

## JPFULL (Japan (JP) Patents Full-Text)

<b>Subject Coverage</b>	All patent-relevant areas of science and technology, i.e., all classes of the International Patent Classification			
<b>File Type</b>	Full-Text			
<b>Features</b>	Thesauri	International Patent Classification (/IPC), Cooperative Patent Classification (/CPC), European Patent Classification (/EPC and /ICO), FI-Term (/FCL)		
	<a href="#">Alerts (SDIs)</a>	Weekly or monthly (weekly is the default)		
	CAS Registry Number <sup>®</sup> Identifiers	<input type="checkbox"/>	<a href="#">SLART</a>	<input checked="" type="checkbox"/> Structures <input type="checkbox"/>
	<a href="#">Keep &amp; Share</a>	<input checked="" type="checkbox"/>	<a href="#">Register Links</a>	<input checked="" type="checkbox"/>
<b>Record Content</b>	<ul style="list-style-type: none"> <li>• Full-text of patent applications, granted patents, utilities models and design patents published in Japan.</li> <li>• Records are available between two and seven days after publication date with the complete content.</li> <li>• Records contain bibliographic data including patent assignee, inventor and legal representative (in Japanese) information, patent, application, priority, and related application data, IPC, CPC, EPC, and ICO classification codes, abstract, and full-text of description and claims.</li> <li>• The IPC-based FI classification (/FCL) and the F-term classification (/FTRM) are available for more than 15.6 million Japanese patents and utility models back to 1960.</li> <li>• The Locarno classification (/LCL) is available for the design patents.</li> <li>• Abstracts are either machine translated or taken from equivalent documents if available. Machine translated abstracts of documents with kind code A are replaced by human translated text about three months later. Titles are machine translated, which are in case of kind code A documents replaced by human translations about three months later as well. Descriptions and claims are always machine translated.</li> <li>• Title, abstract, patent assignee, and inventor are additionally displayable in Japanese characters.</li> <li>• Independent claims and claim groups are searchable for all claims in English.</li> <li>• Numeric values of 59 physical and chemical properties are searchable in about 20,000 variants of the base and additional units within all full text fields in English.</li> <li>• Ultimate Owners are searchable in the field /UO and /UOS</li> <li>• Standardized and normalized patent assignee names are searchable in their own fields /PAS and /PAN.</li> <li>• Key terms, indexed and displayed in the field /KT, enhance retrieval of relevant results, and make the evaluation of results more efficient. They are useful to broaden search scope more precisely than Basic Index searches.</li> <li>• Clipped images (mostly front-page images) are included, when available.</li> <li>• The Field Availability Index contains information on the availability of name (applicants, inventors, agents) or text fields (titles, abstracts, descriptions, claims).</li> <li>• Database records comprise all documents published for one application.</li> <li>• Some of the full-text has been created by Optical Character Recognition (OCR) software. Therefore, characters may be misinterpreted, or portions of the text may be incomplete.</li> </ul>			
<b>File Size</b>	More than 20.1 million family records with more than 28.6 million publications and 12.6 million images (04/2025)			

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<b>Coverage</b>	Application year 1919 to present
<b>Updates</b>	Weekly
<b>Language</b>	English
<b>Database Producer</b>	LexisNexis Business Information Solutions B.V. Radarweg 29 1043 NX Amsterdam The Netherlands Copyright Holder
<b>Sources</b>	Patent applications, granted patents, and utilities models published by the Japan Patent Office
<b>User Aids</b>	<ul style="list-style-type: none"><li>• Online Helps (HELP DIRECTORY lists all help messages available)</li><li>• STNGUIDE</li></ul>
<b>Clusters</b>	<ul style="list-style-type: none"><li>• AEROTECH</li><li>• ALLBIB</li><li>• AUTHORS</li><li>• CORPSOURCE</li><li>• ENGINEERING</li><li>• FULLTEXT</li><li>• HPATENTS</li><li>• NPS</li><li>• PATENTS</li><li>• PNTTEXT</li></ul> <p><a href="#">STN Database Cluster</a> information</p>

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## Search and Display Field Codes

If multiple search terms are linked with an AND-operator, all terms are searched in the complete database record, i.e., in all publications referring to one application. For a search in a specific publication of the record, connect the search term and the patent kind code with the (L)-proximity operator, e.g.,  
S BOREHOLE/AB, TI, CLM (L) JPA/PK limits the search to Japanese applications JPA.

Fields that allow left truncation are indicated by an asterisk (\*).

### General Search Fields

Search Field Name	Search Code	Search Examples	Display Codes
Basic Index * (contains single words from title (TIEN), abstract (ABEN), detailed description (DETDEN), claims (CLMEN), and main claims (MCLMEN) and key term (KT) fields)	None or /BI	S TRANSISTOR AND ELECTRODES S ACOUSTIC SENSOR S ?TRANSFER?	TIEN, ABEN, DETDEN, CLMEN, MCLMEN, KT
Abstract *	/AB	S BOREHOLE/AB	AB
Abstract (English) *	/ABEN	S BOREHOLE/ABEN	AB, ABEN
Accession Number	/AN	S 2011006109/AN	AN
Agent Number	/AGN	S 100111442/AGN	AGN
Application Country (WIPO code and text)	/AC	S JP/AC	AI
Application Date (1)	/AD	S AD=JAN 2011	AI
Application Kind Code	/AK	S JPA/AK	AI
Application Number (2)	/AP	S JP2011-101353/AP	AI
Application Number Original	/APO	S JP2015004901U/APO	APO
Application Year (1)	/AY	S AY>=2000	AI
Claims *	/CLM	S DERIVATION/CLM	CLM
Claims (English) *	/CLMEN	S DERIVATION/CLMEN	CLM, CLMEN
Claims, Claim Groups *	/CLM.CG	S OFFICE CHAIR/CLM.CG	CLM, CLM.CG
Claims, Independent Claims *	/CLM.IC	S OFFICE CHAIR/CLM.IC	CLM.IC CLM, CLMEN
Cooperative Patent Classification (3)	/CPC	S C12N0009/CPC	CPC
Cooperative Patent Classification, Action Date	/CPC.ACD	S 20121113/CPC.ACD	CPC.TAB
Cooperative Patent Classification, Keyword	/CPC.KW	S C12N0009/CPC (S) I/CPC.KW	CPC.TAB
Cooperative Patent Classification, Version	/CPC.VER	S 20130101/CPC.VER	CPC.TAB
Data Entry Date (1)	/DED	S 20221013/DED	DED
Data Update Date (1)	/DUPD	S 20220315/DUPD	DUPD
Detailed Description *	/DETD	S *LASER/DETD	DETD, DETDEN
Detailed Description (English) *	/DETDEN	S LASER LIGHT/DETDEN	DETDEN, DETD
Document Type (code and text)	/DT (or /TC)	S P/DT S UTILITY MODEL/DT	DT
Entry Date (1)	/ED	S ED=SEP 2012	ED
Entry Date of Full-Text (1)	/EDTX	S 20120926/EDTX	EDTX
European Patent Classification (3)	/EPC (or /ECLA, EPCLA)	S H02K0003-12/EPC	EPC
EPC, Keywords	/EPC.KW	S A/EPC.KW	EPC
Field Availability	/FA	S ABEN/FA	FA
ICO (in-computer-only) Classification (3)	/ICO	S L29C0605-28/ICO	ICO
ICO, Keyword Terms	/ICO.KW	S C3/ICO.KW	ICO
International Patent Classification (ICM, ICS)	/IC (or /IPCMS)	S A45D/IC	IC, ICM, ICS
International Patent Classification (ICM, ICS, ICA, ICI, IPCI, IPCR) (3)	/IPC	S A01B0001-02/IPC	ICA, ICI ICM, ICS, ICA, ICI IPCI, IPCR

