Controled Rectifier (SCR-CR02AM) for No start protection and Not load protection.