

Title (en)  
Integrated circulators sharing a continuous circuit

Title (de)  
Integrierte Umwalzer mit gemeinsamer durchgehender Schaltung

Title (fr)  
Circulateurs integres partageant un circuit continu

Publication  
**EP 2487750 A1 20120815 (EN)**

Application  
**EP 12154357 A 20120207**

Priority  
US 201113024986 A 20110210

Abstract (en)  
The present invention is directed to a circuit assembly that includes an integrated circulator assembly. The circuit assembly has a first substrate, which contains a continuous circuit trace that includes a circulator component from the circulator assembly and at least one electrical component from the circuit assembly. A second substrate is disposed beneath the first substrate and includes a cladding on one surface. The second substrate contains an aperture that accepts a ferrite element, which is axially aligned with the circulator component of the circuit trace. A conductive material is placed across the ferrite element so that it forms a continuous ground plane with the cladding, which is common to the entire circuit trace. The circulator assembly also contains a magnet bonded to the ferrite element. The circulator assembly may also include a yoke disposed below the magnet to shield the circulator from external magnetic fields.

IPC 8 full level  
**H01P 1/387** (2006.01)

CPC (source: EP)  
**H01P 1/387** (2013.01)

Citation (applicant)  
• US 4761621 A 19880802 - KANE ROBERT C [US], et al  
• US 3334317 A 19670801 - ANDRE STEPHEN N  
• US 3854106 A 19741210 - TRESSELT C

Citation (search report)  
• [XYI] US 2006139118 A1 20060629 - VAUGHN TODD [US], et al  
• [XYI] WO 2006066254 A1 20060622 - EMS TECHNOLOGIES INC [US], et al  
• [Y] EP 1816702 A1 20070808 - HITACHI METALS LTD [JP]

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
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**EP 12154357 A 20120207**; CN 201210088014 A 20120210; IN 383DE2012 A 20120210