## General Search Fields (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Inventor	/IN (or /AU)	S MASAKI MUTSUMI/IN S MASAKI?/IN	IN
Inventor, Country (WIPO code and text)	/IN.CNY	S JP/IN.CNY	IN, IN.CNY
IPC, Action Date	/IPC.ACD	S 21 JUL 2007/IPC.ACD	IPC.TAB
IPC, Keyword Terms	/IPC.KW	S INITIAL/IPC.KW	IPC.TAB
IPC, Reform	/IPC.REF	S A01B0001-16/IPC.REF	IPC.TAB
IPC, Version	/IPC.VER	S 7/IPC.VER	IPC.TAB
IPC Advanced	/ICA (or /IPCA)	S C07K0019-00/ICA	ICA, IPC, IC
IPC Index	/ICI (or IPCIN)	S B29K0307:04/ICI	ICI, IPC, IC
IPC Initial	/IPCI	S B21B0001/IPCI	IPCI, IPC
IPC Main	/ICM (or IPCM)	S A63B0017-00/ICM	ICM, IPC, IC
IPC Reclassified	/IPCR	S B21D0005-02/IPCR	IPCR, IPC
IPC Secondary	/ICS (or IPCS)	S A41C0003-12/ICS	ICS, IPC, IC
Japanese Patent Classification (F-Terms)	/FTRM (/FTERM, /JPCLA)	S 5H030/AA00/FTRM	FTRM
Japanese Patent Classification (FI-Terms) (3)	/FCL (or /JPC)	S A01B0001-24 B/FCL	FCL
Key Terms *	/KT	S GLUCOSE ABSORPTION/KT	KT
Language (ISO code and text)	/LA	S JA/LA or S JAPANESE/LA	LA
Language of Filing (ISO code and text)	/LAF	S JA/LAF S JAPANESE/LAF	LAF
Locarno Classification	/LCL	S 19-02/LCL	LCL
Main Claim *	/MCLM	S ?FRACTURE?/MCLM	MCLM
Main Claim (English) *	/MCLMEN	S ?FRACTURE?/MCLMEN	MCLMEN, MCLM
Number of Claims (1)	/CLMN	S 5-7/CLMN	CLMN
Number of Paragraphs in DETD (Detailed Description) (1)	/DETN	S DETN<10	DETN
Patent Assignee (4)	/PA (or /CS)	S AISIN SEIKI CO LTD/PA	PA
Patent Assignee, Country (4)	/PA.CNY	S JP/PA.CNY	PA, PA.CNY
Patent Assignee, Number	/PA.NO	S 300004681/PA.NO	PA.NO
Patent Assignee, Total (4)	/PA.T	S TOKYO/PA.T	PA
Patent Assignee Address (4)	/PAA	S TOKYO/PAA	PA
Patent Assignee Normalized (4)	/PAN	S SONY/PAN	PAN
Patent Assignee Standardized (4)	/PAS	S SONY/PAS	PAS
Patent Country (WIPO code and text)	/PC	S JP/PC	PI
Patent Information Type	/PIT	S "JPB PUBLISHED EXAMINED PATENT APPLICATION (FROM 1971 ONWARDS)"	PIT
Patent Kind Code	/PK	S JPA/PK	PI
Patent Number (2)	/PN	S JP 2012070634/PN	PI
Patent Number/Kind Code	/PNK	S JP2011062572A/PNK	PI
Patent Number Original	/PNO	S JP2011062216/PNO	PNO
Physical Properties	/PHP	S VOLT/PHP (S) TOUCH SCREEN/BI	KWIC
Priority Country (WIPO code and text)	/PRC	S JP/PRC S JAPAN/PRC	PRN
Priority Date (1)	/PRD	S PRD=MAY, 20 2003 S 20030520/PRD	PRN
Priority Date First (1)	/PRDF	S 20010614/PRDF	PRN
Priority Number (2)	/PRN	S DE2004-102004063838/PRN	PRN
Priority Number Original	/PRNO	S US10054698/PRNO	PRNO, PRAO

**General Search Fields (cont'd)**

Search Field Name	Search Code	Search Examples	Display Codes
Priority Year (1)	/PRY	S 2003/PRY	PRN
Priority Year First (1)	/PRYF	S 2003-2004/PRYF	PRN
Publication Date (1)	/PD	S PD=MARCH-APRIL 2011	PI
Publication Year (1)	/PY	S PY>2008 AND L1	PI
Related Application Country	/RLC	S WO/RLC	RLI
Related Application Number (2)	/RLN	S WO2005-JP19917/RLN	RLI
Related Application Date (1)	/RLD	S 20050329/RLD	RLI
Related Application Year (1)	/RLY	S 2005/RLY	RLI
Related Patent Country	/RLPC	S WO/RLPC	RLI
Related Patent Number (2)	/RLPN	S WO2021153764/RLPN	RLI
Related Patent Date (1)	/RLPD	S 20210805/RLPD	RLI
Related Patent Year (1)	/RLPY	S 2019/RLPY	RLI
Title	/TI	S FLUID###/TI	TI
Title (English) *	/TIEN	S FLUID###/TIEN	TI, TIEN
Ultimate Owner (4)	/UO	S TOYOTA/UO	UO
Ultimate Owner Standardized (4)	/UOS	S TOYOTA/UOS	UOS
Update Date (1)	/UP	S UP=SEP 2020	UP
Update Date Text (1)	/UPTX	S 20210310/UPTX	UPTX

(1) Numeric search field that may be searched using numeric operators or ranges.

(2) By default, patent numbers, application and priority numbers are displayed in STN Format. To display them in Derwent format, enter SET PATENT DERWENT at an arrow prompt. To reset display to STN Format, enter SET PATENT STN.

(3) An online thesaurus is available in this field.

(4) Search with implied (S) proximity is available in this field.

**Super Search Fields**

Enter a super search code to execute a search in one or more fields that may contain the desired information. Super search fields facilitate crossfile and multifile searching. EXPAND may not be used with super search fields. Use EXPAND with the individual field codes instead.

Search Field Name	Search Code	Fields Searched	Search Examples	Display Codes
Application Number Group	/APPS	AP, APO, PRN, PRNO, RLN	S JP2011-101353/APPS	AI, APO, PRAI, PRNO, APPS
Patent Assignee Group	/PASS	PA, PA.T, PAS, PAN, UO, UOS	S BASF/PASS	PA, PAN, PAS, UO, UOS
Patent Number Group	/PATS	PN, PNO, RLPN	S JP 2012070634/PATS	PI, PNO, RLPI

## Property Fields (1)

In JPFULL a numeric search for a specific set of physical properties (/PHP) is available within the full-text fields (TIEN, ABEN, DETDEN, and CLMEN). The numeric values are not displayed as single fields but are instead highlighted within the hit displays.

