

# ECST1V0703

## SMT current sense transformer



### Product features

- EE4.6 SMT package (7.2 mm x 5.2 mm x 3.0 mm)
- Very low DC resistance
- Wide selection of turns ratios
- Sensed current – primary rated for 9 A
- Frequency range: 50 kHz to 1 MHz
- Moisture sensitivity level (MSL): 1

### Applications

- Switching power supplies
- Feedback control
- Overload sensing
- Load drop/shut down detection

### Environmental compliance and general specifications

- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant



**Product specifications**

Part number <sup>3</sup>	Turns ratio sec:pri	Secondary inductance (mH) @ 100 kHz 0.1 V minimum	DCR sec ( $\Omega$ ) maximum	DCR pri (m $\Omega$ ) reference	Hi-pot pri to sec @ 2 mA 3 seconds 50 Hz	Sensed current <sup>1</sup> (A) maximum
ECST1V0703-1020-R	20:1	0.053	0.42	1.5	500 Vac	9
ECST1V0703-1050-R	50:1	0.333	2.76	1.5	500 Vac	9
ECST1V0703-1070-R	70:1	0.652	5.04	1.5	500 Vac	9
ECST1V0703-1100-R	100:1	1.33	10.68	1.5	500 Vac	9
ECST1V0703-1150-R	150:1	2.99	22.3	1.5	500 Vac	9

1. Primary current of 9 A causes less than 40°C temperature rise @ +25°C ambient. Higher current causes a greater temperature rise

2. Electrical specifications at +25 °C

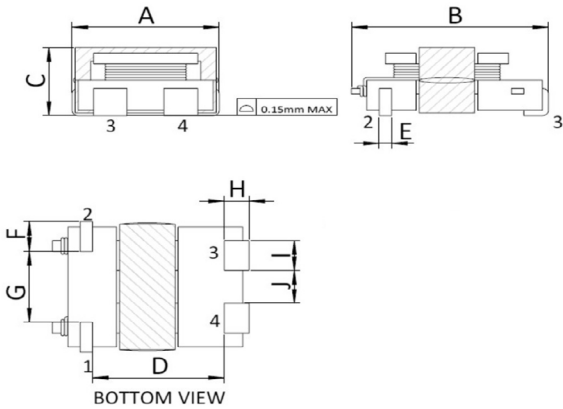
3. Part Number Definition: ECST1V0703-1xxx-R

ECST1V0703 = Product code and size

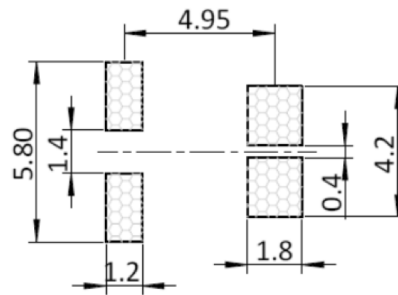
1xxx= Turns ratio sec:pri; 1=pri, xxx=sec; 1020= 20:1

-R suffix = RoHS compliant

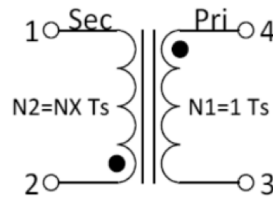
**Mechanical parameters, schematic, pad layout (mm)**



**Recommended PCB Layout**



**Schematic**



Dimension	Value
A	5.20 maximum
B	7.20 maximum
C	3.00 maximum
D	4.05
E	0.4
F	1.1
G	2.6
H	1.2
I	1.1
J	1.2

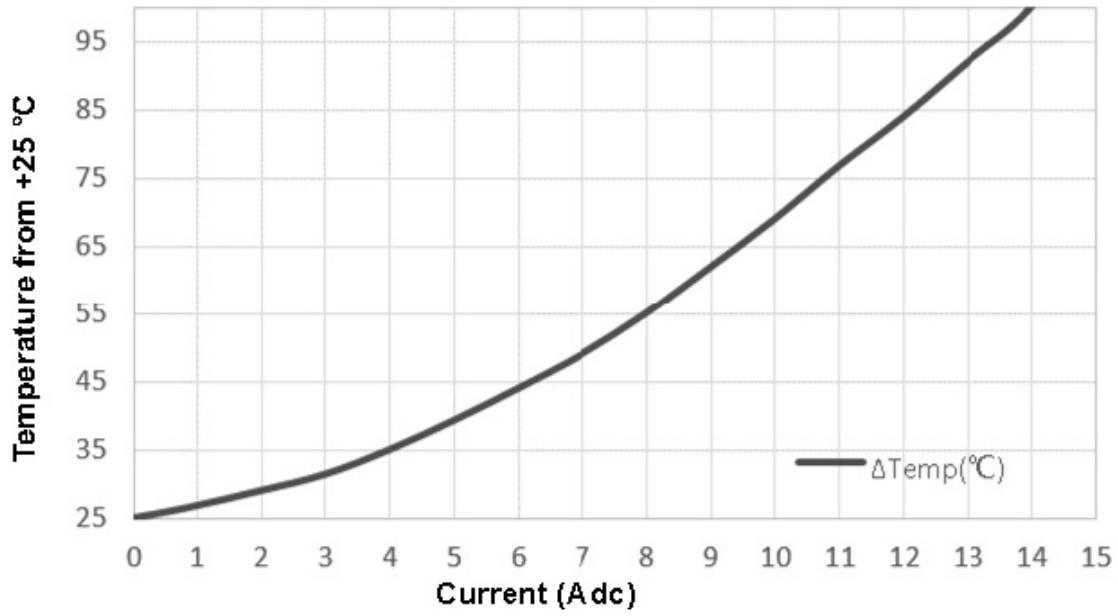
Part marking: White dot, Pin 2 indicator

