Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.

⚠ REMINDERS

Product Information in this Catalog

Product information in this catalog is as of October 2019. All of the contents specified herein and production status of the products listed in this catalog are subject to change without notice due to technical improvement of our products, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

Approval of Product Specifications

Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available. When using our products, please be sure to approve our product specifications or make a written agreement on the product specification with TAIYO YUDEN in advance.

Pre-Evaluation in the Actual Equipment and Conditions

Please conduct validation and verification of our products in actual conditions of mounting and operating environment before using our products.

Limited Application

1. Equipment Intended for Use

The products listed in this catalog are intended for general-purpose and standard use in general electronic equipment (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and other equipment specified in this catalog or the individual product specification sheets.

TAIYO YUDEN has the line-up of the products intended for use in automotive electronic equipment, telecommunications infrastructure and industrial equipment, or medical devices classified as GHTF Classes A to C (Japan Classes I to III). Therefore, when using our products for these equipment, please check available applications specified in this catalog or the individual product specification sheets and use the corresponding products.

2. Equipment Requiring Inquiry

Please be sure to contact TAIYO YUDEN for further information before using the products listed in this catalog for the following equipment (excluding intended equipment as specified in this catalog or the individual product specification sheets) which may cause loss of human life, bodily injury, serious property damage and/or serious public impact due to a failure or defect of the products and/or malfunction attributed thereto.

(1) Transportation equipment (automotive powertrain control system, train control system, and ship control system, etc.)
(2) Traffic signal equipment
(3) Disaster prevention equipment, crime prevention equipment
(4) Medical devices classified as GHTF Class C (Japan Class III)
(5) Highly public information network equipment, data-processing equipment (telephone exchange, and base station, etc.)
(6) Any other equipment requiring high levels of quality and/or reliability equal to the equipment listed above

3. Equipment Prohibited for Use

Please do not incorporate our products into the following equipment requiring extremely high levels of safety and/or reliability.

(1) Aerospace equipment (artificial satellite, rocket, etc.)
(2) Aviation equipment *1
(3) Medical devices classified as GHTF Class D (Japan Class IV), implantable medical devices *2
(4) Power generation control equipment (nuclear power, hydroelectric power, thermal power plant control system, etc.)
(5) Undersea equipment (submarine repeating equipment, underwater work equipment, etc.)
(6) Military equipment
(7) Any other equipment requiring extremely high levels of safety and/or reliability equal to the equipment listed above

*Notes:

1. There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.
2. Implantable medical devices contain not only internal unit which is implanted in a body, but also external unit which is connected to the internal unit.

4. Limitation of Liability

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the products listed in this catalog for any equipment that is not intended for use by TAIYO YUDEN, or any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

Safety Design

When using our products for high safety and/or reliability-required equipment or circuits, please fully perform safety and/or reliability evaluation. In addition, please install (i) systems equipped with a protection circuit and a protection device and/or (ii) systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault for a failsafe design to ensure safety.

Intellectual Property Rights

Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.

Limited Warranty

Please note that the scope of warranty for our products is limited to the delivered our products themselves and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a failure or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement.

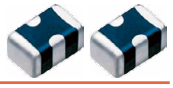
TAIYO YUDEN's Official Sales Channel

The contents of this catalog are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter "TAIYO YUDEN's official sales channel"). Please note that the contents of this catalog are not applicable to our products purchased from any seller other than TAIYO YUDEN's official sales channel.

