

**TCFE03025U12002A**

# Specification

<b>Product Name</b>	<b>Thin Film Common Mode Filter</b>
<b>Series</b>	<b>TCFE Series</b>
<b>Part No</b>	<b>TCFE 03025 U 120 02 A</b>
<b>Size</b>	<b>EIA 03025</b>



# TCFE 03025 U 120 02 A Engineering Specification

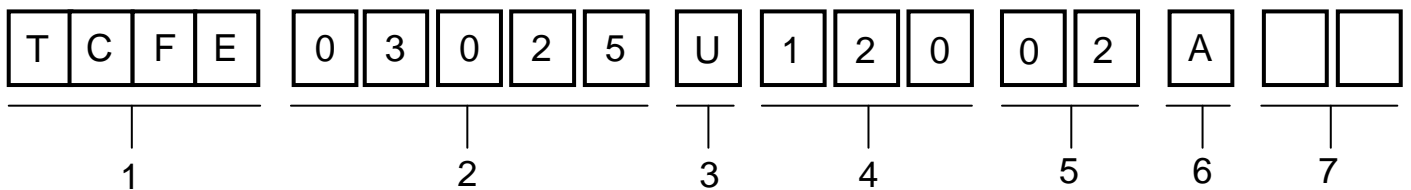
## 1. Scope

TCFE 03025 U series is a thin film common mode filter designed to suppress common mode noise for high speed differential data lines, with cut-off frequency up to 10GHz for USB3.1. The ESD protection of IEC61000-4-2 level4 in high speed differential data lines is also provided.

These differential interfaces can be used in mobile phones, notebooks, tablet PCs, digital cameras, etc.

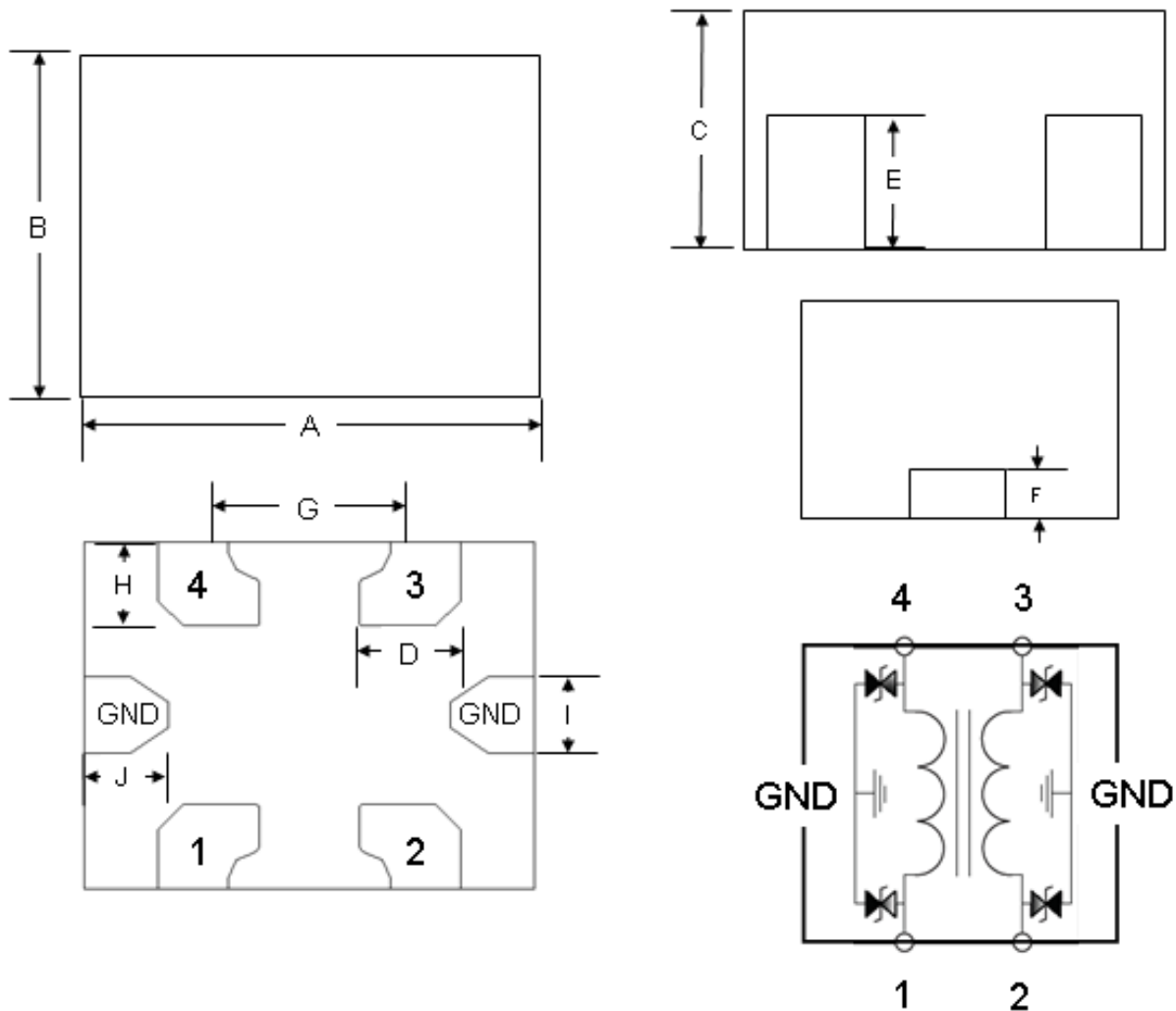
TCFE 03025 U series meets RoHs standards.

