

Title (en)
Railway sensor including a coreless transformer with high galvanic insulation

Title (de)
Eisenbahnsensor mit einem kernlosen Transformator mit höher galvanischer Trennung

Title (fr)
Capteur ferroviaire à transformateur sans noyau à haute isolation galvanique

Publication
EP 2348516 B1 20200916 (FR)

Application
EP 11151262 A 20110118

Priority
FR 1050405 A 20100121

Abstract (en)
[origin: EP2348516A1] The transformer (10) has a printed circuit type insulating element (13) and conductive coils (11, 12) positioned in a superposed manner on opposite faces of the insulating element. The conductive coils are in circular, elliptical, square or rectangular shapes. The coils are in a form of flexible or rigid plastic plate. Each coil includes flat metallic winding turns provided with central ends. Electric wires are positioned at a surface of the insulating element. The coils are separated by the insulating element. An independent claim is also included for an electrical apparatus comprising a printed circuit on which electrical components are arranged.

IPC 8 full level
H01F 30/08 (2006.01); **H01F 5/00** (2006.01); **H01F 27/28** (2006.01); **H01F 38/14** (2006.01)

CPC (source: EP)
H01F 5/003 (2013.01); **H01F 27/2804** (2013.01); **H01F 30/08** (2013.01); **H01F 2027/2819** (2013.01); **H01F 2038/143** (2013.01)

Citation (examination)
• US 2003095027 A1 20030522 - SHU YUEN HUI RON [HK], et al
• EP 0491214 A1 19920624 - ASEA BROWN BOVERI [CH]
• TANG S C ET AL: "Characterization of coreless printed circuit board (PCB) transformers", POWER ELECTRONICS SPECIALISTS CONFERENCE, 1999. PESC 99. 30TH ANNUAL IEEE CHARLESTON, SC, USA 27 JUNE-1 JULY 1999, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 27 June 1999 (1999-06-27), pages 746 - 752, XP010346787, ISBN: 978-0-7803-5421-0, DOI: 10.1109/PESC.1999.785593

Citation (opposition)
Opponent : Knick/Rau Schneck
• US 2008179963 A1 20080731 - FOUQUET JULIE E [US], et al
• US 2006039169 A1 20060223 - CHEN BAOXING [US], et al
• JP H08306540 A 19961122 - MURATA MANUFACTURING CO
• ANONYMOUS: "Durchkontaktierung", WIKIPEDIA, pages 1 - 2, XP055815860
• S.C. TANG ET AL.: "A Low-Profile Wide-Band Three-Port Isolation Amplifier With Coreless Printed-Circuit-Board (PCB) Transformers", IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 48, no. 6, December 2001 (2001-12-01), pages 1180 - 1187, XP011023915

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DOCDB simple family (publication)
EP 2348516 A1 20110727; **EP 2348516 B1 20200916**; **EP 2348516 B2 20230726**; FR 2955422 A1 20110722; FR 2955422 B1 20170317

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