

## 3-terminal Filters

For power line

### ACH series

|       |                |                     |
|-------|----------------|---------------------|
| Type: | <b>ACH32C</b>  | <b>[1206 inch]*</b> |
|       | <b>ACH3218</b> | <b>[1207 inch]</b>  |
|       | <b>ACH4518</b> | <b>[1807 inch]</b>  |

\* Dimensions Code [EIA]

Issue date: September 2011

- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# 3-terminal Filters For Power Line

Conformity to RoHS Directive

## ACH Series ACH32C

### FEATURES

- These T-type EMC filters comprise ferrite beads and chip capacitors and are engineered to handle high current levels.
- The series offers even greater attenuation characteristics when used in a stable circuit on the ground.
- The ACH series is ideal for high-density circuit design, since the series is vertically mounted and does not require much mounting space.
- Because guarantee temperature range is  $-40$  to  $+125^{\circ}\text{C}$ , it is possible to use in strict environmental condition.
- Available for reflow soldering.

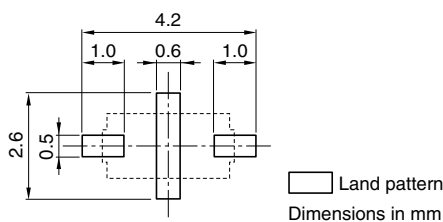
### APPLICATIONS

Home electronic equipment, (TVs, VCRs, CD players, DAT players, electric musical instruments, PCs, etc.), office automation equipment (computers, terminals, stand-alone word processors, fax machines, etc.), factory automation equipment (robots, numerical control devices, process controllers, etc.), automotive electronics (car navigation, ECU, etc.)

### SHAPES AND DIMENSIONS/CIRCUIT DIAGRAM



### RECOMMENDED PC BOARD PATTERN REFLOW SOLDERING



### PRODUCT IDENTIFICATION

ACH 32C - 103 - T □□□  
(1) (2) (3) (4) (5)

- (1) Series name
- (2) Dimensions  
32C: 3216 type(3.2×1.6mm)
- (3) Capacitance  
103: 10000pF
- (4) Packaging style  
T:  $\phi$ 180mm reel taping
- (5) TDK internal code

### TEMPERATURE RANGES

|                      |                                 |
|----------------------|---------------------------------|
| Operating            | $-40$ to $+125^{\circ}\text{C}$ |
| Storage(After mount) | $-40$ to $+125^{\circ}\text{C}$ |

### PACKAGING STYLE AND QUANTITIES

|                 |              |                  |
|-----------------|--------------|------------------|
| Packaging style | Reel         | Quantity         |
| Taping          | $\phi$ 180mm | 2000 pieces/reel |

### RECOMMENDED SOLDERING CONDITIONS

#### RECOMMENDED TEMPERATURE PROFILE FOR LEAD-FREE SOLDER



#### REFLOW PROFILE FOR SOLDER HEAT RESISTANCE



- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
- Please contact our Sales office when your application is considered the following:  
The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

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## ELECTRICAL CHARACTERISTICS

| Part No.        | Rated voltage<br>Edc(V)max. | Rated current<br>(A)max. | Insulation resistance<br>(M $\Omega$ )min. | DC resistance<br>(m $\Omega$ )max. | Guaranteed<br>attenuation<br>(dB) | Guaranteed frequency<br>bandwidth<br>(MHz) |
|-----------------|-----------------------------|--------------------------|--|------------------------------------|-----------------------------------|--|
| ACH32C-100-T001 | 50                          | 6                        | 100  | 2                                  | -15                               | 2000 to 6000                               |
| ACH32C-220-T001 | 50                          | 6                        | 100  | 2                                  | -15                               | 1300 to 2500                               |
| ACH32C-470-T001 | 50                          | 6                        | 100  | 2                                  | -15                               | 650 to 2500                                |
| ACH32C-101-T001 | 50                          | 6                        | 100  | 2                                  | -20                               | 450 to 1300                                |
| ACH32C-331-T001 | 50                          | 6                        | 100  | 2                                  | -20                               | 200 to 800                                 |
| ACH32C-102-T001 | 50                          | 6                        | 100  | 2                                  | -25                               | 100 to 350                                 |
| ACH32C-222-T001 | 50                          | 6                        | 100  | 2                                  | -25                               | 55 to 300                                  |
| ACH32C-103-T001 | 50                          | 6                        | 100  | 2                                  | -25                               | 30 to 200                                  |
| ACH32C-333-T001 | 50                          | 6                        | 100  | 2                                  | -25                               | 10 to 300                                  |
| ACH32C-104-T001 | 50                          | 6                        | 100  | 2                                  | -25                               | 3.5 to 200                                 |