## 2. Explanation of Part Number



- 1 : Product Type : TCFE= Thin Film Common Mode Filter with ESD Protection
- 2 : EIA Dimension Code
- 3 : Speed Identification Code
- 4 : Impedance (at 100MHz): 120= 12Ω
- 5 : Line Code: 02= 2 lines
- 6 : Specialized Specification Code
- 7 : Control Code

### 3. Circuit Diagram & Dimensions



Series	A	B	C	D	E	F	G	H	I	J
TCFE 03025	0.85±0.05	0.65±0.05	0.5±0.05	0.17±0.1	0.4±0.1	0.08±0.05	0.4±0.1	0.15±0.1	0.15±0.1	0.15±0.1

## 4. Specifications

### 4.1. ABSOLUTE MAXIMUM RATINGS

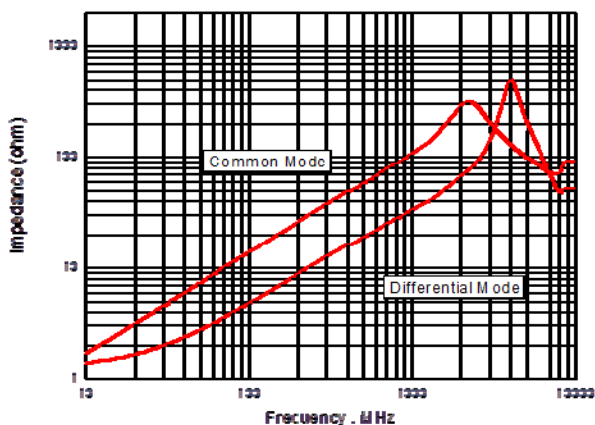
PARAMETER	PARAMETER	RATING	UNITS
Rated Voltage	$V_{DC}$	5	V
Rated Current	$I_{DC}$	100	mA
Operating Temperature		-25 ~ 85	°C
Lead Soldering Temperature	$T_{SOL}$	260 (10 sec.)	°C