Use EXPAND/PHP to search for all available physical properties. A search with the respective field codes will be carried out in all database fields with English text. The /PHP index contains a complete list of codes and related text for all physical properties available for numeric search.

Field Code	Property	Unit	Symbol	Search Examples
/AOS	Amount of substance	Mol	mol	S 10 /AOS
/BIR	Bit Rate	Bit/Second	bit/s	S 8000-10000/BIR
/BIT	Stored Information	Bit	Bit	S BIT > 3 MEGABIT
/CAP	Capacitance	Farad	F	S 1-10 MF/CAP
/CATA	Catalytic Activity	Katal	kat	S 1-10/CATA
/CDN	Current Density	Ampere/Square Meter	A/m <sup>2</sup>	S CDN>10 A/M**2
/CMOL	Molarity, Molar Concentration	Mol/Liter	mol/L	S UREA/BI (S) 8/CMOL
/CON	Electrical Conductance	Siemens	S	S 1S-3/CON
/DB	Decibel	Decibel	dB	S DB>50
/DEG	Degree	Degree	°	S CYLINDER/BI (S) 45/DEG
/DEN (/C)	Density (Mass Concentration	Kilogram/Cubic Meter	kg/m <sup>3</sup>	S 5E-3-10E-3/DEN
/DEQ	Dose Equivalent, Absorbed Dose	Sievert	Sv	S 100/DEQ
/DOA	Dosage	Milligram/Kilogram/Day	mg/kg/day	S 100-300/DOA
/DOS (/LD50)	Dose	Milligram/Kilogram	mg/kg	S DOS>0.8
/DV	Viscosity, dynamic	Pascal * Second	Pa * s	S DV>5000
/ECH (/CHA)	Electric Charge, Capacity	Coulomb	C	S 0.0001-0.001/ECH
/ECO (/ECND)	Electrical Conductivity	Siemens/Meter	S/m	S ECO>800 S/M (15A) AQUEOUS
/ELC (/ECC)	Electric Current	Ampere	A	S 1-10/ELC
/ELF (/ECF)	Electric Field	Volt/Meter	V/m	S 200/ELF
/ENE	Energy	Joule	J	S DROPLETS (10A) 40 JOULE - 70 JOULE /ENE
/ERE (/ERES)	Electrical Resistivity	Ohm * Meter	Ohm * m	S ERE>0.1
/FOR	Force	Newton	N	S 50 N /FOR
/FRE (/F)	Frequency	Hertz	Hz	S OSCILLAT?/BI (S) 1- 3/FRE
/IU	International Unit	none	IU	S IU>1000 (P) VITAMIN A
/KV	Viscosity, kinematic	Square Meter/Second	m <sup>2</sup> /s	S METHYLPOLYSILOXANES/BI (10A) 200-300 CST /KV
/LEN (/SIZ)	Length, Size	Meter	m	S 1-4/LEN
/LUME	Luminous Emittance, Illuminance	Lux	lx	S 10-50/LUME
/LUMF	Luminous Flux	Lumen	Lm	S LUMF>1000
/LUMI	Luminous Intensity	Candela	cd	S LUMI<4
/M	Mass	Kilogram	kg	S ALLOY/BI (30A) 1E-10-1E-5/M
/MCH	Mass to Charge Ratio	none	m/z	S MCH=1
/MFD (/MFS)	Magnetic Flux Density	Tesla	T	S MFD>102
/MFR (/MFL)	Mass Flow Rate	Kilogram/Second	kg/s	S MFR<0.1
/MFST	Magnetic Field Strength	Ampere/Meter	A/m	S MFST/PHP
/MM (/MW, /MOM)	Molar Mass, Molecular Weight	Gram/Mol	g/mol	S 2000-3000 G/MOL/MM

Property Fields <sup>(1)</sup> (cont'd)

Field Code	Property	Unit	Symbol	Search Examples
/MOLS	Molality of Substance	Mol/Kilogram	mol/kg	S 01.-10 MOL/KG/MOLS
/MVR	Melt Volume Rate, Melt Flow Rate	none	g/10 min	S 3/MVR
/PER	Percent (Proportionality)	none	%	S POLYMER?/AB (5A) 4/PER
/PHV (/PH)	pH Value	pH	pH	S 7.4-7.6/PHV
/POW (/PW)	Power	Watt	W	S "HG-XE-?"/BI (S) 100-200 WATT/POW
/PPM	Parts per million	Ppm	ppm	S 100 PPM /PPM (10A) ADDITIVE/BI
/PRES (/P)	Pressure	Pascal	Pa	S (VACUUM (5A) DISTILL?)/BI (S) 1000-1100/PRES
/RAD	Radioactivity	Becquerel	Bq	S RAD/PHP
/RES	Electrical Resistance	Ohm	Ohm	S SENSOR /BI (S) 10- 100/RES
/RI	Refractive Index	none	none	S 3-4/RI
/RSP	Rotational Speed	Revolution/Minute	rpm	S 2 RPM - 100 RPM /RSP (S) ENGINE/BI
/SAR	Area	Square Meter	m <sup>2</sup>	S PLATE/BI (S) 10 M**2 - 100 M**2 /SAR
/SOL (/SLB)	Solubility	Gram/100 gram	g/100 g	S SOL>20 G/100G (5A) WATER
/SSAM	Specific Surface Area, Mass	Square Meter/ Kilogram	m <sup>2</sup> /kg	S 1-10/SSAM
/STSC (/ST)	Surface Tension, Spring Constant	Joule /Square Meter	J/m <sup>2</sup>	S 60 J/M**2/STSC
/TCO (/TCND)	Thermal Conductivity	Watt/Meter * Kelvin	W/m * K	S 1/TCO (S) HEAT?
/TEMP (/T)	Temperature	Kelvin	K	S 20-25/TEMP
/TEX	Tex	Gram/Kilometer	g/km	S 1-5/TEX
/TIM	Time	Second	s	S ?INCUB?/BI (10A) 50 S - 150 S /TIM
/VEL (/V)	Velocity	Meter per Second	m/s	S REDUC?/BI (S) 1E-3-5E-3/VEL
/VELA	Velocity, angular	Radian/Second	rad/s	S VELA>10
/VLR	Volumetric Flow Rate	Cubic Meter/Second	m <sup>3</sup> /s	S 1 M**3/S - 2 M**3/S /VLR (S) ABRASIVE
/VOL	Volume	Cubic Meter	m <sup>3</sup>	S 1E-8-2E-8/VOL.EX
/VOLT	Voltage	Volt	V	S TENSION/BI (10A) 5E-3 V <VOLT<7E-3 V

(1) Exponential format is recommended for the search of particularly high or low values, e.g., 1.8E+7 or 1.8E7 (for 18000000) or 9.2E-8 (for 0.000000092).

## International Patent Classification (/IPC) Thesaurus

The classifications, validity and catchwords for the main headings and subheadings from the current (8<sup>th</sup>) edition of the WIPO International Patent Classification (IPC) manual are available. The classifications from the previous editions (1-7) are also available as separate thesauri. To EXPAND and SEARCH in the thesauri for editions 1–7, use the field code followed by the edition number, e.g., /IPC2, for the 2<sup>nd</sup> edition. Catchwords are included only in the thesauri for the 8<sup>th</sup>, 7<sup>th</sup>, 6<sup>th</sup>, and 5<sup>th</sup> editions.