## TYPICAL ELECTRICAL CHARACTERISTICS

### ATTENUATION vs. FREQUENCY CHARACTERISTICS

(Glass epoxy coated double side mounting PCB)



## CIRCUIT DIAGRAM



# 3-terminal Filters For Power Line

Conformity to RoHS Directive

## ACH Series ACH3218, ACH4518

### FEATURES

- The ACH series consists of products with superior attenuation characteristics, in which the T-type filter circuit is magnetically shielded with ferrite.
- The series offers even greater attenuation characteristics when used in a stable circuit on the ground.
- The ACH series is ideal for high-density circuit design, since the series is vertically mounted and does not require much mounting space.
- Available for reflow soldering.
- It is a product conforming to RoHS directive.

### PRODUCT IDENTIFICATION

|     |      |     |     |     |   |   |   |   |
|-----|------|-----|-----|-----|---|---|---|---|
| ACH | 3218 | -   | 223 | -   | T | D | □ | □ |
| (1) | (2)  | (3) | (4) | (5) |   |   |   |   |

- (1) Series name  
 (2) Dimensions  
 (3) Type  
 (4) Packaging style  
 (5) TDK internal code

### TEMPERATURE RANGES

|                      |               |
|----------------------|---------------|
| Operating            | -40 to +125°C |
| Storage(After mount) | -40 to +125°C |

### PACKAGING STYLE AND QUANTITIES

|                 |                  |
|-----------------|------------------|
| Packaging style | Quantity         |
| Taping          | 1000 pieces/reel |

### HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- The inductance value may change due to magnetic saturation if the current exceeds the rated maximum.
- Do not expose the inductors to stray magnetic fields.
- Avoid static electricity discharge during handling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

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• Please contact our Sales office when your application is considered the following:  
 The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

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## ACH3218 TYPE SHAPES AND DIMENSIONS/CIRCUIT DIAGRAM



## RECOMMENDED PC BOARD PATTERN REFLOW SOLDERING



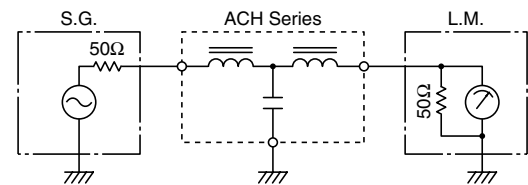
## ELECTRICAL CHARACTERISTICS

| Part No.    | 25dB attenuation frequency range (MHz) | Rated voltage Edc (V)max. | Rated current (A)max. | DC resistance ( $\Omega$ )max. [Terminal No.1 to 3] | Insulation resistance (M $\Omega$ )min. [Terminal No.1 to 2/No.2 to 3] |
|-------------|--|---------------------------|-----------------------|---|--|
| ACH3218-223 | 11 to 55                               | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-103 | 17 to 60                               | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-682 | 22 to 75                               | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-472 | 30 to 85                               | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-332 | 37 to 90                               | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-222 | 45 to 105                              | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-152 | 60 to 115                              | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-102 | 80 to 140                              | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-681 | 95 to 150                              | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-471 | 120 to 180                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-331 | 130 to 210                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-221 | 170 to 250                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-151 | 205 to 280                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-101 | 265 to 340                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-680 | 340 to 420                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-470 | 420 to 500                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-330 | 500 to 600                             | 20                        | 1.5                   | 0.06  | 1000   |
| ACH3218-220 | 600 to 700                             | 20                        | 1.5                   | 0.06  | 1000   |