### 4.2. ELECTRICAL CHARACTERISTICS

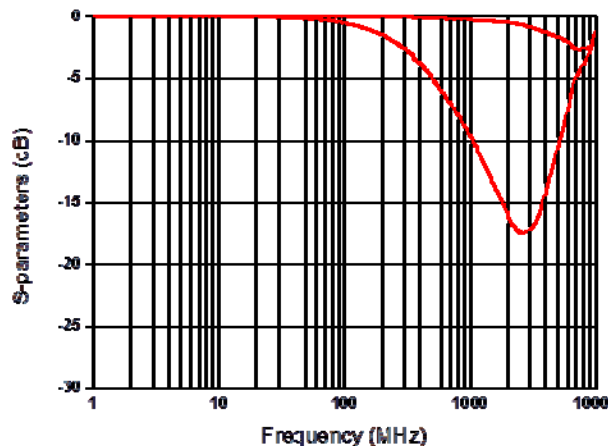
PARAMETER	MIN	TYP	MAX	UNITS
Common Mode Impedance (at 100 MHz)	7	12	17	$\Omega$
Cut-off Frequency		10		GHz
DC Resistance			2	$\Omega$
Insulation Resistance	10			$M\Omega$
Capacitance (at 1MHz, any pin to ground)		0.6		pF
Leakage Current (at 5V, any pin to ground)			1	$\mu A$