Code	Content	Examples
ADVANCED (ADV)	Advanced Codes for the Core Level IPC Code	E A61K0006-06+ADVANCED/IPC
ALL	All Associated Terms (BT, SELF, NT, RT)	E C01C003-00+ALL/IPC
BRO (MAN)	Complete Class	E C01C+BRO/IPC
BT	Broader Term (BT, SELF)	E C01F001-00+BT/IPC
CORE (COR)	Core Codes for the Advanced Level IPC Code	E G08C0019-22+CORE/IPC
ED	Complete title of the SELF term and IPC manual edition	E C01F001-00+ED/IPC
HIE	Hierarchy Term (Broader and Narrower Term) (BT, SELF, NT)	E C01B003-00+HIE/IPC
INDEX	Complete title of the SELF term	E C01F001-00+INDEX/IPC
KT	Keyword Term (catchwords) (SELF, KT)	E CYANOGEN+KT/IPC
NEXT	Next Classification	E C01C001-00+NEXT5/IPC
NT	Narrower Terms (SELF, NT)	E C01C+NT/IPC
PREV	Previous Classification	E C01C001-12+PREV10/IPC
RT (SIB)	Related Terms (SELF, RT)	E C01C003-20+RT/IPC
TI	Complete Title of the SELF Term and Broader Terms (BT, SELF)	E C01F001-00+TI/IPC

## ECLA (/EPC) and ICO Thesauri

This thesaurus is available in the /EPC search field (for ECLA codes) and /ICO search field (for 'in-computer-only' codes). All relationship codes can be used with both the EXPAND and SEARCH commands.

Relationship Code	Content	Search Examples
ALL	All usually required terms (BT, SELF, CODE, DEF)	E C12M0001-34H2+ALL/EPC
AUTO (1)	Automatic relationship (BT, SELF, CODE, DEF)	E G01J003-443+AUTO/EPC
BT	Broader terms (BT, SELF)	E G01J0003-443+BT/EPC
CODE	Classification Code (SELF, CODE)	E SCRAPER BIASING MEANS+CODE/EPC
DEF	Definition (SELF, DEF)	E B65G0045-16+DEF/EPC
HIE	Hierarchy terms (all broader and narrower terms) (BT, SELF, DEF, NT)	E A01B0001+HIE/EPC
KT	Keyword terms (SELF, KT)	E LASER+KT/EPC
MAX	All associated terms	E G01J0003-44B+MAX/EPC
NEXT	Next classification within the same class (SELF, NEXT)	E A01B0001-24+NEXT/EPC
NEXT(n)	Next n classification within the same class	E A01B0001-24+NEXT3/EPC
NT	Narrower terms	E G05B0001-04+NT/EPC
PREV	Previous Code within the same class (SELF, PREV)	E G05B0019-418N1+PREV/EPC
PREV(n)	Previous n classifications within the same class	E G05B0019-418N1+PREV2/EPC
TI	Complete Title of the SELF Term and Broader Terms (BT, SELF)	E G05B0001-03+TI/EPC

(1) Automatic Relationship is SET OFF. In case of SET REL ON, the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.



## CPC Thesaurus

This thesaurus is available in the /CPC search field. All relationship codes can be used with both the EXPAND and SEARCH commands.

Relationship Code	Content	Search Examples
ALL	All usually required terms (BT, SELF, CODE, DEF)	E C12M0001-005+ALL/CPC
AUTO (1)	Automatic relationship (BT, SELF, CODE, DEF)	E G01J0003-443+AUTO/CPC
BT	Broader terms (BT, SELF)	E G01J0003-443+BT/CPC
CODE	Classification Code (SELF, CODE)	E CARTRIDGES+CODE/CPC
DEF	Definition (SELF, DEF)	E B65G0045-16+DEF/CPC
HIE	Hierarchy terms (all broader and narrower terms) (BT, SELF, DEF, NT)	E A01B0001+HIE/CPC
KT	Keyword terms (SELF, KT)	E LASER+KT/CPC
MAX	All associated terms	E G01J0003-44+MAX/CPC
NEXT	Next classification within the same class (SELF, NEXT)	E A01B0001-24+NEXT/CPC
NEXT(n)	Next n classification within the same class	E A01B0001-24+NEXT3/CPC
NT	Narrower terms	E G05B0001-04+NT/CPC
PREV	Previous Code within the same class (SELF, PREV)	E G05B0019-00+PREV/CPC
PREV(n)	Previous n classifications within the same class	E G05B0019-00+PREV2/CPC
TI	Complete Title of SELF Term and Broader Terms (BT, SELF)	E G05B0001-03+TI/CPC

(1) Automatic Relationship is SET OFF. In case of SET REL ON, the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

## F-Term (/FTRM) Thesaurus

This thesaurus is available in the F-term classification field (/FTRM) and synonym fields (/FTRM, /FTCLA, /JPCLA) that contains patent classification from the Japanese Patent Office. All relationship codes can be used with both the EXPAND and SEARCH commands.

Relationship Code	Content	Search Examples
ALL	All associated terms with related FI-terms	E 2B002/AA05+ALL/FTRM
AUTO (1)	Automatic relationship (all hierarchy terms)	E 2B002/AA05+BT+AUTO/FTRM
BT	Broader term with related FI-term	E 2B002/AA05+BT/FTRM
DEF	Definition with related FI-term	E 2B002/BA13+DEF/FTRM
HIE	Hierarchy terms (all broader and narrower terms)	E 2B002/AA05+HIE/FTRM
KT	Keyword term	E PLYWOODS+KT/FTRM
NT	Narrower term with related FI-term	E E7+KT
RFI	Related FI-term	E 2B002/AA05+NT/FTRM
TI	Complete title of the SELF term and broader terms with related FI-term	E 2B002/AA09+RFI/FTRM
		E 2B002/AA09+TI/FTRM

(1) Automatic relationship is SET OFF. In case of SET REL ON the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

## FI (/FCL) Thesaurus

This thesaurus is available in the FI classification field (/FCL) that contains patent classification from the Japanese Patent Office.

Relationship Code	Content	Search Examples
ALL (MAX)	All associated terms including definitions	E A01B0003-24+ALL/FCL
AUTO (1)	Automatic relationship (all hierarchy terms)	E H02B0001-015+AUTO/FCL
BT	Broader Terms	E H02B0001-03+BT/FCL
DEF	Definition of the code	E H02B0001-04 A+DEF/FCL
HIE	Hierarchy Terms (all broader and narrower terms)	E H02B0001-015+HIE/FCL
NOTE	Scope Notes	E A01M+NOTE/FCL
NT	Narrower Terms	E A61K0006-831+NT/FCL
TI	Title (definition) of the code including broader terms	E A61K0006-876+TI/FCL

(1) Automatic relationship is SET OFF. In case of SET REL ON the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

## DISPLAY and PRINT Formats

Any combination of formats may be used to display or print answers. Multiple codes must be separated by spaces or commas, e.g., D L1 1-5 TI PA. The fields are displayed or printed in the order requested.

The information of the latest publication is displayed by default. To display the content for all levels of the record you can combine all display fields and formats with the qualifier .M except FA, SCAN, and TRIAL.

For displaying a particular publication of a database record, you can simply add for certain display field the kind code to the appropriate display format, e.g., ALL.A. Fields that allow this are indicated by a number (3).