Caution for Export

Some of our products listed in this catalog may require specific procedures for export according to "U.S. Export Administration Regulations", "Foreign Exchange and Foreign Trade Control Law" of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

MULTILAYER EMI SUPPRESSION FILTERS



REFLOW

■PARTS NUMBER

＊ Operating Temp.: −25〜+85℃

【T Series】

F K	2 1 2 5	T	△ 2 5 6	A	L	— T	△
①	②	③	④	⑤	⑥	⑦	⑧

△=Blank space

①Series name

Code	Series name
FK	Multilayer EMI suppression filter

②Dimensions (L×W)

Code	Type (inch)	Dimensions (L×W) [mm]
2125	2125 (0805)	2.0×1.25

③Equivalence circuit

Code	Equivalence circuit
T	T type

④Cutoff frequency

Code (example)	Cutoff frequency
△186	18 MHz
△256	25 MHz

⑤Characteristics

Code (example)	Characteristics
A	Sharp

⑥Rated voltage

Code	Rated voltage [V]
L	10

⑦Packaging

Code	Packaging
—T	Taping

⑧Internal code

Code	Internal code
△	Standard

【TZ Series】

F K	2 1 2 5	T	Z 2 0 1	C 8 5 0	T	△
①	②	③	④	⑤	⑥	⑦

△=Blank space

①Series name

Code	Series name
FK	Multilayer EMI suppression filter

②Dimensions (L×W)

Code	Type (inch)	Dimensions (L×W) [mm]
2125	2125 (0805)	2.0×1.25

③Equivalence circuit

Code	Equivalence circuit
T	T type

④Nominal impedance

Code	Nominal impedance [100MHz]
Z700	70Ω
Z101	100Ω
Z201	200Ω

⑤Nominal capacitance

Code	Nominal capacitance [1MHz]
C170	17pF
C500	50pF
C850	85pF

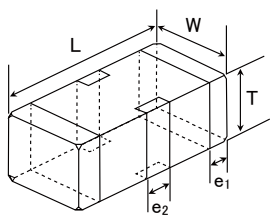
⑥Packaging

Code	Packaging
T	Taping

⑦Internal code

Code	Internal code
△	Standard

■STANDARD EXTERNAL DIMENSIONS / STANDARD QUANTITY



L	W	T	e^1	e^2	Standard quantity [pcs] Embossed tape
2.0±0.2 (0.079±0.008)	1.25±0.2 (0.049±0.008)	1.0±0.2 (0.039±0.008)	0.3±0.2 (0.012±0.008)	0.4±0.2 (0.016±0.008)	3000

Unit: mm (inch)

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our product specification sheets. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our website (http://www.ty-top.com/) .

■PARTS NUMBER

●T Series

Parts number	EHS	Cut off frequency [MHz]	Characteristic								DC resistance [Ω] (max.)	Rated voltage [V] (DC)	Rated current [mA] (DC)	Insulation resistance [MΩ]
			insertion loss [1MHz]	attnuation										
				50MHz	100MHz	200MHz	350MHz	500MHz	600MHz	800MHz				
FK2125T 186AL-T	RoHS	18±3.6	≦1.0dB	≧20dB	≧20dB	–	–	≧20dB	–	–	2	10	100	≧30
FK2125T 256AL-T	RoHS	25±5	≦1.0dB	≧15dB	≧20dB	–	–	≧20dB	–	–	2	10	100	≧30
FK2125T 406AL-T	RoHS	40±10	≦1.0dB	–	≧15dB	≧20dB	–	≧20dB	–	–	2	10	100	≧30
FK2125T 107AL-T	RoHS	100±20	≦1.0dB	–	–	≧20dB	–	≧20dB	–	–	3	10	100	≧30
FK2125T 167AL-T	RoHS	160±30	≦1.0dB	–	–	–	≧20dB	≧20dB	–	–	2	10	100	≧30
FK2125T 207AL-T	RoHS	200±40	≦1.0dB	–	–	–	≧20dB	≧20dB	–	–	2	10	100	≧30
FK2125T 407AL-T	RoHS	400±80	≦1.0dB	–	–	–	–	–	≧20dB	≧20dB	2	10	100	≧30

