

Ferrite Chip EMI Suppressor Arrays

ACA Series

The ACA series is a surface mount type ferrite chip bead array EMI suppressor suitable for high density packaging of electronic equipment. The series comprise 4 or 6 circuits of beads into one chip. The terminal pitch is 0.8mm [.031 inches] or 1.27mm [.050 inches], which makes it suitable for EMI prevention in multiple-lines, such as connectors and IC pins.

FEATURES

- Availing EMI suppression in 4 or 6 lines by one chip. Highly effective in designing a higher density circuit.
- The series has high impedance characteristic because of its unique internal structure, and has great EMI suppression effects.
- Crosstalks between adjacent circuits are minimized.
- Excellent in physical properties, such as flexure strength, bending strength, and solderability.
- It can be easily mounted by using an existing automatic mounter.

PRODUCT IDENTIFICATIONS

ACA 3216 M 4 - 060 - □
(1) (2) (3) (4) (5) (6)

ACA 5020 M 6 - 120 - □
(1) (2) (3) (4) (5) (6)

(1) Series name

(2) Dimensions L × W (mm) [inches]

3216	3.2 × 1.6mm [.126 × .063]
5020	5.0 × 2.0mm [.197 × .079]

(3) Frequency range code

M	10 to 100MHz
---	--------------

(4) Built-in circuit number

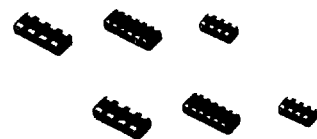
4	4 circuits
6	6 circuits

(5) Impedance value

060	60Ω
120	120Ω
600	600Ω

(6) Packaging style

T	Taping (φ178mm [7.008 inches] reel)
TL	Taping (φ330mm [12.992 inches] reel)
B	Bulk

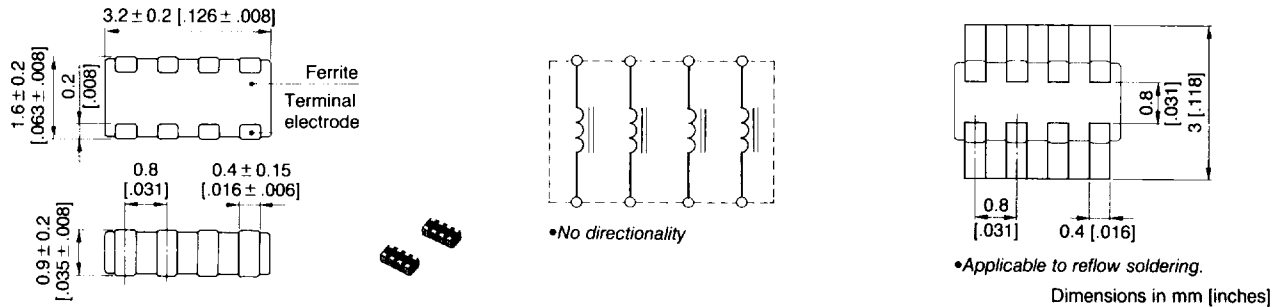


Ferrite Chip EMI Suppressor Arrays

ACA Series

ACA3216 TYPE

SHAPES AND DIMENSIONS/CIRCUIT/RECOMMENDED PC BOARD PATTERN



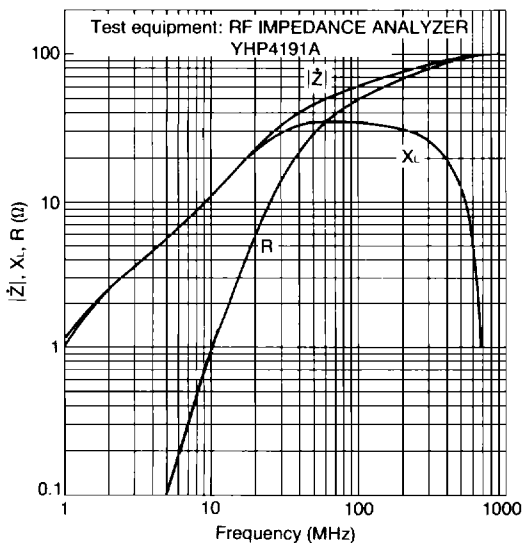
ELECTRICAL CHARACTERISTICS

Part No.	Impedance (Ω) [100MHz]	DC resistance (Ω) max.	Rated current (mA) max.	Pitch (mm) [inches]	Built-in circuit number
ACA3216M4-060- $\square$ *	60 $\pm$ 25%	0.4	300	0.8 [0.031]	4
ACA3216M4-120- $\square$	120 $\pm$ 25%	1	200	0.8 [0.031]	4
ACA3216M4-300- $\square$	300 $\pm$ 25%	1.7	100	0.8 [0.031]	4

