Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.

⚠ REMINDERS

- Product information in this catalog is as of October 2010. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or usage of the Products.

  Please note that Taiyo Yuden Co., Ltd. shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this catalog or individual specification.

- Please contact Taiyo Yuden Co., Ltd. for further details of product specifications as the individual specification is available.

- Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.

- All electronic components or functional modules listed in this catalog are developed, designed and intended for use in general electronics equipment.(for AV, office automation, household, office supply, information service, telecommunications, (such as mobile phone or PC) etc.). Before incorporating the components or devices into any equipment in the field such as transportation,(automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network (telephone exchange, base station) etc. which may have direct influence to harm or injure a human body, please contact Taiyo Yuden Co., Ltd. for more detail in advance.
  Do not incorporate the products into any equipment in fields such as aerospace, aviation, nuclear control, submarine system, military, etc. where higher safety and reliability are especially required.

  In addition, even electronic components or functional modules that are used for the general electronic equipment, if the equipment or the electric circuit require high safety or reliability function or performances, a sufficient reliability evaluation check for safety shall be performed before commercial shipment and moreover, due consideration to install a protective circuit is strongly recommended at customer's design stage.

- The contents of this catalog are applicable to the products which are purchased from our sales offices or distributors (so called "TAIYO YUDEN's official sales channel").
  It is only applicable to the products purchased from any of TAIYO YUDEN's official sales channel.

- Please note that Taiyo Yuden Co., Ltd. shall have no responsibility for any controversies or disputes that may occur in connection with a third party's intellectual property rights and other related rights arising from your usage of products in this catalog. Taiyo Yuden Co., Ltd. grants no license for such rights.

- Caution for export
  Certain items in this catalog may require specific procedures for export according to "Foreign Exchange and Foreign Trade Control Law" of Japan, "U.S. Export Administration Regulations", and other applicable regulations. Should you have any question or inquiry on this matter, please contact our sales staff.

MULTILAYER EMI SUPPRESSION FILTER

REFLOW

FEATURES

- 2×1.25mm size EMI filter unifying multilayer capacitor and inductor T series with rapid attenuation characteristics and TZ series with effective maintaining of waveform quality of digital signal are lined up.
- Same shape as multilayer capacitor which is suitable for high speed mounting by automatic machine.

APPLICATIONS

- Noise countermeasure in visual signal such as DVD, DSC, PDP, etc. (T series)
- Noise countermeasure and maintaining waveform quality in digital signal processing circuit in personal computer, communication equipment, etc. (TZ series)

OPERATING TEMPERATURE RANGE

- −25～+85℃

ORDERING CODE

【T Series】

F K 2 1 2 5 T 2 5 6 A L — T ○

❶Type	
FK	Multilayer EMI Suppression Filter

❷External dimensions (L×W) [mm]	
2125 (0805)	2.0×1.25

❸Equivalence circuit	
T	T type

❹Cutoff frequency	
example	
186	18 MHz
256	25 MHz

❺Characteristic	
example	
A	Sharp

❻Rated Voltage [V]	
L	10

❼Packaging	
—T	Tape & Reel

❽Internal Code	
△	Standard products

△=Blank space

【TZ Series】

F K 2 1 2 5 T Z 2 0 1 C 8 5 0 T ○

❶Type	
FK	Multilayer EMI Suppression Filter

❷External dimensions (L×W) [mm]	
2125 (0805)	2.0×1.25

❸Equivalence circuit	
T	T type

❹Nominal Impedance [100MHz]	
Z700	70Ω
Z101	100Ω
Z201	200Ω

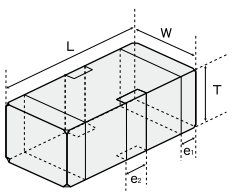
❺Nominal Capacitance [1MHz]	
C170	17pF
C500	50pF
C850	85pF

❻Packaging	
T	Tape & Reel

❼Internal Code	
△	Standard products

△=Blank space

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)