●TZ Series

Parts number	EHS	Impedance (terminal 1-3) [100MHz]	Capacitance (terminal 1-2) [1MHz]	DC resistance [Ω] (max.)	Rated voltage [V] (DC)	Rated current [mA] (DC)	Insulation resistance [MΩ]
FK2125TZ700C170T	RoHS	70Ω±30%	17pF±20%	2	10	100	≧30
FK2125TZ700C500T	RoHS	70Ω±30%	50pF±20%	2	10	100	≧30
FK2125TZ700C850T	RoHS	70Ω±30%	85pF±20%	2	10	100	≧30
FK2125TZ101C170T	RoHS	100Ω±30%	17pF±20%	2	10	100	≧30
FK2125TZ101C500T	RoHS	100Ω±30%	50pF±20%	2	10	100	≧30
FK2125TZ101C850T	RoHS	100Ω±30%	85pF±20%	2	10	100	≧30
FK2125TZ201C850T	RoHS	200Ω±30%	85pF±20%	2	10	100	≧30

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■PACKAGING

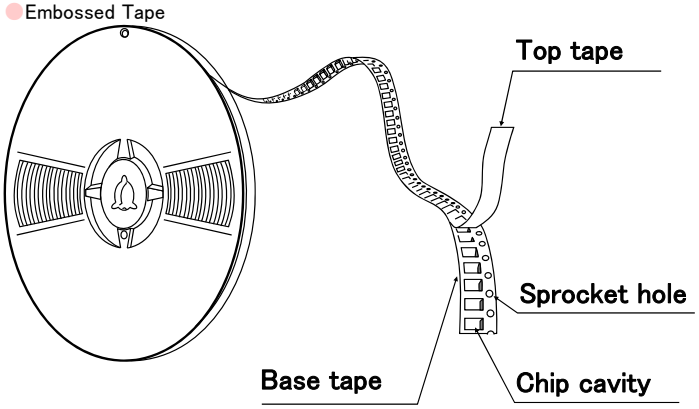
①Minimum Quantity

●Taped package

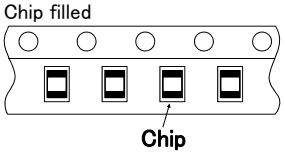
Type	Thickness mm(inch)	Standard Quantity [pcs]
		Embossed tape
FK 2125(0805)	1.0(0.039)	3000

②Tape material

●Embossed Tape



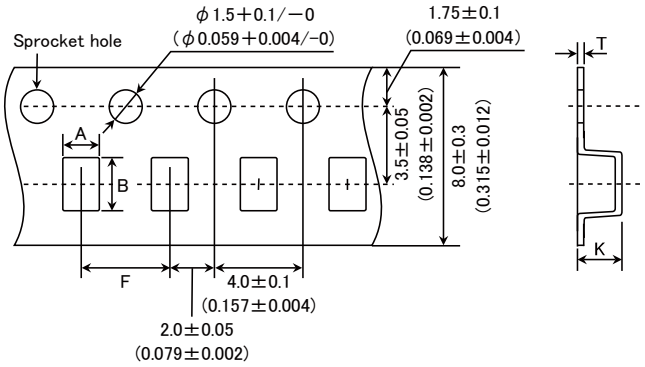
Chip filled



③Taping dimensions

●Embossed tape 8mm wide

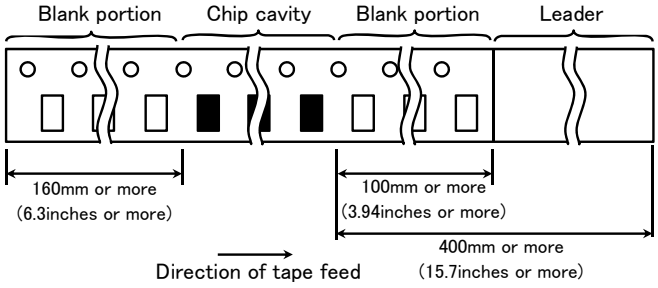
Unit : mm(inch)