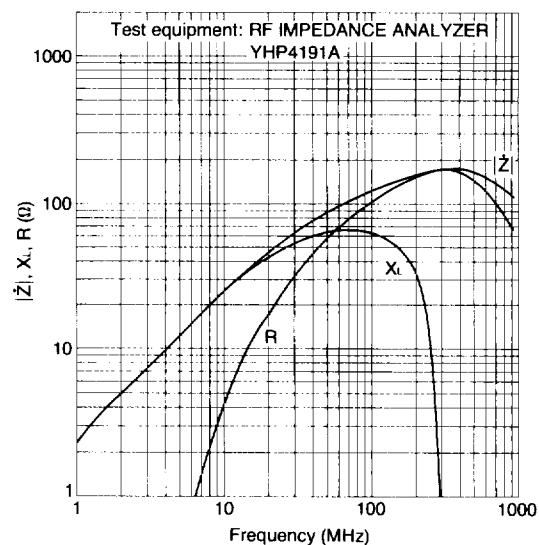
* $\square$: Please specify the packaging style (T: ϕ 178mm [7.008 inches] reel taping, TL: ϕ 330mm [12.992 inches] reel taping, B: Bulk)

TYPICAL ELECTRICAL CHARACTERISTICS

$|Z|$, X_L , R vs. FREQUENCY CHARACTERISTICS ACA3216M4-060



ACA3216M4-120



Ferrite Chip EMI Suppressor Arrays

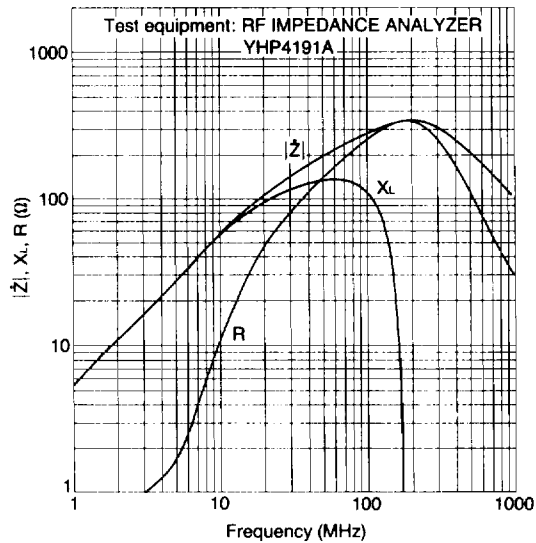
ACA Series

ACA3216 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

$|Z|$, X_L , R vs. FREQUENCY CHARACTERISTICS

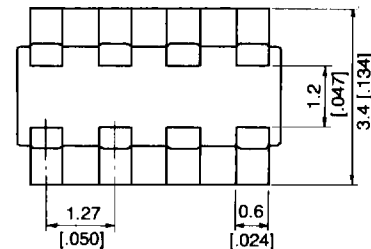
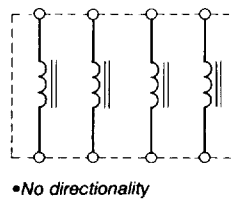
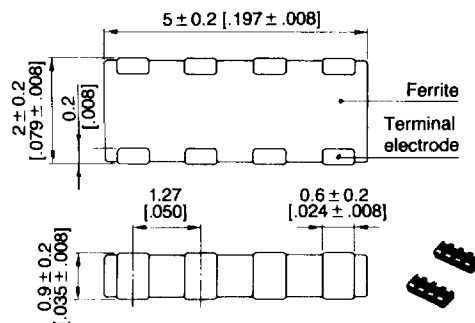
ACA3216M4-300



