SKB13EAP 120V/60Hz 线路描述（如图 1）

SKB13EAP Circuit Description

After the ballast is electricized, the circuit composed of D1, D2, C2 and C3 will double the voltage, commutate the current, and filter the waves. During the positive half cycle of the alternative current (hereinafter called AC), diode (D1) is conducted, the capacitor is charged up to about 170V which is the peak value of the AC. During the negative half cycle of the AC, diode (D2) is conducted to about 170V too, and then, the direct current (hereinafter called DC) voltage of the circuit is about 340V. The capacitor (C4) is charged by the current which passes R1. When the double end voltage of C4 reaches about 35W which is DB3's breakover voltage, DB3 is avalanche breakdown, C4 discharges through the base electrode-emitting electrode of Q2, Q2 is conducted because of forward bias. And then, the current route is as follows, $+V_{DC}$→C2→Filament FL1→C6→Filament FL2→ChokeL3→L2 Primary Coil L2-3→Q2→Terra. The transient variation of Q2's collector current brings an induced electromotive force at both ends of the L2-1 and L2-2 through the primary coil L2-3, polarity is negative for the same ends of the coils. The result is that Q2's primary electrode potential increases, primary electrode current and collector current increase more, this chained positive feedback makes Q2 saturated conduction. During Q2's conduction, the startup capacitor C4 discharges through diode D3 and transistor Q2, to avoid the further trigger pulse on Q2's primary electrode. The start circuit gives an exterior trigger signal, high frequency oscillation is set up and maintained by the positive feedback brought by the coupling within the saturable transformer L2's coils. When L2 reaches saturation, the induced electromotive force of the coils is zero, Q2's primary electrode potential is headed for a downward trend, I_{C4} decreases, while the induction potential of L2-3 will slow down the decrease, polarity will be positive for the same end. Thus the primary electrode potential of Q2 decreases, while that of Q1 increases, this chained positive feedback makes Q2 from saturation to cut-off state, and Q1 reverses. During Q1's saturation, the current route is as follows, Q1→L2 Primary Coil L2-3→Choke L3→Filament FL2→C6→Filament FL1→C3→Terra。When the magnetic core of pulse transformer L2 is saturated, the chained positive feedback makes Q2 saturated and conducted again, and Q1 becomes from conduction to cut-off state. The whole process moves in cycles, Q1 and Q2 are conducted in turn, then the current direction of the startup capacitors C6 which is parallel connected to both end of the tube changes all the time, quickly, series resonance of LC network which is composed of L3, C6 and etc. occurs, which brings a high voltage pulse from both ends of C6 onto the tube, and the lamp is lighted up.

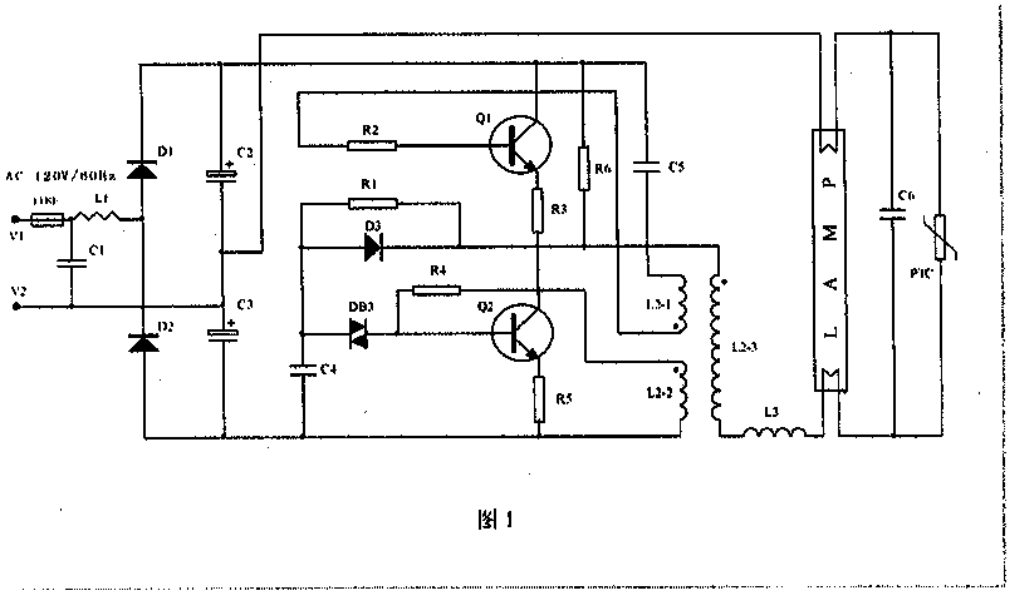

图 1