Hit-term highlighting is available for all fields. Highlighting must be ON during SEARCH to use the HIT, KWIC, and OCC formats.

The default display format is STD.M, i.e., all publication levels of one family in the STD format.

Format	Content	Examples
AB	Abstract	D TI AB 1-5
ABEN	Abstract (English)	D ABEN
ABJA	Abstract (Japanese)	D ABJA
AGJA	Agent (Japanese)	D AGJA
AGN	Agent Number	D AGN
AI (AP) (1)	Application Information	D AI
AN	Accession Number	D L3 AN
APO (AIO)	Application Number Original	D APO
CLM (3)	Claims	D CLM
CLM.CG (3)	Claims, Claim Group	D CLM.CG
CLM.IC (3)	Claims, Independent Claims	D CLM.IC
CLMEN (3)	Claims (English)	D CLMEN
CLMN	Number of Claims	D CLMN
CPC	Cooperative Patent Classification	D CPC
DETD (3)	Detailed Description	D DETD
DETDEN (3)	Detailed Description (English)	D DETDEN
DETN	Number of Paragraphs in DETD	D DETN
DT (TC)	Document Type	D DT
ED	Entry Date	D ED
EDP	Entry Date Patent	D EDP
EDTX	Entry Date Full-Text	D EDTX
EPC	European Patent Classification	D EPC
FA	Field Availability (for all publication levels)	D FA
FCL	Japanese Patent Classification (FI-Terms)	D FCL
FTRM	Japanese Patent Classification (F-Terms)	D FTRM
(FTERM, JPCLA)		
GI	Graphic Image	D GI
IC	IPC, Version 1-7 (ICM, ICS, ICA, ICI)	D IC
ICA (IPCA)	IPC Additional	D ICA
ICI (IPCIN)	IPC Indexed	D ICI
ICM (IPCM)	IPC Main	D ICM
ICO	ICO (in-computer-only) Classification	D ICO
ICS (IPCS)	IPC Secondary	D ICS
IN (AU)	Inventor	D IN
IN.CNY	Inventor, Country	D IN.CNY
INJA	Inventor (Japanese)	D INJA
IPC	IPC, version 1-8 (ICM, ICS, ICA, ICI, IPCI, IPCR)	D IPC
IPCI	IPC Initial	D IPCI
IPCR	IPC Reclassified	D IPCR
KT	Key Terms	D KT
LA	Language	D LA
LAF	Language of Filing	D LAF
LCL	Locarno Classification	D LCL
MCLM (3)	Main Claim	D MCLM
MCLMEN (3)	Main Claim (English)	D MCLMEN
PA (CS)	Patent Assignee	D PA
PA.CNY	Patent Assignee, Country	D PA.CNY
PA.NO	Patent Assignee, Number	D PA.NO

**DISPLAY and PRINT Formats (cont'd)**

Format	Content	Examples
PAN PAS PI (PN) (1) PIT PNK PNO (2) PRAI (PRN) (1,5) PRAO (PRNO) RLI (RLN) RLPI TI TIEN TIJA UO UOS UP UPTX	Patent Assignee Normalized Patent Assignee Standardized Patent Information Patent Information Type Patent Number/Kind Code Patent Number Original Priority Information Priority Number Original Related Application Information Related Patent Information Title Title (English) Title (Japanese) Ultimate Owner Ultimate Owner Standardized Update Date Update Date Full-Text	D PAN D PAS D PI D PIT D PNK D PNO D PRN D PRNO D RLI D RLPI D TI D TIEN D TIJA D UO D UOS D UP D UPTX
ABS (AB) ALL (1,3)  ALLG (1,3) ALLO (1,3)  DALL (1) IALL (1,3) IALLG (1,3) APPS (1) BIB (1)  BIBG (1) BIBO (1)  IBIB (1) IBIBG (1) BRIEF (1)  BRIEFG (1) BRIEFO (1)  IBRIEF (1) IBRIEFG (1) CPC.TAB IND IPC IPC.TAB MAX (ALL.M) (1)  MAXG (1) IMAX (IALL.M) (1) IMAXG (IALLG.M) (1)	ABEN AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, PA, PA.NO, PAS, PAN, UO, UOS, AGN, LAF, LA, DT, PI, PIT, AI, PRAI, RLPI, RLI, IPC, CPC, EPC, ICO, FCL, FTRM, LCL, ABEN, DETDEN, CLMEN, KT ALL, plus graphic image AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, INJA, PA, PAJA, PA.NO, PAS, PAN, UO, UOS, AGJA, AGN, LAF, LA, DT, PI or PNO (if no PI), PIT, AI or APO (if no AI), PRAI or PRAO (if no PRAI), RLPI, RLI, IPC, CPC, EPC, ICO, FCL, FTRM, LCL, ABEN, ABJA, DETDEN, CLMEN, KT ALL, delimited for post processing ALL, indented with text labels IALL, plus graphic image AI, APO PRAI, PRNO AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TI, IN, IN.CNY, PA, PA.CNY, PA.NO, PAS, PAN, UO, UOS, AGN, LAF, LA, DT, PIT, PI, AI, PRAI, RLPI, RLI BIB plus graphic image AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, INJA, PA, PAJA, PA.NO, PAS, PAN, UO, UOS, AGJA, AGN, LAF, LA, DT, PI or PNO (if no PI), PIT, AI or APO (if no AI), PRAI or PRAO (if no PRAI), RLPI, RLI BIB, indented with text labels IBIB plus graphic image AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, PA, PA.NO, PAS, PAN, UO, UOS, AGN, LAF, LA, DT, PI, PIT, AI, PRAI, RLPI, RLI, IPC, CPC, EPC, ICO, FCL, FTRM, LCL, ABEN, MCLMEN, KT BRIEF, plus graphic image AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, INJA, PA, PAJ, PA.NO, PAS, PAN, UO, UOS, AGJA, AGN, LAF, LA, DT, PI or PNO (if no PI), PIT, AI or APO (if no AI), PRAI or PRAO (if no PRAI), RLPI, RLI, IPC, CPC, EPC, ICO, FCL, FTRM, LCL, ABEN, ABJA, MCLMEN, KT BRIEF, indented with text labels BRIEFG, indented with text labels CPC,CPC.KW, CPC.ACD, CPC.VER, in tabular version ED, IPC (ICM, ICS, ICA, ICI, IPCI, IPCR), CPC, EPC, ICO, LCL International Patent Classification (ICM, ICS, ICA, ICI, IPCI, IPCR) IPC, IPC.KW, IPC.VER, in tabular version AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, TIJA, IN, PA, PA.NO, PAS, PAN, UO, UOS, AGN, LAF, LA, DT, PI, PIT, AI, PRAI, RLPI, RLI, IPC, CPC, EPC, ICO, FCL, FTRM, LCL, ABEN, DETDEN, CLMEN, KT, FA for all levels of publication MAX, plus graphic Image MAX, indented with text labels IMAX, plus graphic image	D AB D ALL  D ALLG D ALLO  D DALL D IALL D IALLG D APPS D BIB  D BIBG D BIBO  D IBIB D IBIBG D BRIEF  D BRIEFG D BRIEFO  D IBRIEF D IBRIEFG D CPC.TAB D IND D IPC D IPC.TAB D MAX  D MAXG D IMAX D IMAXG