ACA5020 TYPE

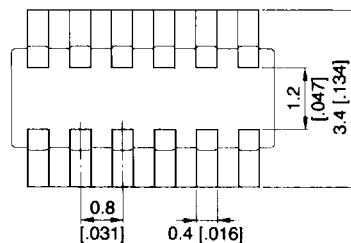
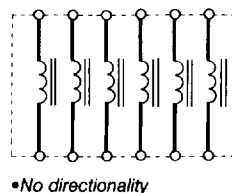
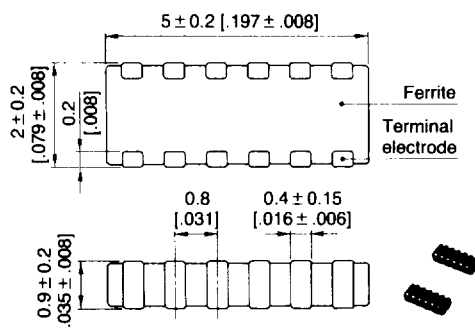
SHAPES AND DIMENSIONS/CIRCUITS/RECOMMENDED PC BOARD PATTERNS

4 CIRCUITS



•Applicable to reflow soldering.

6 CIRCUITS



•Applicable to reflow soldering.

Dimensions in mm [inches]

Ferrite Chip EMI Suppressor Arrays

ACA Series

ACA5020 TYPE

ELECTRICAL CHARACTERISTICS

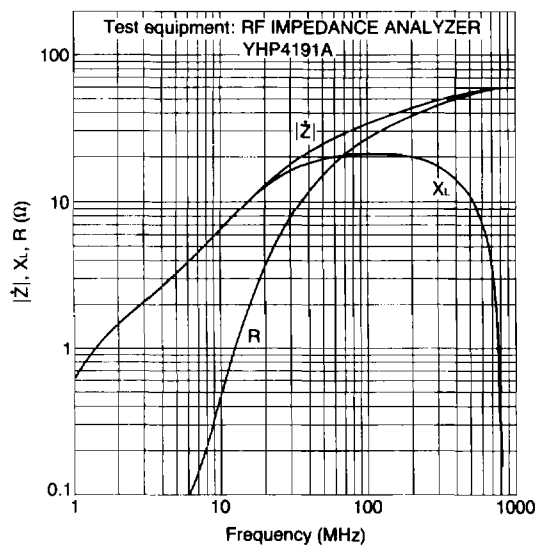
Part No.	Impedance (Ω) [100MHz]	DC resistance (Ω) max.	Rated current (mA) max.	Pitch (mm) [inches]	Built-in circuit number
ACA5020M4-040-□ *	$40 \pm 25\%$	0.2	400	1.27 [.050]	4
ACA5020M4-080-□	$80 \pm 25\%$	0.3	400	1.27 [.050]	4
ACA5020M4-150-□	$150 \pm 25\%$	0.4	300	1.27 [.050]	4
ACA5020M4-300-□	$300 \pm 25\%$	0.8	200	1.27 [.050]	4
ACA5020M4-600-□	$600 \pm 25\%$	1.2	100	1.27 [.050]	4
ACA5020M6-060-□	$60 \pm 25\%$	0.3	400	0.8 [.031]	6
ACA5020M6-120-□	$120 \pm 25\%$	0.5	200	0.8 [.031]	6

*□: Please specify the packaging style (T: $\phi 178\text{mm}$ [7.008 inches] reel taping, TL: $\phi 330\text{mm}$ [12.992 inches] reel taping, B: Bulk)

