	<b>DATASHEET</b>	<b>Part No.</b>
	<b>COMMON MODE ESD FILTER</b>	<b>ACFE1A2G500E</b>

CUSTOMER : \_\_\_\_\_

# DATA SHEET

**Product Name** : COMMON MODE ESD FILTER  


---

**Part No** : ACFE1A2G500E  


---

**Revision Date** : 2012/11/23  


---

**Customer Code** : \_\_\_\_\_  


---

	<b>Address</b> : AMOTECH. CO. LTD., 17-2 ,JAMWON-DONG, SEOCHO-GU, SEOUL,KOREA  <b>Contact</b> : TEL) 82-2-544-1351, FAX) 82-2-517-7183
---	---



## DATASHEET

Part No.

COMMON MODE ESD FILTER

ACFE1A2G500E

## 1. Parts description

### 1.1. Overview

ACF series is multi-layer chip Common Mode Filter for high speed differential transmission line. This product shows excellent noise reduction without signal loss by high coupled Inductor pair.

### 1.2. Features

- Excellent noise reduction without signal loss
- Built-in two ESD suppression devices each line
- Low profile (thickness = 0.6mm)
- Ceramic multilayer type SMD component
- RoHS compliance

### 1.3. Applications

- High speed differential transmission lines at electronic devices (ex. MHL, HDMI, etc.)
- LCD/PDP TV, DSC, DVC, DVD player, notebook, PC, portable audio player, mobile phones, etc.

## 2. Model and Lot Number description

### 2.1. Model

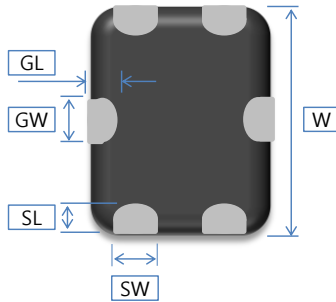
<u>ACF</u>	<u>E</u>	<u>1A</u>	<u>2</u>	<u>G</u>	<u>500</u>	<u>E</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
- (2) Material code : "E" - ESD suppression devices
- (3) Chip size : "1A" - 1.25 X 1.0 mm
- (4) Number of Lines : "2" - 2 lines
- (5) Characteristics : "G" - for Gbps
- (6) Impedance : "500" - 50Ω
- (7) Internal code

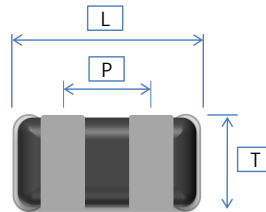
### 3. Style and Dimension

#### 3.1. Appearance and dimension

• Top view

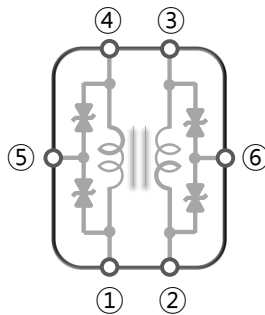


• Side view



Item	Size (mm)
L	1.00 ± 0.10
W	1.25 ± 0.10
T	0.60 ± 0.05
SL	0.15 ± 0.05
SW	0.30 ± 0.05
GL	0.15 ± 0.05
GW	0.30 ± 0.05
P	0.55 ± 0.10

#### 3.2. Equivalent circuit & Pin description



※ No Polarity & Directionality

No.	Pin Description
①/④	In/ Out line (Data)
②/③	In/ Out line (Data)
⑤, ⑥	Ground (Common)