### 4.3. TYPICAL CHARACTERISTICS

Impedance vs Frequency Characteristics\*



Insertion Loss vs Frequency Characteristics\*\*



\*Test Instrument: HP4291A Impedance/Material Analyzer

\*\*Test Instrument: Agilent E5071C ENA-L Network Analyzer

### 4.4. MSL Level : Level 1

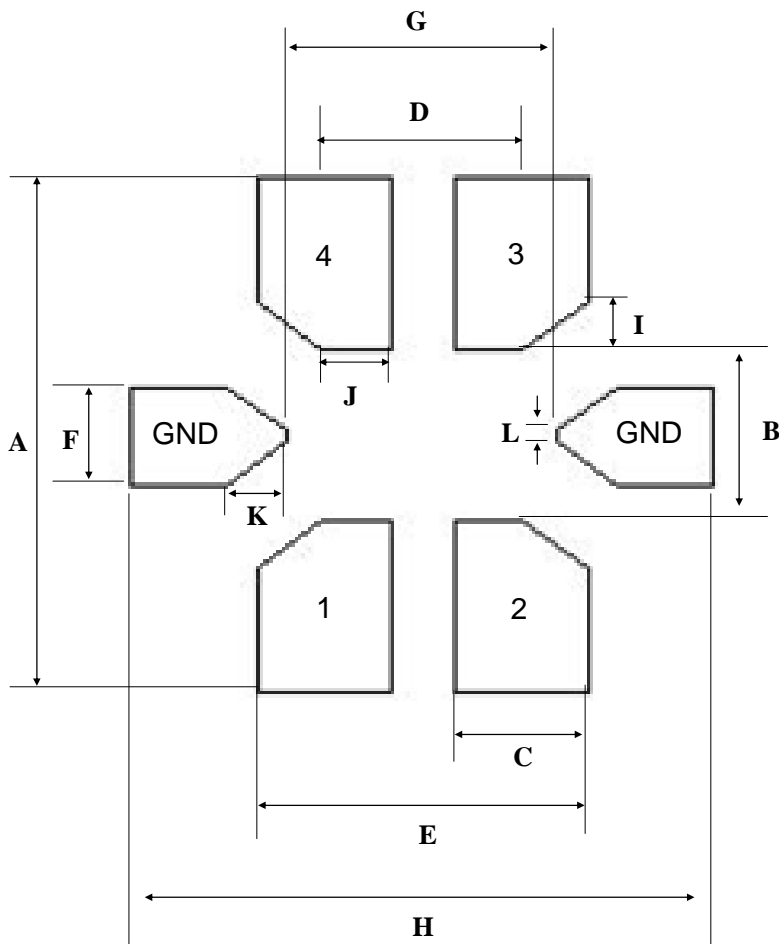
### 4.5. Storage Condition with package

Storage Time : 12 months

Storage Temperature : 5 to 40°C

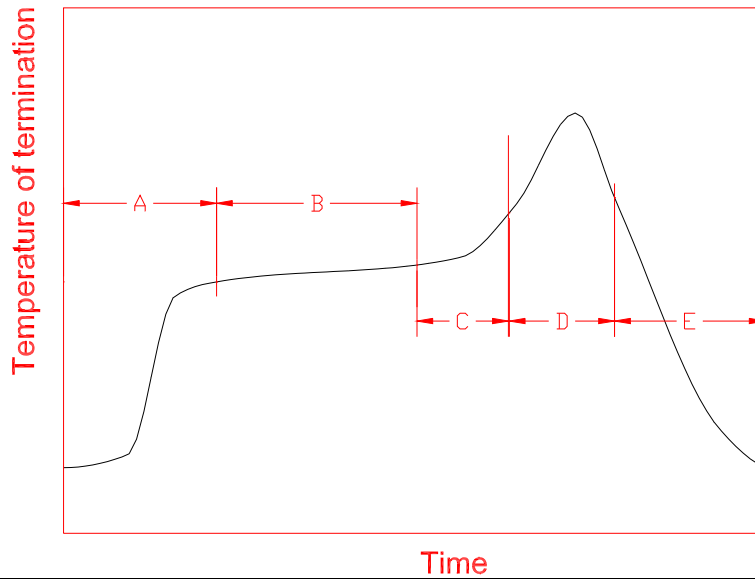
Relative Humidity : < 65 %

## 5. LAND LAYOUT



	mm
A	1.05
B	0.35
C	0.27
D	0.4
E	0.67
F	0.2
G	0.55
H	1.18
I	0.097
J	0.136
K	0.121
L	0.025

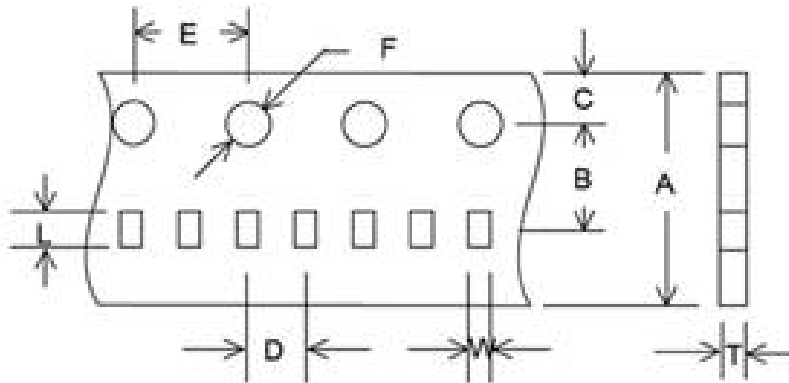
## 6.Recommended reflow soldering



A	1 <sup>st</sup> rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 160°C	60s to 120s
C	2 <sup>nd</sup> rising temperature	Preheating to 200°C	20s to 40s
D	Main heating	if 220°C if 230°C if 240°C if 250°C if 260°C	50s~60s 40s~50s 30s~40s 20s~40s 20s~40s
E	Regular cooling	200°C to 100°C	1°C/s ~ 4°C/s

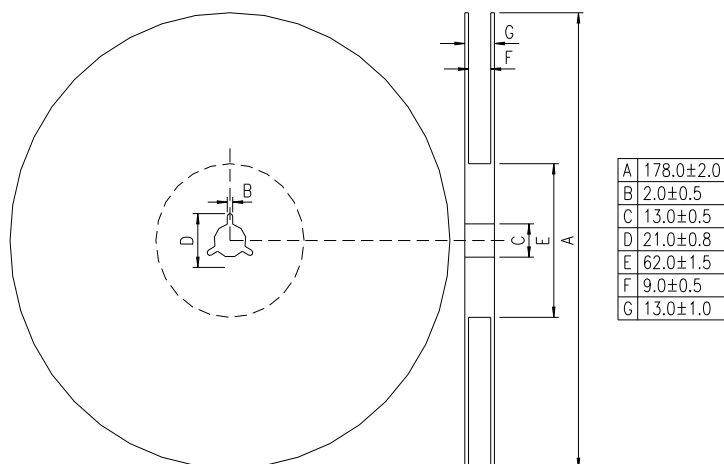
- According to J-STD-020C

## 7. Tape and reel specifications



A	8±0.1
B	3.5±0.05
C	1.75±0.05
D	2±0.05
E	4±0.1
F	1.55±0.05
L	1.04±0.03
W	0.78±0.03
T	0.60±0.03

Unit: mm



\*Standard quantity : 10,000 pcs/Reel