

Title (en)
CIRCUITS WITH SWITCHING PROTECTION AND PARTS THEREFOR

Publication
EP 0469003 A4 19921028 (EN)

Application
EP 90906060 A 19900418

Priority
AU PJ375189 A 19890418

Abstract (en)
[origin: WO9013177A1] A controllable circuit (10) having protection against damaging switching conditions for its component transistors (12) is described. The circuit (10) is a full-wave inverter bridge being controlled by a pulse width modulation technique, to which is connected an inductive load (50) and a resonant circuit (30). The circuit (10) also comprises snubber circuit (18) and free-wheeling diodes (14) associated with each transistor (12). The transistors (12) are switched between on-states and off-states to synthesize a pulse width modulation waveform from input supplies $V_{s<+>}$ and $V_{s<->}$ at the output terminals VA and VB. The elements of the resonant circuit (30) provide for placing the transistors (12) in an advantageous condition for switching between states, such that they do not experience undue damage or stresses. The method of operation includes switching-on one of the controllable transistors (22) to provide an alternative path for the load current, IL, thereby forming a resonant circuit by two capacitors (20), the inductor LC and the load. In this way, there is control over the rate of rise of the off-state voltage, dv/dt, and the rate of rise of on-state current, di/dt, and minimization of the static off-state voltage all with respect to the transistors (12). The diodes (24) provide blocking in respective opposite half cycles.

IPC 1-7
H03K 17/10; **H03K 17/12**; **H03K 17/64**

IPC 8 full level
H02J 1/14 (2006.01); **H02M 7/48** (2006.01); **H03K 17/08** (2006.01); **H03K 17/10** (2006.01); **H03K 17/12** (2006.01); **H03K 17/64** (2006.01); **H03K 17/66** (2006.01)

CPC (source: EP)
H02J 1/14 (2013.01)

Citation (search report)
• [Y] EP 0010811 A1 19800514 - WESTINGHOUSE BRAKE & SIGNAL [GB]
• [Y] US 4691270 A 19870901 - PRUITT DUARD L [US]
• [Y] US 4626980 A 19861202 - MCGUIRE THOMAS B [US]
• [A] DE 3639495 A1 19880526 - LICENTIA GMBH [DE]
• See references of WO 9013177A1

Designated contracting state (EPC)
AT BE CH DE DK ES FR GB IT LI LU NL SE

DOCDB simple family (publication)
WO 9013177 A1 19901101; AU 5449790 A 19901116; AU 631861 B2 19921210; CA 2051668 A1 19901019; EP 0469003 A1 19920205; EP 0469003 A4 19921028; JP H04506895 A 19921126

DOCDB simple family (application)
AU 9000152 W 19900418; AU 5449790 A 19900418; CA 2051668 A 19900418; EP 90906060 A 19900418; JP 50628790 A 19900418