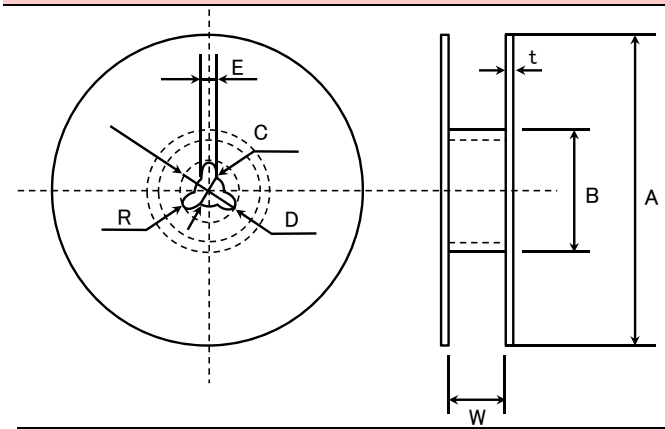
Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	K	T
FK 2125(0805)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	2.0 max. (0.079 max.)	0.3 max. (0.012 max.)

Unit : mm(inch)

④Leader and Blank portion



⑤Reel size

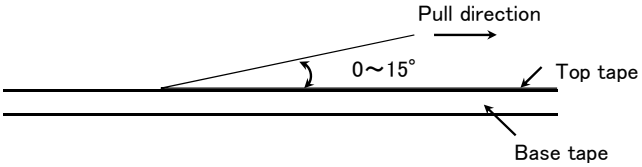


A	B	C	D	E	R	t	W
ϕ178±2.0	ϕ50min.	ϕ13.0±0.2	ϕ21.0±0.8	2.0±0.5	1.0	2.5max.	10±1.5

Unit : mm

⑥Top tape strength

The top tape requires a peel;-off force of 0.1～0.7N in the direction of the arrow as illustrated below.



MULTILAYER EMI SUPPRESSION FILTERS

■RELIABILITY DATA

1. Operating Temperature Range	
Specified Value	−25～＋85℃

2. Storage Temperature Range	
Specified Value	−25～＋85℃

3. Rated Voltage	
Specified Value	10V DC

4. Rated Current	
Specified Value	100mA DC

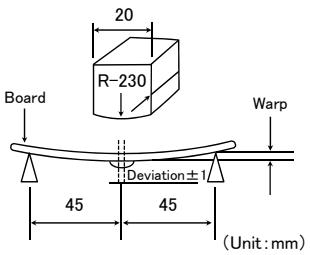
5. Cutoff frequency (T Series)	
Specified Value	18MHz±3.6MHz, 25MHz±5MHz, 40MHz±10MHz, 100MHz±20MHz, 160MHz±30MHz, 200MHz±40MHz, 400MHz±80MHz
Test Methods and Remarks	Measuring equipment : 8753D (or its equivalent) Measuring source : 0dBm Input-Output impedance : 50Ω

6. Impedance (TZ Series)	
Specified Value	70Ω±30%, 100Ω±30%, 200Ω±30%
Test Methods and Remarks	Measuring frequency : 100MHz Measuring equipment : 4291A (or its equivalent) Measuring jig : 16192A Measuring source : −20dBm

7. Capacitance (TZ Series)	
Specified Value	17pF±20%, 50pF±20%, 85pF±20%
Test Methods and Remarks	Measuring equipment : 4194A (or its equivalent) Measuring voltage : 0.5V Measuring frequency : 1MHz Capacitance measurement between Terminals 1 and 2.

8. DC Resistance	
Specified Value	2Ω max., 3Ω max. (FK2125T107AL)
Test Methods and Remarks	Conduct measurement between Terminals 1 and 3.

