

Title (en)  
Fuel injection control apparatus having fail-safe function for protection against occurrence of short-circuit to ground at connecting lead of fuel injector coil

Title (de)  
System zur Einspritzsteuerung mit Sicherheitsfunktion zum Schutz vor Masseschluss am Verbindungskabel der Injektorspule

Title (fr)  
Dispositif de commande de l'injection de carburant avec une sécurité de protection contre les court-circuits à la terre d'un câble de liaison d'une bobine d'un injecteur

Publication  
**EP 1788228 A3 20080813 (EN)**

Application  
**EP 06024219 A 20061122**

Priority  
• JP 2005337152 A 20051122  
• JP 2006273247 A 20061004

Abstract (en)  
[origin: EP1788228A2] A fuel injection control apparatus monitors the amplitude of a discharge current pulse supplied from a capacitor to a currently selected one of a group of fuel injectors, and judges that a short-circuit to ground is occurring in a connection lead of the group if the amplitude exceeds a regular threshold value. If that occurs, the judgement threshold value is changed to a lower value during a succeeding fixed number of judgement operations. If the regular threshold value is exceeded for a predetermined number of times in succession, operations for driving the injectors of that group are terminated.

IPC 8 full level  
**F02D 41/20** (2006.01); **F02D 41/14** (2006.01); **F02D 41/22** (2006.01)

CPC (source: EP)  
**F02D 41/20** (2013.01); **F02D 41/221** (2013.01); **F02D 2041/2006** (2013.01); **F02D 2041/2058** (2013.01); **F02D 2041/2093** (2013.01); **F02D 2400/14** (2013.01)

Citation (search report)  
• [DA] JP 2002180878 A 20020626 - DENSO CORP  
• [A] DE 10040246 A1 20020307 - BOSCH GMBH ROBERT [DE]  
• [A] DE 3727498 A1 19890302 - HELLA KG HUECK & CO [DE]  
• [A] US 4658202 A 19870414 - NITSCHKE WERNER [DE], et al

Cited by  
EP2045459A1; EP2323258A4; CN109312680A; US8108126B2; DE102015200021B4; WO2016080920A1; WO2022233456A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA HR MK RS

DOCDB simple family (publication)  
**EP 1788228 A2 20070523**; **EP 1788228 A3 20080813**; **EP 1788228 B1 20110907**; JP 2007170373 A 20070705; JP 4650387 B2 20110316

DOCDB simple family (application)  
**EP 06024219 A 20061122**; JP 2006273247 A 20061004