**DISPLAY and PRINT Formats (cont'd)**

Format	Content	Examples
PATS (1) SCAN (4) STD (1) STDG (1) ISTD (1) ISTDG (1) TRIAL (TRI, SAM, SAMPLE, FREE) TX	PI, PNO, RLPI TI (random display without answer numbers) BIB plus IND (STD.M is the default) STD, plus graphic image STD, indented with text labels ISTD, plus graphic image AN, EDP, ED, EDTX, UP, UPTX, DED, DUPD, TIEN, FA, DETN, CLMN  DETDEN, CLMEN	D PATS D SCAN D STD D STDG D ISTD D ISTDG D TRIAL  D TX
HIT KWIC OCC	Hit term(s) and field(s) Up to 50 words before and after hit term(s) (KeyWord-In-Context) Number of occurrences of hit term(s) and field(s) in which they occur	D HIT D KWIC D OCC

- (1) By default, patent numbers, application and priority numbers are displayed in STN Format. To display them in Derwent format, enter SET PATENT DERWENT at an arrow prompt. To reset display to STN Format, enter SET PATENT STN.
- (2) Custom display only.
- (3) You can combine this display field with the qualifier .PK (Patent Kind Code) to display the content for a certain publication level of a record, e.g., CLM.B2.
- (4) SCAN must be specified on the command line, i.e., D SCAN or DISPLAY SCAN.
- (5) If priority information is not available for a certain document, this information is taken from the application information of this document and marked with an asterisk (\*).\

**SELECT, ANALYZE, and SORT Fields**

The SELECT command is used to create E-numbers containing terms taken from the specified field in an answer set.

The ANALYZE command is used to create an L-number containing terms taken from the specified field in an answer set.

The SORT command is used to rearrange the search results in either alphabetic or numeric order of the specified field(s).

You can combine all fields except FA with the qualifier .M to SELECT/ANALYZE the content of all publication levels.

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Abstract	AB	Y	N
Abstract (English)	ABEN	Y	N
Accession Number	AN	Y	Y
Agent Number	AGN	Y	Y
Application Country	AC	Y	Y
Application Date	AD	Y	Y
Application Information	AI (AP)	Y (2)	Y
Application Kind Code	AK	Y (3)	Y
Application Number Original	APO	Y	Y
Application Number Group	APPS	Y (2)	Y
Application Year	AY	Y	Y
CPC Classification	CPC	Y	Y
Data Entry Date	DED	Y	Y
Data Update Date	DUPD	Y	Y
Document Type	DT	Y	Y
Entry Date	ED	Y	Y
Entry Date Full-text	EDTX	Y	Y
Entry Date Patent	EDP	Y	Y
European Patent Classification	EPC (ECLA)	Y	Y
Field Availability	FA	Y	N
ICO (in-computer-only) Classification	ICO	Y	Y

**SELECT, ANALYZE, and SORT Fields (cont'd)**

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
International Patent Classification (ICM, ICS, ICA, ICI)	IC	Y	Y
International Patent Classification (ICM, ICS, ICA, ICI, IPCI, IPCR)	IPC	Y	Y
Inventor	IN (AU)	Y	Y
Inventor, Country	IN.CNY	Y	Y
IPC Additional	ICA (IPCA)	Y	Y
IPC, Advanced Level Symbols	IPC.A	Y (4)	N
IPC, Advanced Level Symbols for Invention	IPC.AI	Y (4)	N
IPC, Core Level	IPC.C	Y (4)	N
IPC, Core Level for Invention	IPC.CI	Y (4)	N
IPC Index	ICI (IPCIN)	Y (3)	Y
IPC, Initial	IPCI	Y	Y
IPC Main	ICM (IPCM)	Y	Y
IPC, Reclassified	IPCR	Y	Y
IPC, Reform	IPC.REF	Y	N
IPC Secondary	ICS (IPCS)	Y	Y
Japanese Patent Classification (F-Term)	FTRM (JPCLA)	Y	Y
Japanese Patent Classification (FI-Term)	FCL (JPC)	Y	Y
Key Terms	KT	Y	N
Language	LA	Y	Y
Language of Filing	LAF	Y	Y
Locarno Classification	LCL	Y	Y
Number of Claims	CLMN	Y	N
Number of Paragraphs in DETD	DETN	Y	N
Occurrence Count of Hit Terms	OCC	N	Y
Patent Assignee	PA (CS)	Y	Y
Patent Assignee, Country	PA.CNY	Y	Y
Patent Assignee Address	PAA	Y	N
Patent Assignee, Number	PA.NO	Y	Y
Patent Assignee Normalized	PAN	Y	Y
Patent Assignee Standardized	PAS	Y	Y
Patent Country	PC	Y	Y
Patent Information Type	PIT	Y	Y
Patent Kind Code	PK	Y	Y
Patent Number	PI (PN)	Y (2) (default)	Y
Patent Number Group	PATS	Y (2)	Y
Patent Number Original	PNO	Y	Y
Patent Number/Kind Code	PNK	Y (3)	Y
Pre-IPC8 Symbols from the ICM and first IPC8 values from 2006-present	IPC.F	Y (4)	N
Priority Country	PRC	Y	Y
Priority Date	PRD	Y	Y
Priority Date First	PRDF	Y	Y
Priority Number	PRN (PRAI)	Y (2)	Y
Priority Number Original	PRNO	Y	Y
Priority Year	PRY	Y	Y
Priority Year First	PRYF	Y	Y
Publication Date	PD	Y	Y
Publication Year	PY	Y	Y
Related Application Country	RLC	Y	Y
Related Application Date	RLD	Y	Y
Related Application Number	RLN	Y (2)	Y
Related Application Year	RLY	Y	Y
Related Patent Country	RLPC	Y	Y
Related Patent Number	RLPN	Y (2)	Y
Related Publication Date	RLPD	Y	Y
Related Publication Year	RLPY	Y	Y
Title	TI	Y	Y
Title (English)	TIEN	Y	Y
Ultimate Owner	UO	Y	Y
Ultimate Owner Standardized	UOS	Y	Y

**SELECT, ANALYZE, and SORT Fields (cont'd)**

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Update Date	UP	Y	Y
Update Date Full-Text	UPTX	Y	Y

- (1) HIT may be used to restrict terms extracted to terms that match the search expression used to create the answer set, e.g., SEL HIT TI.  
(2) SELECTed, ANALYZed, and SORTed application, priority, and patent numbers are in the format set by the MESSENGER SET PATENT command, either Derwent or STN.  
(3) SELECT or ANALYZE HIT are not valid with this field.  
(4) Appends /IPC to the terms created by SELECT.

