

ECST1V0805

SMT current sense transformer



Product features

- EE5.0 SMT package (8.38 mm x 8.0 mm x 5.5 mm)
- Very low DC resistance
- Wide selection of turns ratios
- Sensed current – primary rated for 10 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

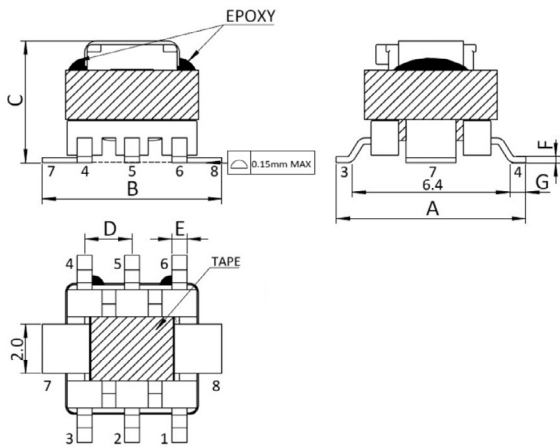


Product specifications

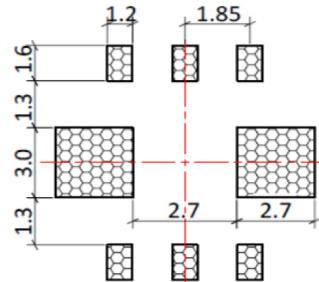
Part number ³	Turns ratio sec:pri	Secondary inductance (μH) @ 100 kHz 0.1 V minimum	DCR sec (Ω) maximum	DCR pri ($\text{m}\Omega$) reference	Hi-pot pri to sec @ 2 mA 3 seconds 50 Hz	Sensed current ¹ (A) maximum
ECST1V0805-1020-R	20:1	80	0.4	0.7	500 Vac	10
ECST1V0805-1030-R	30:1	180	0.87	0.7	500 Vac	10
ECST1V0805-1040-R	40:1	320	1.14	0.7	500 Vac	10
ECST1V0805-1050-R	50:1	500	1.85	0.7	500 Vac	10
ECST1V0805-1060-R	60:1	730	2.3	0.7	500 Vac	10
ECST1V0805-1070-R	70:1	980	4.75	0.7	500 Vac	10
ECST1V0805-1100-R	100:1	2000	5.5	0.7	500 Vac	10
ECST1V0805-1125-R	125:1	3000	11.5	0.7	500 Vac	10

1. Primary current of 10 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: ECST1V0805-1xxx-R
ECST1V0805 = Product code and size
1xxx= Turns ratio sec:pri; 1=pri, xxx=sec; 1020= 20:1
-R suffix = RoHS compliant

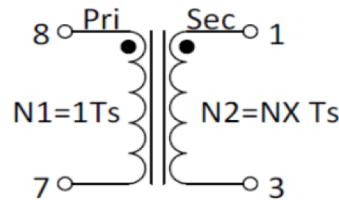
Mechanical parameters, schematic, pad layout (mm)