## TYPICAL ELECTRICAL CHARACTERISTICS ATTENUATION vs. FREQUENCY CHARACTERISTICS

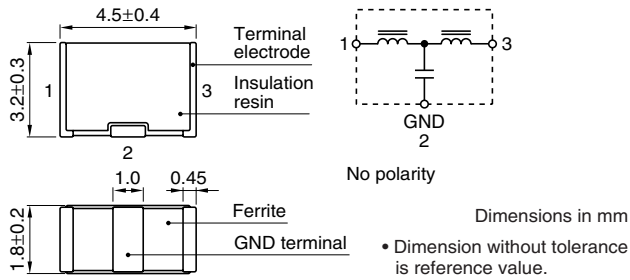


## MEASURING CIRCUIT



## ACH4518 TYPE

### SHAPES AND DIMENSIONS/CIRCUIT DIAGRAM



### RECOMMENDED PC BOARD PATTERN REFLOW SOLDERING

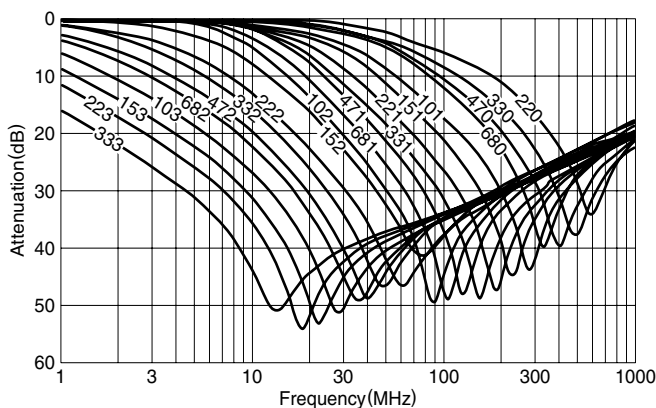


### ELECTRICAL CHARACTERISTICS

| Part No.    | 25dB attenuation frequency range (MHz) | Rated voltage E <sub>dc</sub> (V)max. | Rated current (A)max. | DC resistance (Ω)max. [Terminal No.1 to 3] | Insulation resistance (MΩ)min. [Terminal No.1 to 2/No.2 to 3] |
|-------------|--|---------------------------------------|-----------------------|--|---|
| ACH4518-333 | 6 to 60                                | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-223 | 9 to 65                                | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-153 | 11 to 70                               | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-103 | 15 to 75                               | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-682 | 20 to 85                               | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-472 | 25 to 90                               | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-332 | 35 to 100                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-222 | 40 to 110                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-152 | 50 to 130                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-102 | 65 to 150                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-681 | 75 to 160                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-471 | 95 to 180                              | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-331 | 115 to 205                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-221 | 150 to 250                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-151 | 190 to 290                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-101 | 235 to 335                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-680 | 290 to 395                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-470 | 360 to 460                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-330 | 450 to 550                             | 50                                    | 2.0                   | 0.06                                       | 1000  |
| ACH4518-220 | 530 to 650                             | 50                                    | 2.0                   | 0.06                                       | 1000  |

### TYPICAL ELECTRICAL CHARACTERISTICS

#### ATTENUATION vs. FREQUENCY CHARACTERISTICS

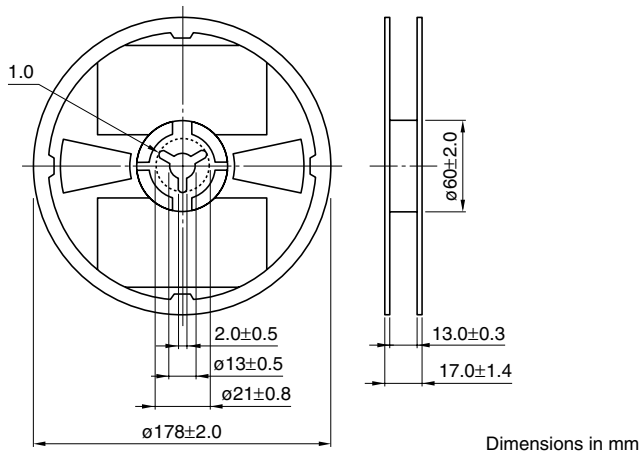


#### MEASURING CIRCUIT

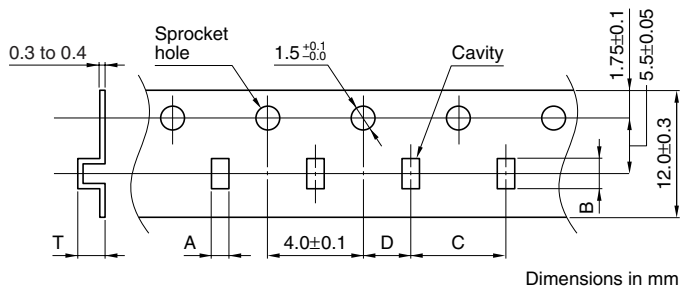


## PACKAGING STYLES

### REEL DIMENSIONS



### TAPE DIMENSIONS



| Type   | A             | B             | C             | D              | T       |
|--------|---------------|---------------|---------------|----------------|---------|
| 321825 | $2.2 \pm 0.2$ | $3.7 \pm 0.2$ | $4.0 \pm 0.1$ | $2.0 \pm 0.05$ | 3.3max. |
| 451832 | $2.2 \pm 0.2$ | $5.2 \pm 0.2$ | $4.0 \pm 0.1$ | $2.0 \pm 0.05$ | 3.8max. |