9. Insulation Resistance	
Specified Value	30MΩ min.
Test Methods and Remarks	Conduct measurement between Terminals 1 and 2. Applied voltage : 10VDC

10. Resistance to Flexure of Substrate	
Specified Value	No mechanical damage.
Test Methods and Remarks	Warp : 2mm Testing board : glass epoxy-resin substrate Thickness : 0.8mm 

11. Solderability	
Specified Value	At least 75% of terminal electrode is covered by new solder.
Test Methods and Remarks	Solder temperature : 230±5℃ Duration : 4±1 sec. Preheating temperature : 150 to 180℃ Preheating time : 2 to 3 min. Flux : Immersion into methanol solution with colophony for 3 to 5 sec.

12. Resistance to Soldering	
Specified Value	No significant abnormality in appearance.
Test Methods and Remarks	Solder temperature : 260±5℃ Duration : 10±0.5 sec. Preheating temperature : 150 to 180℃ Preheating time : 2 to 3 min. Flux : Immersion into methanol solution with colophony for 3 to 5 sec.

13. Thermal Shock	
Specified Value	No mechanical damage. Insulation resistance (between 1 and 2) : 20MΩ min. DC resistance (between 1 and 3) : 2Ω max. : 3Ω max. (FK2125T107AL)
Test Methods and Remarks	Conditions for 1 cycle

Step	Temperature (℃)	Duration (min)
1	Minimum operating temperature +0/−3	30±3
2	Room temperature	2 to 3
3	Maximum operating temperature +3/−0	30±3
4	Room temperature	2 to 3

Number of cycles : 5
Recovery : 2 to 3 hrs of recovery under the standard condition after the test.

14. Damp Heat steady state	
Specified Value	No mechanical damage. Insulation resistance (between 1 and 2) : 20MΩ min. DC resistance (between 1 and 3) : 2Ω max. : 3Ω max. (FK2125T107AL)
Test Methods and Remarks	Temperature : 40±2℃ Humidity : 90 to 95%RH Duration : 500±12 hrs Recovery : 2 to 3 hrs of recovery under the standard condition after the removal from test chamber.

15. Loading under Damp Heat	
Specified Value	No mechanical damage. Insulation resistance (between 1 and 2) : 20MΩ min. DC resistance (between 1 and 3) : 2Ω max. : 3Ω max. (FK2125T107AL)
Test Methods and Remarks	Temperature : 40±2℃ Humidity : 90 to 95%RH Applied voltage : Rated voltage (between 1 and 2) Applied current : Rated current (between 1 and 3) Duration : 500±12 hrs Recovery : 2 to 3 hrs of recovery under the standard condition after the removal from test chamber.

16. Loading at High Temperature	
Specified Value	No mechanical damage. Insulation resistance (between 1 and 2) : 20MΩ min. DC resistance (between 1 and 3) : 2Ω max. : 3Ω max. (FK2125T107AL)
Test Methods and Remarks	Temperature : 85±2℃ Applied voltage : Rated voltage (between 1 and 2) Applied current : Rated current (between 1 and 3) Duration : 500±12 hrs Recovery : 2 to 3 hrs of recovery under the standard condition after the removal from test chamber.

Note on standard condition :

"standard condition" referred to herein is defined as follows :

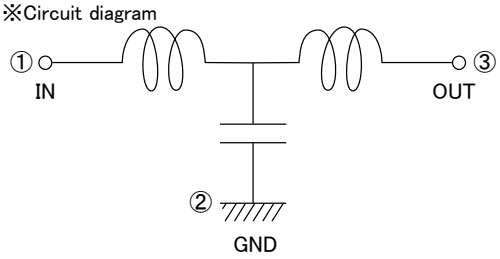
5 to 35℃ of temperature, 45 to 85% relative humidity and 86 to 106kPa of air pressure.

When there are questions concerning measurement results :

In order to provide correlation data, the test shall be conducted under condition of 20±2℃ of temperature, 60 to 70% relative humidity and 86 to 106kPa of air pressure.

Unless otherwise specified, all the tests are conducted under the "standard condition."

※Circuit diagram



Since neither 1 nor 3 is directional, either could be served as the IN terminal.