## Sample Records

### DISPLAY ISTD

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ACCESSION NUMBER:      2011040790   JPFULL
ENTRY DATE PATENT:    20120926
ENTRY DATE:          20120926
UPDATE DATE:         20220417
ENTRY DATE (FULLTEXT): 20120926
UPDATE DATE (FULLTEXT): 20210715
DATA ENTRY DATE:     20111223
DATA UPDATE DATE:    20220412
TITLE (ENGLISH):     USE OF GLASS FOR APPLICATION TO PHOTOVOLTAIC POWER
                     GENERATION
TITLE (JAPANESE):    太陽光発電適用のためのガラスの使用
INVENTOR(S):         FAFNER JORG;
                     OTTO FRANZ;
                     SPAIGHT BURCKHARD
PATENT APPLICANT(S): Schott AG, Hattenbergstr.10,D-55122 Mainz,Germany;
PATENT APPL. STANDARD.: SCHOTT
PATENT APPL. NORMAL.: SCHOTT
PATENT APPLICANT NUMB.: 504299782
ULTIMATE OWNER:      SCHOTT AG
ULTIMATE OWNER STANDARD: SCHOTT
LANGUAGE OF FILING:  Japanese
LANGUAGE OF PUBL.:   Japanese
DOCUMENT TYPE:        Patent; (Fulltext)
PATENT INFORMATION:   JP 2011258954      A      20111222
PATENT INFO. TYPE:   JPA PUBLISHED UNEXAMINED PATENT APPLICATION [FROM
                     19710716 ONWARDS] or PUBLISHED UNEXAMINED PATENT
                     APPLICATION (BASED ON INTERNATIONAL APPLICATION) [FROM
                     19790726 ONWARDS]
APPLICATION INFO.:    JP 2011-128030      A      20110608
PRIORITY INFO.:      DE 2010-102010023366      20100610
IPC ORIGINAL:        H01L0031-04 [I,A]; C03C0003-083 [I,A]; C03C0003-085
                     [I,A]; C03C0003-087 [I,A]; C03C0003-091 [I,A];
                     C03C0003-093 [I,A]; C03C0003-095 [I,A]
CPC CLASSIF.:        Y02E0010-541; C03C0003-093; C03C0003-087;
                     H01L0031-03925; H01L0031-0322; C03C0003-085;
                     C03C0003-11; H01L0031-0392; H01L0031-03923;
                     C03C0003-112
JAP. PATENT CLASSIF.: H01L0031-04 E; C03C0003-08; C03C0003-08; C03C0003-08;
                     C03C0003-09; C03C0003-09; C03C0003-09
FTERM CLASSIF.:      4G062/AA01; 4G062/BB01; 4G062/DA05; 4G062/DA06;
                     4G062/DB03; 4G062/DB04; 4G062/DC01; 4G062/DC02;
                     4G062/DC03; 4G062/DD01; 4G062/DE01; 4G062/DE02;
                     4G062/DE03; 4G062/DF01; 4G062/EA01; 4G062/EA02;
                     4G062/EA03; 4G062/EB04; 4G062/EC01; 4G062/EC02;
                     4G062/EC03; 4G062/ED01; 4G062/ED02; 4G062/ED03;
                     4G062/EE01; 4G062/EE02; 4G062/EE03; 4G062/EF01;
                     4G062/EF02; 4G062/EF03; 4G062/EG01; 4G062/EG02;
                     4G062/EG03; 4G062/FA01; 4G062/FA10; 4G062/FB01;
                     4G062/FG01; 4G062/FH01; 4G062/FJ01; 4G062/FK01;
                     ...
                     4G062/FL01; 4G062/FL02; 4G062/FL03; 4G062/GA01;
                     4G062/GA02; 4G062/GA03; 4G062/GA10; 4G062/GB01;

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4G062/GC01; 4G062/GD01; 4G062/GE01; 4G062/GE02;  
 4G062/GE03; 4G062/HH01; 4G062/HH03; 4G062/HH05;  
 4G062/HH07; 4G062/HH08; 4G062/HH09; 4G062/HH11;  
 4G062/HH12; 4G062/HH13; 4G062/HH15; 4G062/HH17;  
 4G062/HH20; 4G062/JJ01; 4G062/JJ03; 4G062/JJ04;  
 4G062/JJ05; 4G062/JJ07; 4G062/JJ10; 4G062/KK01;  
 4G062/KK03; 4G062/KK05; 4G062/KK07; 4G062/KK10;

...

5F151/GA03

EPC CLASSIF. (ECLA): H01L0031-032C; C03C0003-085; C03C0003-087;  
 C03C0003-093; C03C0003-11; C03C0003-112; H01L0031-0392  
 IN-COMPUTER-ONLY CLASSIF.:Y02E0010-50

**DISPLAY BIBO.M**

AN 1994101550 JPFULL EDP 20230327 ED 20230327 UP 20231119 EDTX 20230327  
 DUPD 20231114 Full-text  
 TIEN LIQUID DOSING SYSTEM  
 TIJA 液体ドージングシステム  
 IN SUTEFUAN SATSUTORAA  
 INJA ステファン  
 サットラー,  
 ドイツ連邦共和国、デー-8 2 3 8 0  
 プレイゼンバルク、ハンス-ボエックラー-シュトラーセ  
 1 3  
 PA BOEHRINGER MANNHEIM GMBH;  
 PAS BOEHRINGER MANNHEIM  
 PAN BOEHRINGER MANNHEIM  
 PA.NO 591005589  
 PAJA ベーリンガー・マンハイム・ゲゼルシャフト・ミット・ベシュレンクテル・ハフツング, ドイツ連邦共和国、デー  
 -6 8 2 9 8 マンハイム、ザントホーフアー  
 シュトラーセ  
 1 1 6  
 UO ROCHE HOLDING AG  
 UOS Roche  
 AGJA 朝日奈 宗太  
 (外3名)  
 LAF Japanese  
 LA Japanese  
 DT Patent; (Fulltext)  
 PIT JPA PUBLISHED UNEXAMINED PATENT APPLICATION [FROM 19710716 ONWARDS] or  
 PUBLISHED UNEXAMINED PATENT APPLICATION (BASED ON INTERNATIONAL  
 APPLICATION) [FROM 19790726 ONWARDS]  
 PI JP 06307907 A 19941104  
 AI JP 1994-65041 19940401  
 PRAI DE 1993-4310808 19930402

AN 1994101550 JPFULL EDP 20230327 ED 20230327 UP 20230327 EDTX 20230327  
 DED 20210525 DUPD 20210525 Full-text  
 TIEN LIQUID DOSING SYSTEM  
 IN SUTEFUAN SATSUTORAA  
 PA BOEHRINGER MANNHEIM GMBH  
 PAS BOEHRINGER MANNHEIM  
 PAN BOEHRINGER MANNHEIM  
 LAF English  
 DT Patent; (Fulltext)  
 PIT JPB PUBLISHED EXAMINED PATENT APPLICATION [FROM 1971 ONWARDS]  
 PI JP 08027204B B 19960321  
 AI JP 1994-65041 A 19940401  
 PRAI DE 1993-4310808 19930402

AN 1994101550 JPFULL EDP 20230327 ED 20230327 UP 20230327 EDTX 20230327  
 DED 20100531 DUPD 20210525 Full-text  
 TIEN Liquid dosing system

TIJA 液体ドージングシステム  
IN SUTEFUAN SATSUTORAA  
INJA ステファン  
サットラー,  
ドイツ連邦共和国、デー 8 2 3 8 0  
プレイゼンバルク、ハンスーボエックラーシュトラーセ  
1 3  
PA BOEHRINGER MANNHEIM GMBH;  
PAS BOEHRINGER MANNHEIM  
PAN BOEHRINGER MANNHEIM  
PA.NO 591005589  
PAJA ベーリンガー・マンハイム・ゲゼルシャフト・ミット・ベシュレンクテル・ハフツング, ドイツ連邦共和国、6 8  
3 0 5  
マンハイム、ザントホーファー  
シュトラーセ  
1 1 6  
UO ROCHE HOLDING AG  
UOS Roche  
AGJA 朝日奈 宗太  
(外 3 名)  
LAF Japanese  
LA Japanese  
DT Patent; (Fulltext)  
PIT JPB2 PUBLISHED EXAMINED PATENT APPLICATION (SECOND LEVEL) [FROM 19710716  
ONWARDS] or PUBLISHED GRANTED PATENT (SECOND LEVEL) [FROM 19960301  
ONWARDS]  
PI JP 08027204B B2 19960321  
AI JP 1994-65041 19940401  
PRAI DE 1993-4310808 19930402