All soldering surfaces to be coplanar within 0.15 millimeters

Tolerances are  $\pm 0.1$  millimeters unless stated otherwise

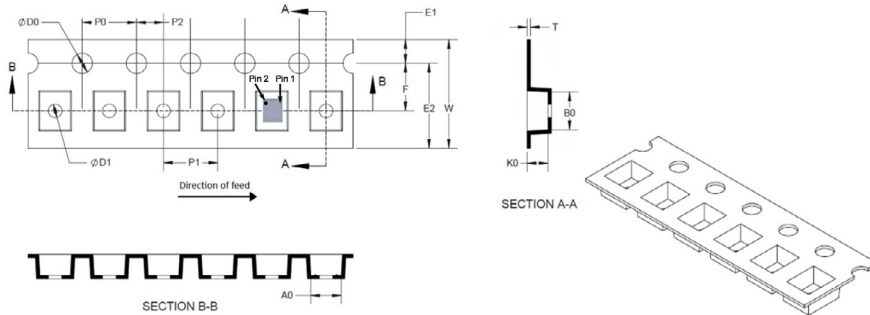
Traces or vias underneath the inductor is not recommended

Temp rise vs current

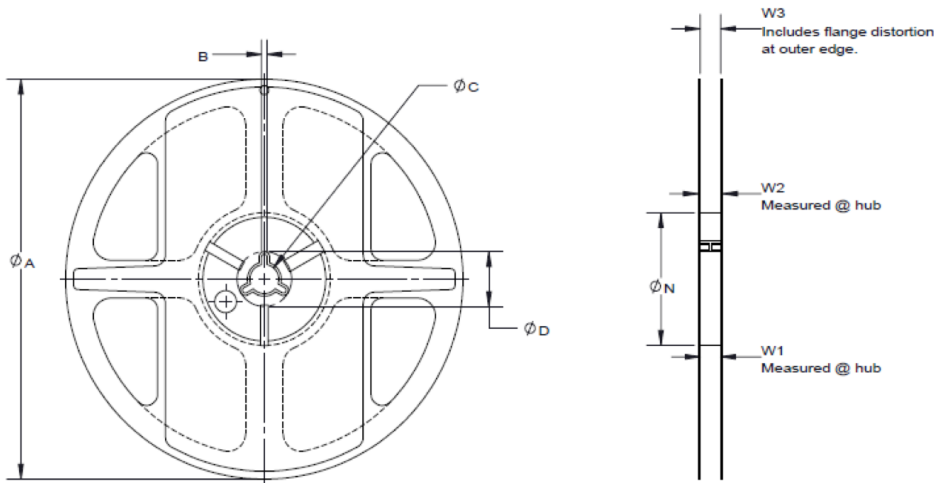


**Packaging information (mm)**

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)  
2500 parts per reel

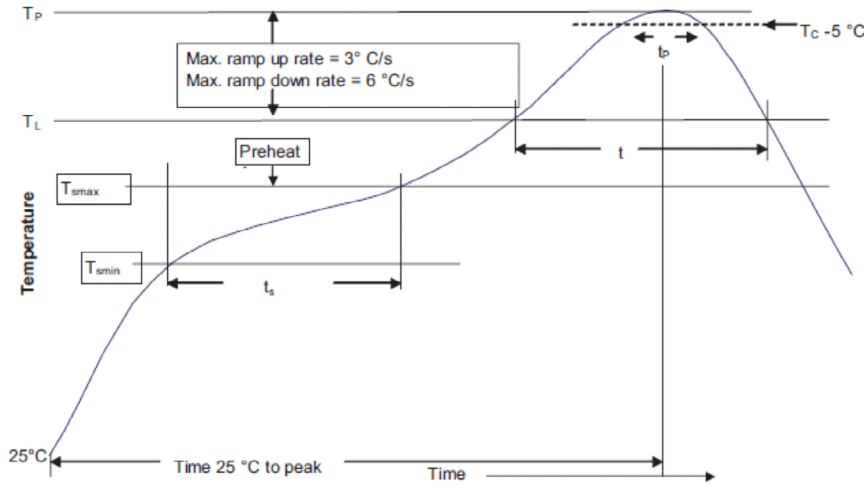


Dimension	Value
W	16 ±0.3
P1	8.0 ±0.1
E1	1.75 ±0.1
F	7.50 ±0.05
P2	2.0 ±0.05
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
B0	7.2 ±0.1
A0	5.2 ±0.1
K0	2.9 ±0.1
P0	4.0 ±0.1
T	0.35 ±0.05



Dimension	Value
A	330 ±3.0
N	100 ±1.0
C	13+0.5/-0.2
W1	16.4+2.0/-0.0

### Solder reflow profile



**Table 1 - Standard SnPb solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

**Table 2 - Lead (Pb) free solder (T<sub>C</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

### Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60-120 seconds
Ramp up rate T <sub>L</sub> to T <sub>p</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 seconds*	30 seconds*
Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

\* Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

### Manual solder

30 W soldering iron. +350 °C ±10 °C, 3 seconds maximum. Do not touch product with iron. Generally manual, hand soldering is not recommended.

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