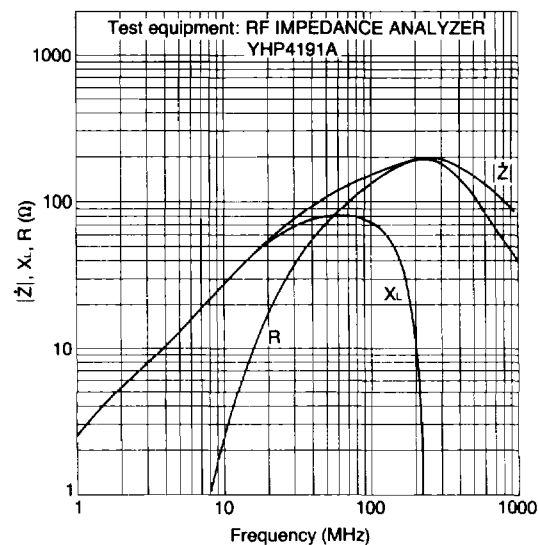
TYPICAL ELECTRICAL CHARACTERISTICS

$|Z|$, X_L , R vs. FREQUENCY CHARACTERISTICS

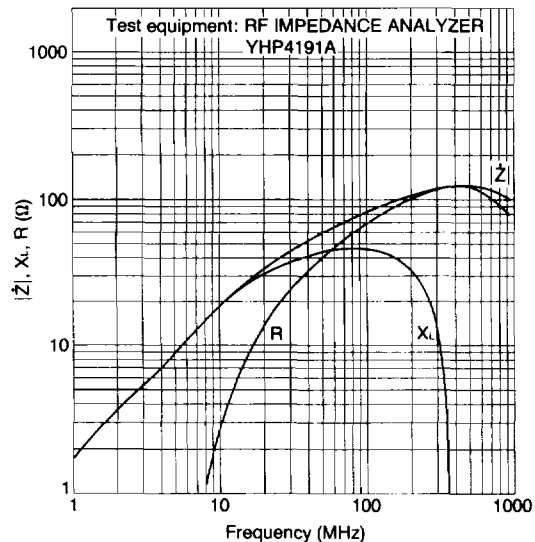
ACA5020M4-040



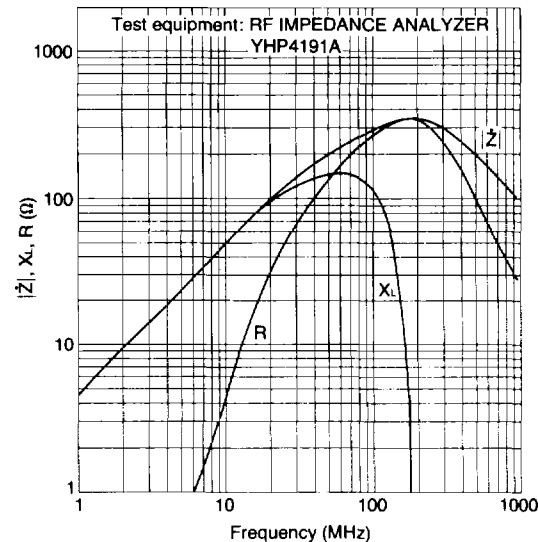
ACA5020M4-150



ACA5020M4-080



ACA5020M4-300



Ferrite Chip EMI Suppressor Arrays

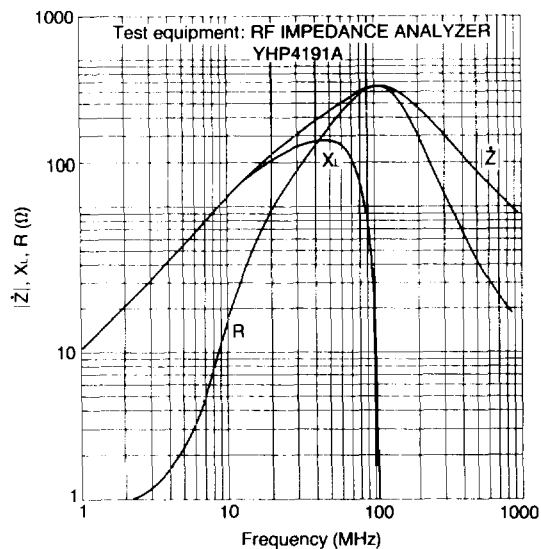
ACA Series

ACA5020 TYPE