**DISPLAY ALL**

AN 2024021040 JPFULL EDP 20240813 ED 20240813 UP 20240813 EDTX 20240813  
UPTX 20240823  
DED 20240823 DUPD 20240823 Full-text  
TIEN MnZn-based ferrite  
TIJA Mn Zn 系フェライト  
INJA 菊地 孝宏,  
東京都台東区蔵前二丁目17番4号  
JFEケミカル株式会社内  
高橋 幹雄,  
東京都台東区蔵前二丁目17番4号  
JFEケミカル株式会社内  
杉本 美秋,  
山口県山陽小野田市小野田7521-1 JFEマグパウダー株式会社内  
友原 達矢,  
山口県山陽小野田市小野田7521-1 JFEマグパウダー株式会社内  
PA JFE CHEMICAL CORP;  
PAJA JFEケミカル株式会社,  
東京都台東区蔵前二丁目17番4号  
PAS JFE CHEMICAL  
PAN JFE  
PA.NO 591067794  
AGJA 杉村 憲司  
杉村 光嗣  
川原 敬祐  
LAF Japanese  
LA Japanese  
DT Patent; (Fulltext)  
PI JP 7539601B B1 20240823  
PIT JPB1 PUBLISHED EXAMINED PATENT APPLICATION (FIRST LEVEL) [FROM 19210101  
UNTIL 19960329] or PUBLISHED GRANTED PATENT [FROM 19960301 ONWARDS]



AI JP 2024-541741 20240418  
PRAI JP 2023-72693 20230426  
RLI WO 2024-JP15487 20240418 PCT Application  
IPCI C04B0035-38 [I,A]; C01G0049-00 [I,A]; H01F0001-34 [I,A]  
FCL C04B0035-38; C01G0049-00 B; H01F0001-34 140

ABEN

Machine translation

In the temperature range of -40 85 ° C., suitable for electronic components such as pulse transformers, a MnZn-based ferrite that can obtain a higher incremental magnetic permeability is provided when a DC magnetic field of 25 A / m is applied. The MnZn ferrite of the present invention consists of a basic component, a subcomponent, and an unavoidable impurity, and as a basic component, iron : 52.5 53.5 mol% in terms of Fe 2 O 3 equivalent, zinc: 16.4 18.4 mol% in ZnO equivalent, and manganese: The remainder in terms of MnO is a subcomponent, and the subcomponent is Si: SiO 2 for the basic component. 30 100 mass ppm, 50 160 mass ppm in Ca:CaO equivalent, 1500 3500 mass ppm in Co:Co3O4, 100 600 mass ppm in Nb2O5 , V: V2O5 The conversion is 100 600 mass ppm, and the sum of the contents of Nb and V is 200 900 mass ppm in terms of Nb 2 O 5 and V 2 O 5 equivalent.

DETDEN

[DESC0001] The present invention relates to an MnZn-based ferrite that can obtain a high incremental magnetic permeability even when a DC magnetic field of 25 A / m is applied in the temperature range of -40 85 ° C., which is suitable for electronic components such as pulse transformers.

[DESC0002] For the transformer of the Ethernet (registered trademark) device, a pulse transformer using a soft magnetic material is used for the magnetic core for the purpose of matching the impedance at the input / output terminals or maintaining electrical insulation. This pulse transformer is required to have a high inductance, that is, a high

...

[DESC0075] As shown in Table 5, the invention example 15 having a low content of Si or Ca had a high Cpk of 1.35, while the comparative example 18 having a large content of Ca had a small Cpk of 0.82. From this result, it can be seen that Cpk is larger in Example 15 than in Comparative Example 18, and there is a margin for the lower limit of the specification of incremental magnetic permeability. From this, it can be seen that the present invention having a low content of Si or Ca is more preferable because the defective rate of incremental magnetic permeability is lower than the condition of the invention example of Patent Document 3.

[DESC0076] According to the present invention, it is possible to obtain an MnZn-based ferrite that exhibits a high incremental magnetic permeability even when a DC magnetic field of 25 A / m, which is suitable for electronic components such as pulse transformers in the temperature range of -40 85 ° C., is applied. This makes it possible to reduce the size of the ferrite core and the number of windings of copper wires.

CLMEN

[CLM0001] An MnZn-based ferrite composed of a basic component, a subcomponent, and an unavoidable impurity,

The basic component is the sum of iron, zinc, and manganese as 100 mol% in terms of Fe 2 O 3 , ZnO, and MnO.

Iron: 52.5 53.5mol% in terms of Fe2O3 ,

Zinc: 16.4 18.4mol% in ZnO equivalent, and

Manganese: Remaining in MnO equivalents

and

The auxiliary component is relative to the basic component,

Si: 30 100mass ppm in SiO2 equivalent,

Ca: 50 160mass ppm in CaO equivalent,  
 Co: 1500 3500mass ppm in terms of Co<sub>3</sub>O<sub>4</sub> ,  
 Nb: 100 600mass ppm in Nb<sub>2</sub>O<sub>5</sub> equivalent, andV: V<sub>2</sub>O<sub>5</sub> equivalent: 100  
 600mass ppm

The sum of the contents of Nb and V is 200 900 mass ppm in terms of  
 Nb<sub>2</sub>O<sub>5</sub> and V<sub>2</sub>O<sub>5</sub> MnZn ferrite is.

[CLM0002] The incremental magnetic permeability when a DC magnetic field  
 of 25 A / m is applied in the temperature range of -40 85 ° C.  
 is 2800 or more,

The MnZn-based ferrite according to claim 1, wherein the temperature  
 indicating the maximum value of the incremental magnetic permeability is  
 in the range of 10 50 ° C.

[CLM0003] The incremental magnetic permeability when a DC magnetic field  
 of 25 A / m is applied in the temperature range of 0 60 ° C. is  
 3700 or more,

Furthermore, the MnZn-based ferrite according to claim 2, wherein the  
 incremental magnetic permeability when a DC magnetic field of 25 A / m  
 is applied in the temperature range of 23 40 ° C. is 4100 or  
 more.

KT

mnzn-based ferrite; magnetic field; temperature range; mnzn ferrite;  
 incremental permeability; initial permeability; zno equivalent; healthy  
 ferrite sintered core; cao equivalent; mno equivalent; residual magnetic  
 flux density; secondary peak; curie temperature; soft magnetic material;  
 auxiliary component; metallic magnetic material; oxide magnetic  
 material; high capability index cpk; magnetic anisotropic constant;  
 ferrite powder having condition; magnetic bia; uniform crystal grain;  
 thin magnetic core; stable magnetic property; vacuum permeability;  
 incrementalmagnetic permeability; magnetic wall movement; abnormal grain  
 growth; unavoidable impurity; process capability index cpk

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