PART NUMBERS

●T Series

Ordering code		EHS (Environmental Hazardous Substances)	Cut-Off Frequency	Characteristic								DC resistance max.	Rated Voltage	Rated current	Insulation resistance
				insertion-loss	attnuation										
				[1MHz]	[50MHz]	[100MHz]	[200MHz]	[350MHz]	[500MHz]	[600MHz]	[800MHz]				
FK2125T186AL		RoHS	18MHz±3.6MHz		≧20dB	≧20dB	—	—	≧20dB	—	—				
FK2125T256AL		RoHS	25MHz±5MHz		≧15dB	≧20dB	—	—	≧20dB	—	—	2Ω			
FK2125T406AL		RoHS	40MHz±10MHz		—	≧15dB	≧20dB	—	≧20dB	—	—				
FK2125T107AL		RoHS	100MHz±20MHz	≦1.0dB	—	—	≧20dB	—	≧20dB	—	—	3Ω	10V DC	100mA DC	≧30MΩ
FK2125T167AL		RoHS	160MHz±30MHz		—	—	—	≧20dB	≧20dB	—	—				
FK2125T207AL		RoHS	200MHz±40MHz		—	—	—	≧20dB	≧20dB	—	—	2Ω			
FK2125T407AL		RoHS	400MHz±80MHz		—	—	—	—	—	≧20dB	≧20dB				

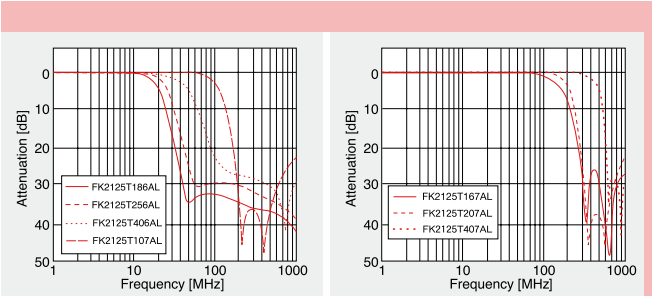
●TZ Series

Ordering code		EHS (Environmental Hazardous Substances)	impedance (terminal1-3) [100MHz]	capacitance (terminal1-2) [1MHz]	DC resistance max.	Rated Voltage	Rated current	Insulation resistance
FK2125TZ700C170		RoHS	70Ω±30%	17pF±20%				
FK2125TZ700C500		RoHS	70Ω±30%	50pF±20%				
FK2125TZ700C850		RoHS	70Ω±30%	85pF±20%				
FK2125TZ101C170		RoHS	100Ω±30%	17pF±20%	2Ω	10V DC	100mA DC	≧30MΩ
FK2125TZ101C500		RoHS	100Ω±30%	50pF±20%				
FK2125TZ101C850		RoHS	100Ω±30%	85pF±20%				
FK2125TZ201C850		RoHS	200Ω±30%	85pF±20%				

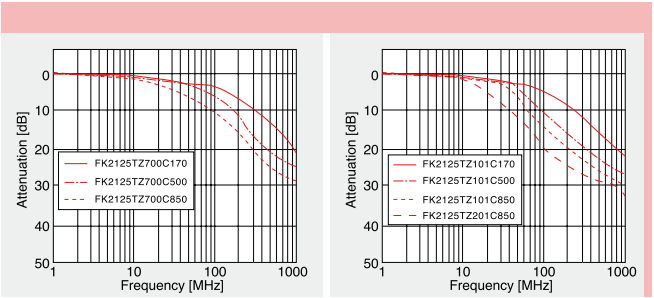
* This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (http://www.ty-top.com/)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

ELECTRICAL CHARACTERISTICS

T Series



TZ Series



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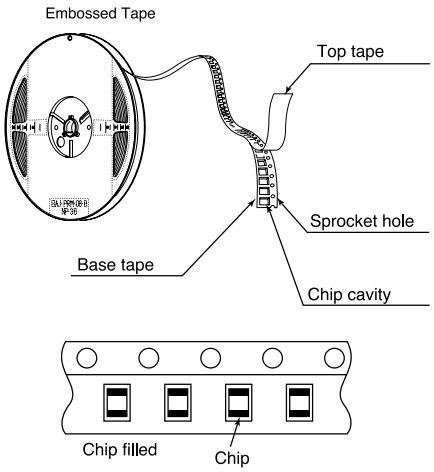
PACKAGING

①Minimum Quantity

●Taped package

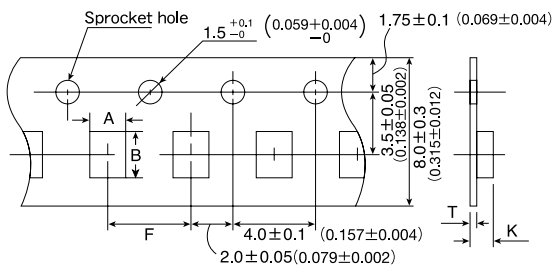
Type	Thickness [mm]	Standard Quantity [pcs] Embossed tape
FK 2125 (0805)	1.0 (0.039)	3000