### 4. Structure and materials

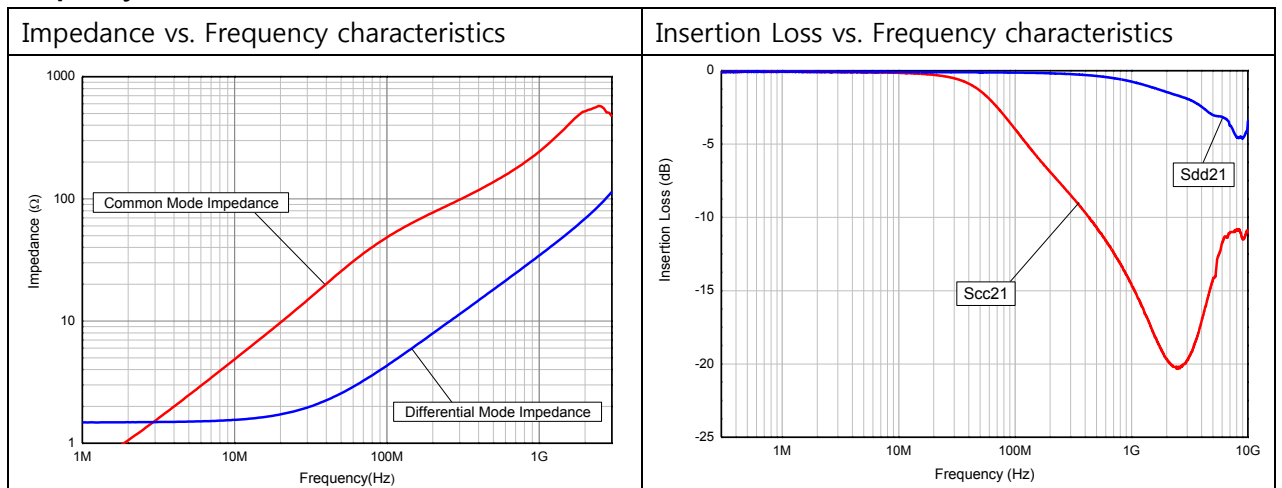
	Item	Material
	Body1	Ni-Zn Ferrite
	Body2	Glass + Alumina
	Internal electrode	Ag
	External electrode	Ag – Ni– Sn
	Plate layer	Ni ≥ 1 μm, Sn ≥ 2 μm

**5. Specifications**

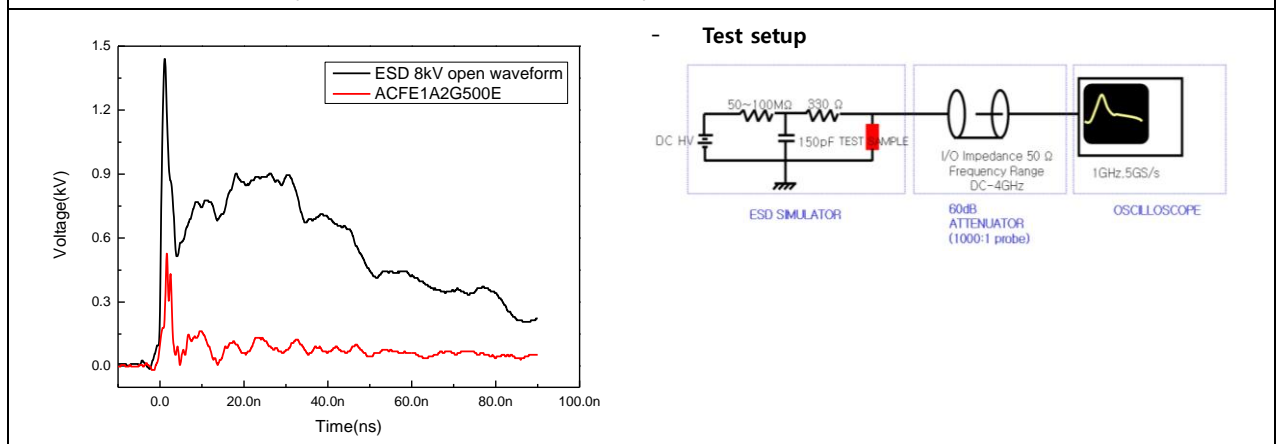
**5.1. Electrical characteristics**

Parameter	Common Mode Impedance @ 100 MHz	DC Resistance	Capacitance @ 1MHz	Rated Voltage	Rated Current	Insulation Resistance	Leakage Current @ 5Vdc
Symbol	Z <sub>CM</sub>	R <sub>DC</sub>	C <sub>P</sub>	V <sub>DC</sub>	I <sub>DC</sub>	IR	I <sub>L</sub>
Units	Ω	Ω	pF	V (DC)	mA (DC)	MΩ	μA
Value	50 ± 25%	Max. 2.0	Max. 1.2	10	100	Min. 10	Max. 1

**5.2. Frequency and ESD characteristics**



ESD Pulse waveform ( IEC 61000-4-2 contact 8kV )