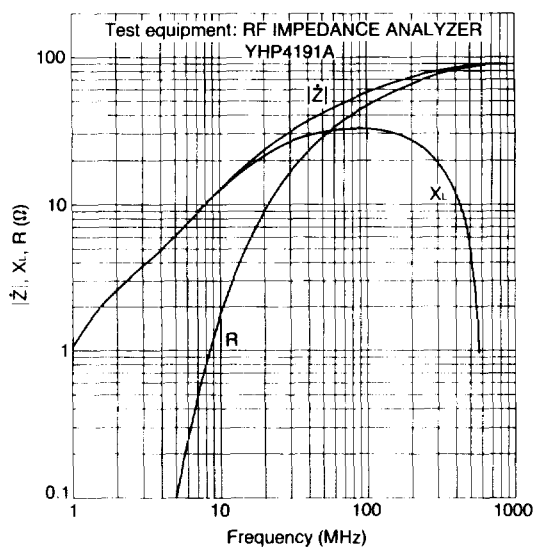
TYPICAL ELECTRICAL CHARACTERISTICS

$|Z|$, X_L , R vs. FREQUENCY CHARACTERISTICS

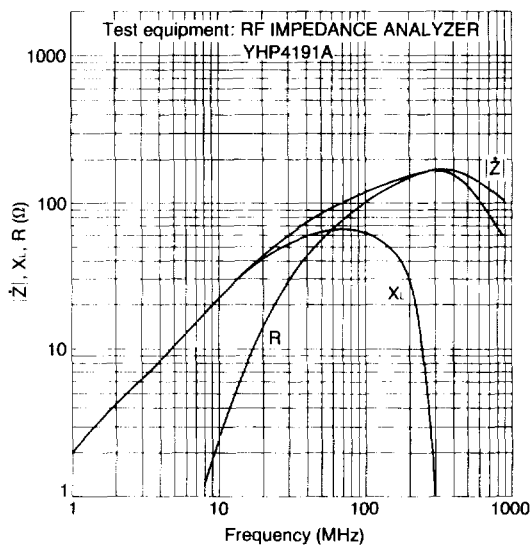
ACA5020M4-600



ACA5020M6-060



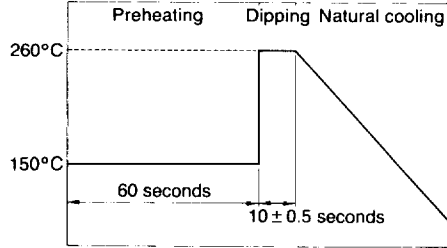
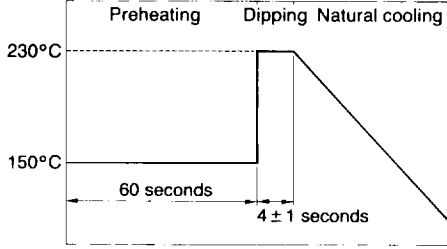
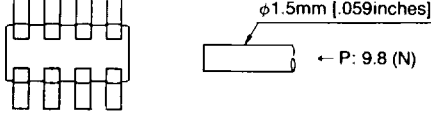
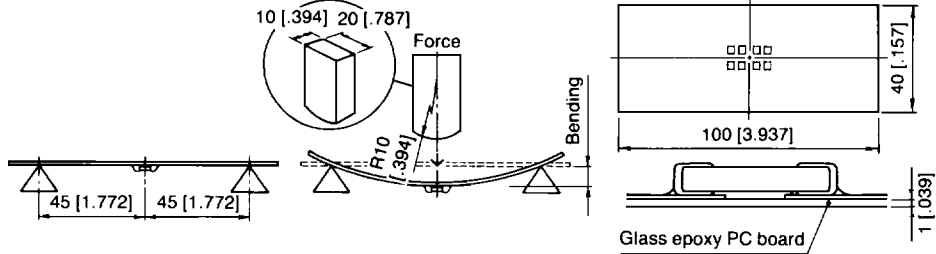
ACA5020M6-120