②Tape material



③Taping dimensions

●Embossed tape 8mm wide (0.031 inches wide)

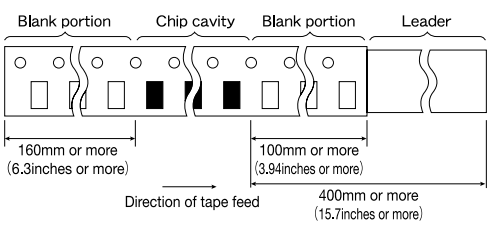


Unit : mm (inch)

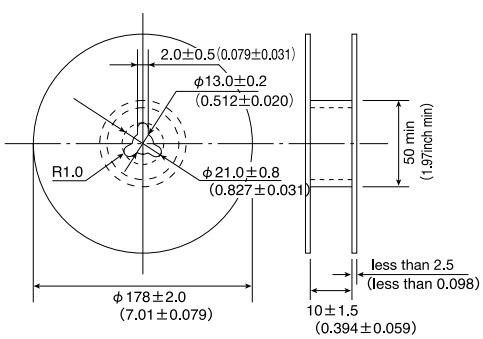
Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	K	T
FK 2125 (0805)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	2.0 max. (0.079 max.)	0.3 max. (0.012 max.)

Unit : mm (inch)

④Leader and Blank portion



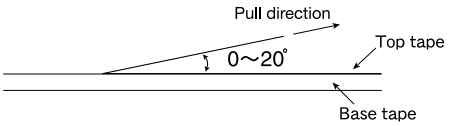
⑤Reel size



Unit : mm (inch)

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.



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RELIABILITY DATA

MULTILAYER EMI SUPPRESSION FILTER

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

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

3. Rated Voltage	
Specified	10V DC

4. Rated Current	
Specified	100mA DC

5. Cutoff frequency (T Series)	
Specified	18MHz±3.6MHz, 25MHz±5MHz, 40MHz±10MHz, 100MHz±20MHz, 160MHz±30MHz, 200MHz±40MHz, 400MHz±80MHz

【Test Methods and Remarks】
Measuring equipment : HP8753D (or its equivalent)
Measuring source : 0dBm
Input-Output impedance : 50Ω

6. Impedance (TZ Series)	
Specified	70Ω±30%, 100Ω±30%, 200Ω±30%

【Test Methods and Remarks】
Measuring frequency : 100MHz
Measuring equipment : HP4291A (or its equivalent)
Measuring jig : HP16192A
Measuring source : −20dBm

7. Capacitance (TZ Series)	
Specified	17pF±20%, 50pF±20%, 85pF±20%

【Test Methods and Remarks】
Measuring equipment : HP4194A (or its equivalent)
Measuring voltage : 0.5V
Measuring frequency : 1MHz
Capacitance measurement between Terminals 1 and 2.

8. DC Resistance	
Specified	2Ω max., 3Ω max. (FK2125T107AL)

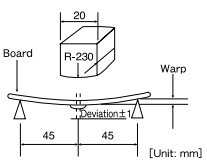
【Test Methods and Remarks】
Conduct measurement between Terminals 1 and 3.

9. Insulation Resistance	
Specified	30MΩ min.

【Test Methods and Remarks】
Conduct measurement between Terminals 1 and 2.
Applied voltage : 10VDC

10. Resistance to Flexure of Substrate	
Specified	No mechanical damage.

【Test Methods and Remarks】
Warp : 2mm
Testing board : glass epoxy-resin substrate
Thickness : 0.8mm



11. Solderability	
Specified	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	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	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
Step1 : Minimum operating temperature $^{+0}_{-3}$℃ : 30±3 min
Step2 : Room temperature : 2 to 3 min
Step3 : Maximum operating temperature $^{+3}_{-0}$℃ : 30±3 min
Step4 : Room temperature : 2 to 3 min

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

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MULTILAYER EMI SUPPRESSION FILTER

14. Damp Heat steady state	
Specified	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	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.

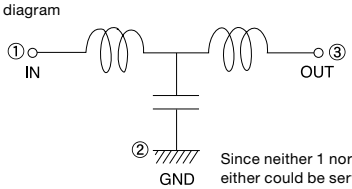
16. Loading at High Temperature	
Specified	No mechanical damage. Insulation resistance (between 1 and 2) : 20MΩ min. DC resistance (between 1 and 3) : 2Ω max. 3Ω max. (FK2125T107AL)

【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.