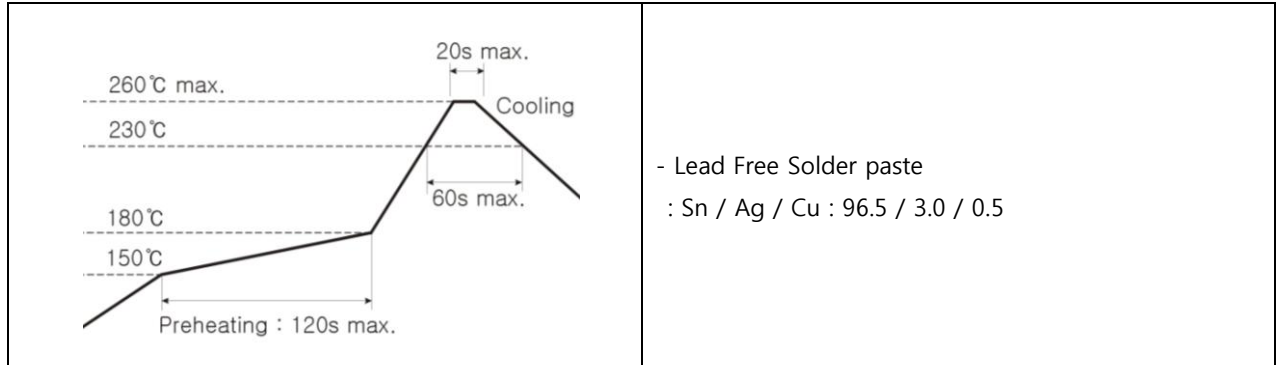


**5.3. Temperature range**

- 1) Operating Temperature range : -40 ~ +85°C
- 2) Storage Temperature range : -40 ~ +85°C

## 6. Soldering (Reflow soldering)

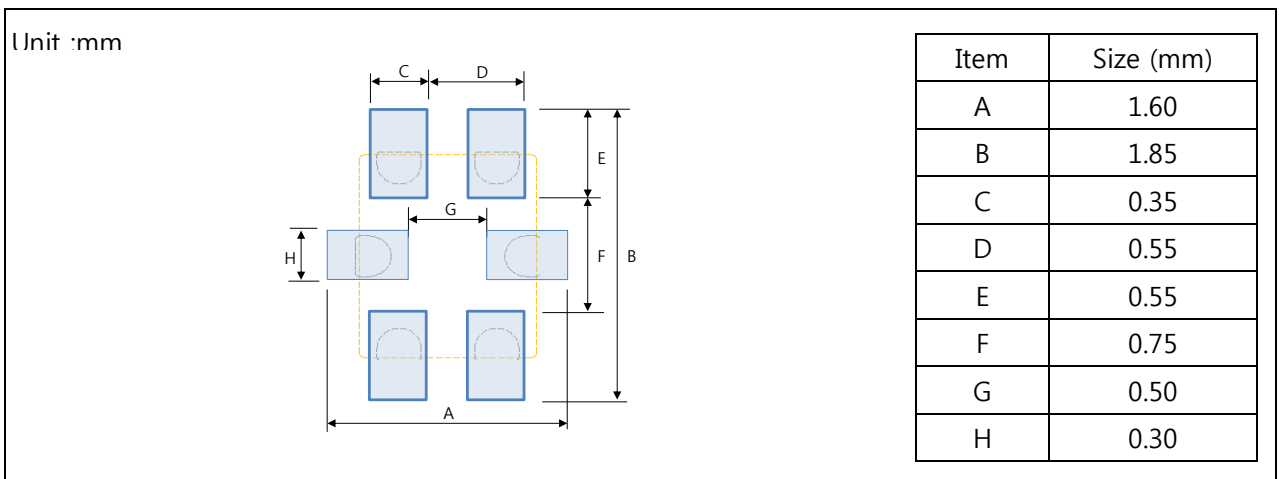
### 6.1. Soldering condition



Follow the recommended soldering conditions to avoid degradation of performance .

- This product is designed for reflow soldering only. Do not use flow soldering.
- Use non-activated flux. (Max. Cl content less than 0.2%)
- Reflow cycle times should be done less than 3 times.