Ferrite Chip EMI Suppressor Arrays

ACA Series

RELIABILITY AND TEST CONDITIONS

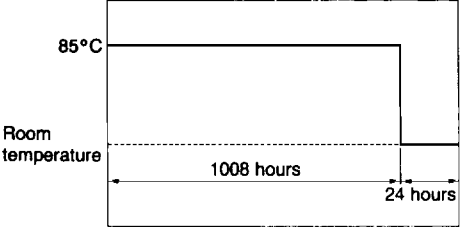
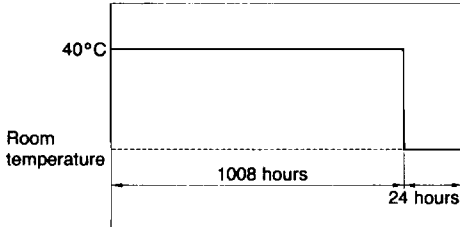
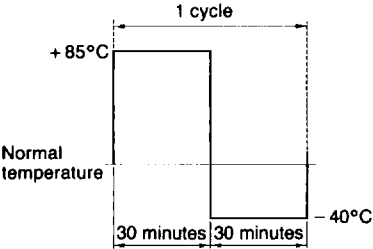
Item	Performance	Test conditions
Operating temperature range	- 25 to +85°C	
Storage temperature and humidity ranges	40°C max., 70% RH max.	
Soldering heat resistance	The chip must have no cracks. More than 75% of the terminal electrode must be covered with solder. Impedance: Within $\pm 20\%$ of the initial value	Preheat: 150°C, 60 seconds Solder: H63A Solder temperature: $260 \pm 5^\circ\text{C}$ Flux: Rosin Dip time: 10 ± 0.5 seconds 
Solderability	More than 90% of the terminal electrode must be covered with new solder.	Preheat: 150°C, 60 seconds Solder: H63A Solder temperature: $230 \pm 5^\circ\text{C}$ Flux: Rosin Dip time: 4 ± 1 seconds 
Terminal strength	The terminal electrode and the ferrite must not be damaged by the forces applied on the right conditions.	Solder a chip to a test substrate, and then laterally apply a load P in the arrow direction. Soldering shall be done in accordance with the recommended PC board pattern and reflow soldering. 
Flexure strength	The terminal electrode and the ferrite must not be damaged by the forces applied on the right conditions.	After soldering a chip to a test substrate, bend the substrate by 2mm [.079 inches] and then return. Soldering shall be done in accordance with the recommended PC board pattern and reflow soldering. 

Dimensions in mm (inches)

Ferrite Chip EMI Suppressor Arrays

ACA Series

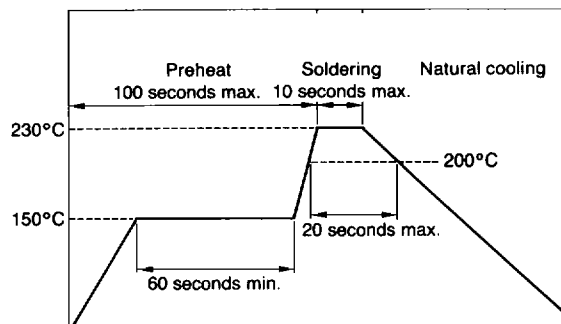
RELIABILITY AND TEST CONDITIONS

Item	Performance	Test condition
High temperature resistance	Appearance: Ferrite shall not be damaged. Impedance: Within $\pm 20\%$ of the initial value	Temperature: $85 \pm 2^{\circ}\text{C}$ Applied current: Rated current (maximum value) Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min. 
Humidity resistance	Appearance: Ferrite shall not be damaged. Impedance: Within $\pm 20\%$ of the initial value	Humidity: 90 to 95% RH Temperature: $40 \pm 2^{\circ}\text{C}$ Applied current: Rated current (maximum value) Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min. 
Thermal shock	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Impedance: Within $\pm 20\%$ of the initial value	Temperature: -40°C , $+85^{\circ}\text{C}$, kept stabilized for 30 minutes each. Cycle: 100 cycles Measurement: After placing for 24 hours min. 
Low temperature storage life test	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Impedance: Within $\pm 20\%$ of the initial value	Temperature: $-40 \pm 2^{\circ}\text{C}$ Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min.

Ferrite Chip EMI Suppressor Arrays

ACA Series

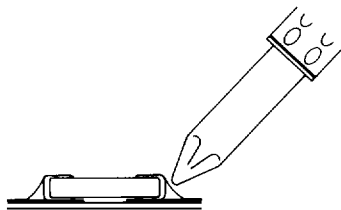
RECOMMENDED SOLDERING CONDITIONS REFLOW SOLDERING



IRON SOLDERING

Perform soldering at 280°C on 30W max. within 5 seconds.

Take care not to apply the tip of the soldering iron to the terminal electrode.



FLUX AND CLEANING

Rosin-based flux is recommended.

Cleaning Conditions

Solvent	Chlorine-based solvent (Do not use acid or alkali solvents.)
Time	1 minute min.
Ultrasonic output power	20W/l max.

