Title (en)

HIGH FREQUENCY INDUCTIVE LAMP

Title (de)

HOCHFREQUENZ INDUKTIONSLAMPE

Title (fr)

LAMPE INDUCTIVE HAUTE FREQUENCE

Publication

EP 1084508 A2 20010321 (EN)

Application

EP 99901278 A 19990111

Priority

- US 9900047 W 19990111
- US 617198 A 19980113
- US 7119298 P 19980113
- US 7128498 P 19980113
- US 7128598 P 19980113
- US 8309398 P 19980428
- US 9192098 P 19980707
- US 9928898 P 19980904
- US 10296898 P 19981002
- US 10959198 P 19981123

Abstract (en)

[origin: WO9936940A2] A high frequency inductively coupled electrodeless lamp includes an excitation coil with an effective electrical length which is less than one half wavelength of a driving frequency applied thereto, preferably much less. The driving frequency may be greater than 100 MHz and is preferably as high as 915 MHz. Preferably, the excitation coil is configured as a non-helical, semi-cylindrical conductive surface having less than one turn, in the general shape of a wedding ring. At high frequencies, the current in the coil forms two loops which are spaced apart and parallel to each other. Configured appropriately, the coil approximates a Helmholtz configuration. The lamp preferably utilizes a bulb encased in a reflective ceramic cup with a pre-formed aperture defined therethrough. The ceramic cup may include structural features to aid in alignment and/or a flanged face to aid in thermal management. The lamp head is preferably an integrated lamp head comprising a metal matrix composite surrounding an insulating ceramic with the excitation integrally formed on the ceramic. A novel solid-state oscillator preferably provides RF power to the lamp. The oscillator is a single active element device capable of providing over 70 watts of power at over 70 % efficiency. Various control circuits may be employed to match the driving frequency of the oscillator to a plurality of tuning states of the lamp.

IPC 1-7

H01J 65/04; H05B 41/24

IPC 8 full level

H01J 61/12 (2006.01); **H01J 61/52** (2006.01); **H01J 65/04** (2006.01); **H05B 41/24** (2006.01)

CPC (source: EP KR)

H01J 61/12 (2013.01 - EP); **H01J 61/125** (2013.01 - EP); **H01J 61/523** (2013.01 - EP); **H01J 65/04** (2013.01 - KR); **H01J 65/044** (2013.01 - EP); **H01J 65/048** (2013.01 - EP); **H05B 41/24** (2013.01 - EP)

Cited by

US10030961B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI NL PT SE

DOCDB simple family (publication)

WO 9936940 A2 19990722; **WO 9936940 A3 20010104**; AU 2101499 A 19990802; AU 749932 B2 20020704; BR 9906932 A 20001010; CA 2317730 A1 19990722; CN 1310858 A 20010829; EP 1084508 A2 20010321; HU P0100153 A2 20010628; HU P0100153 A3 20020729; IL 135657 A0 20010520; JP 2002510123 A 20020402; KR 20010034002 A 20010425; PL 341695 A1 20010423

DOCDB simple family (application)

US 9900047 W 19990111; AU 2101499 A 19990111; BR 9906932 A 19990111; CA 2317730 A 19990111; CN 99802001 A 19990111; EP 99901278 A 19990111; HU P0100153 A 19991011; IL 13565799 A 19990111; JP 2000540559 A 19990111; KR 20007007596 A 20000710; PL 34169599 A 19990111