### 6.2. PCB pattern design condition (recommended)



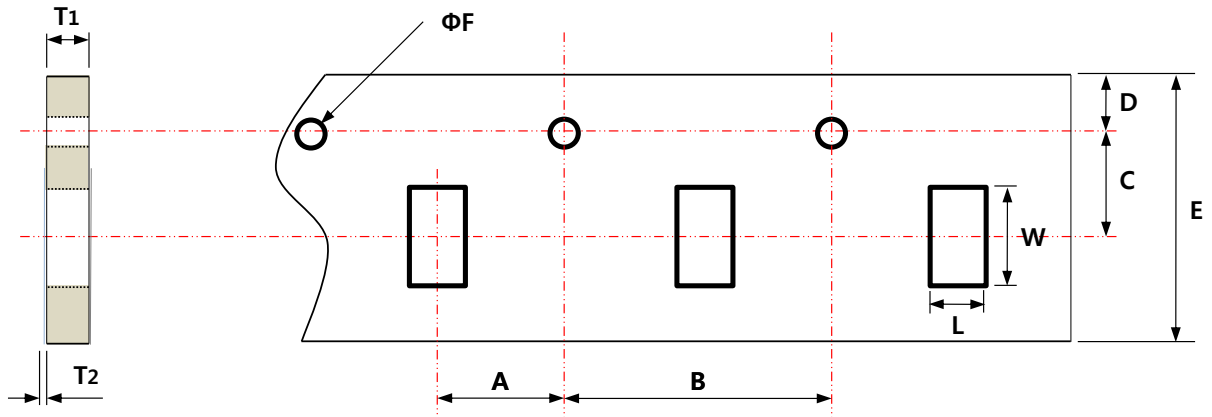
## 7. Caution

- 1) Storage environment : -5~40°C temperature, 20~70% humidity (MSL Level 1)
- 2) Do not use in high temperature/high humidity and a corrosive atmosphere like sulfide, chloride gas which could damage the solderability.
- 3) Do not expose to mechanical shock to avoid crack.
- 4) Use chips within 6 months. If over 6 months, check solderability before use.

## 8. Packaging specification

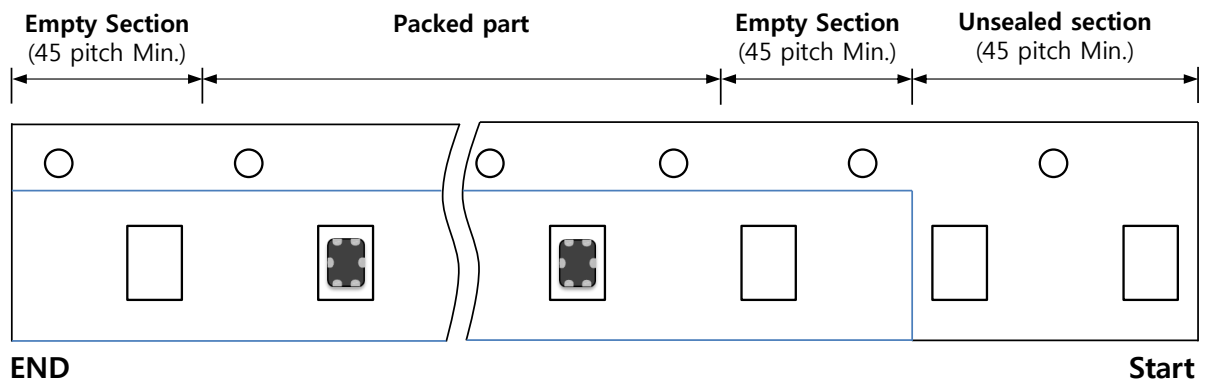
### 8.1 Carrier tape Specification

#### 8.1.1. Size



	L	W	A	B	C	D	E	ΦF	T1	T2
Tolerance	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	+0.10	±0.10	Max.
Spec (mm)	1.20	1.45	2.00	4.00	3.50	1.75	8.00	1.55	0.75	0.10