PACKAGINGS

PACKAGING QUANTITIES

Type	T (φ178mm [7.008 inches] reel)	TL (φ330mm [12.992 inches] reel)
ACA3216	4000 pcs./reel	10000 pcs./reel
ACA5020	3000 pcs./reel	10000 pcs./reel

TAPE DIMENSIONS

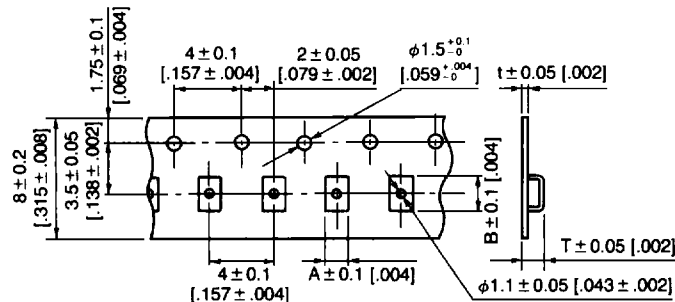


Fig. 1

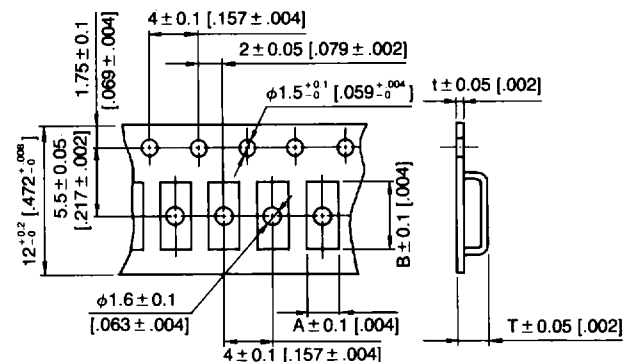
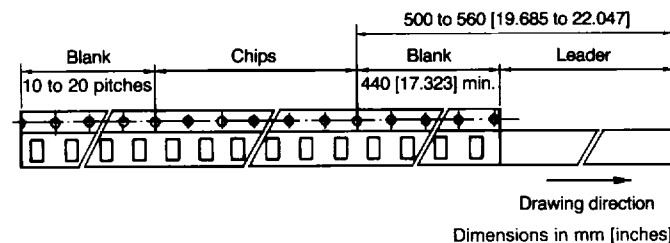


Fig. 2

Dimensions in mm [inches]

Type	A	B	T	t	Fig.
ACA3216	1.9 [0.075]	3.5 [0.138]	1.2 [0.047]	0.2 [0.008]	1
ACA5020	2.2 [0.087]	5.35 [0.211]	1.35 [0.053]	0.3 [0.012]	2



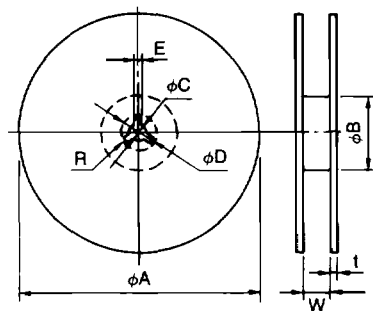
Ferrite Chip EMI Suppressor Arrays

ACA Series

PACKAGINGS

REEL DIMENSION

Material: Plastic



Dimensions in mm [inches]

Symbol	T (φ178mm [7.008 inches] reel)	TL (φ330mm [12.992 inches] reel)
A	φ178 ± 2 [7.008 ± .079]	φ330 ± 2 [12.992 ± .079]
B	φ60 ± 1 [.236 ± .039]	φ100 ± 2 [.394 ± .079]
C	φ13 ± 0.8 [.512 ± .031]	φ13 ± 0.8 [.512 ± .031]
D	φ21 ± 8 [.827 ± .315]	φ21 ± 8 [.827 ± .315]
E	2 [.079]	2 [.079]
W	14.5 ± 1.5 [.571 ± .059]	14.5 ± 1.5 [.571 ± .059]
t	2 ± 0.5 [.079 ± .020]	2 ± 0.5 [.079 ± .020]
R	1 [.039]	1 [.039]

TAPING FIGURE

Carrier tape material: Polystyrene

Cover tape material: Polyethylene