#### 8.1.2. Chip Locations

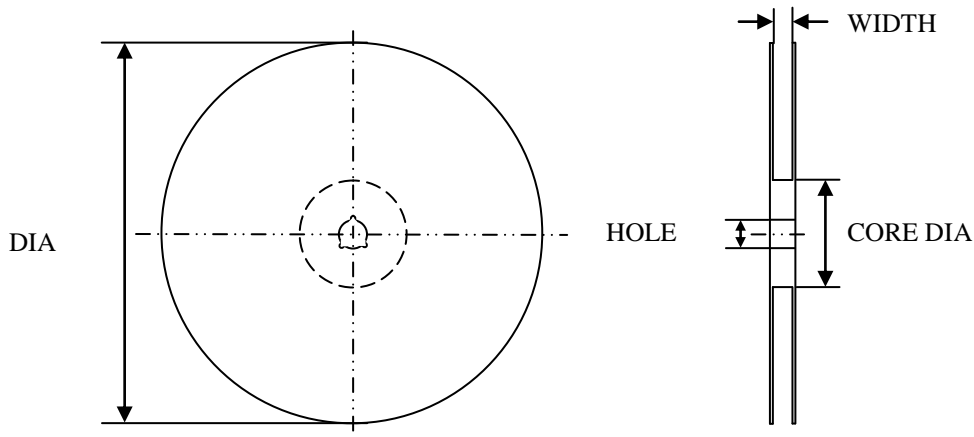


#### 8.1.3. Material

- 1) Pater carrier tape : Laminated virgin pulp
- 2) Top tape : Polyester film
- 3) Bottom tape : Adhesive coated paper

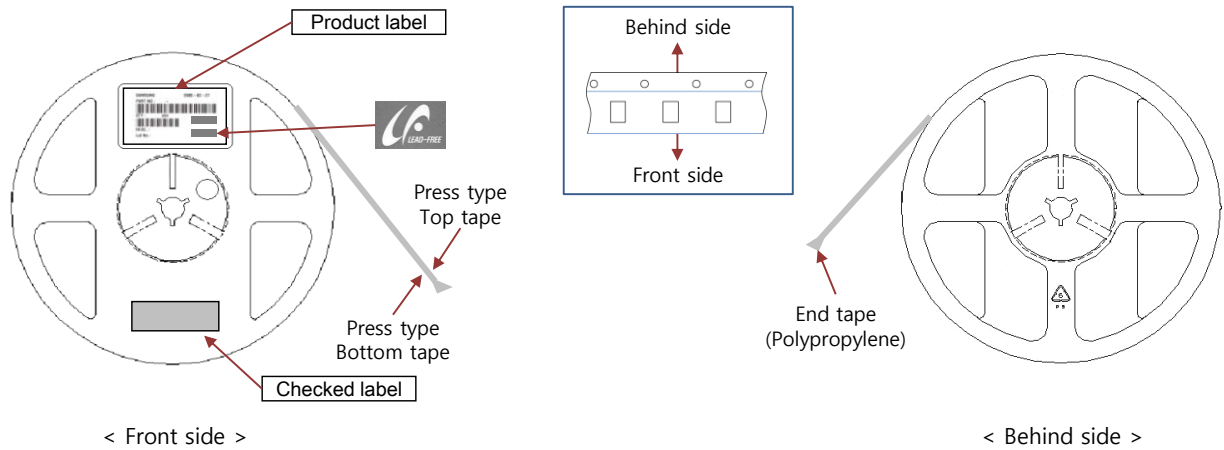
**8.2. Reel Specification**

8.2.1. Size




Item	DIA	WIDTH	CORE DIA	HOLE
Size (mm)	178.0±0.5	9.0±0.5	60.0±1.0	13.2±0.3

8.2.2. Label adherence and winding direction


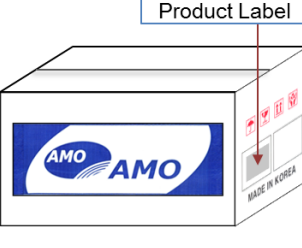
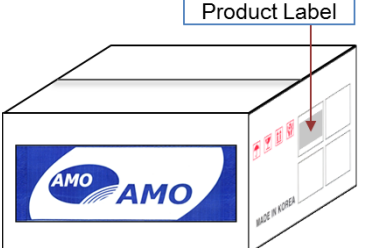


8.2.3. Material

- 1) Carrier Tape : PET / PC / PS
- 2) Plastic reel : GPS(General Purpose Styrene)

	<b>DATASHEET</b>	<b>Part No.</b>
	<b>COMMON MODE ESD FILTER</b>	<b>ACFE1A2G500E</b>

### 8.3 Box packaging Specification

Box	Small	Medium	Large
Size (mm)	183 (W) x 185 (D) x 70 (T)	200 (W) x 375 (D) x 205 (T)	375 (W) x 390 (D) x 205 (T)
Quantity	5 reel = 4,000 ea/reel x 5 = 20,000 ea	5 small boxes = 4,000 ea/reel X 25 = 100,000 ea	10 Medium boxes = 4,000 ea/reel X 50 = 200,000 ea
Detail			

### 8.4. Label Specification

Size : Reel & Small boxes : 80 X 40 (mm)

Medium & Large boxes : 100 X 100 (mm)