Recommended PCB Layout



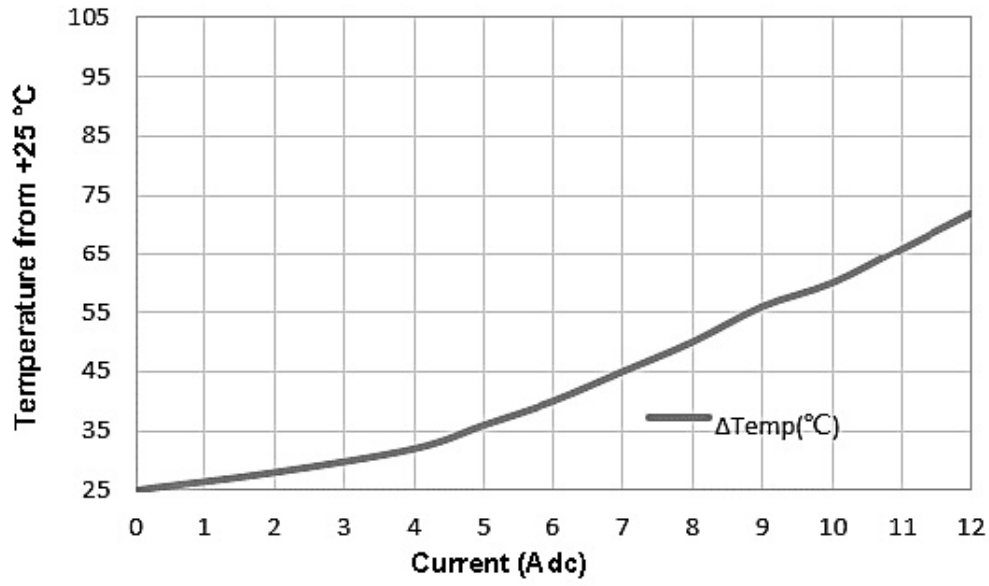
Schematic



Dimension	Value
A	8.38 maximum
B	8.00 maximum
C	5.50 maximum
D	1.85 \pm 0.3
E	0.6
F	0.25 ref
G	0.7 \pm 0.2

Part marking: White dot, Pin 1 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

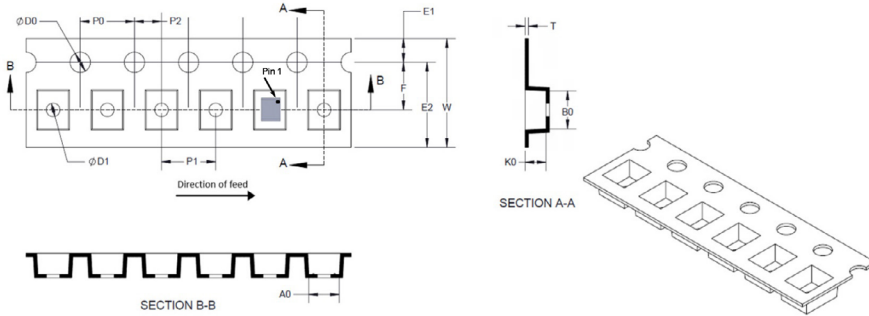


Packaging information (mm)

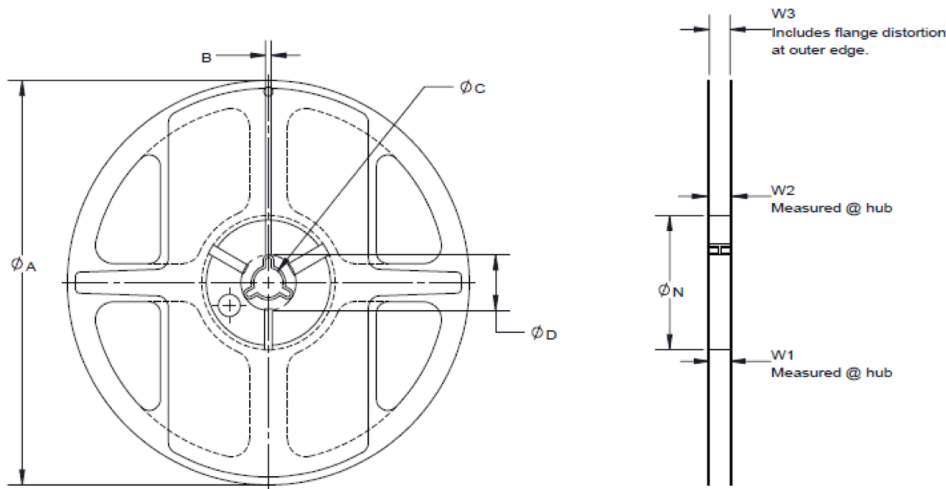
Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)

1000 parts per reel

Drawing is representative and not to scale.



Dimension	Value
W	16 ±0.3
P1	12.0 ±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	8.45 ±0.1
A0	7.7 ±0.2
K0	5.50 ±0.1
P0	4.0 ±0.1
T	0.40 ±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

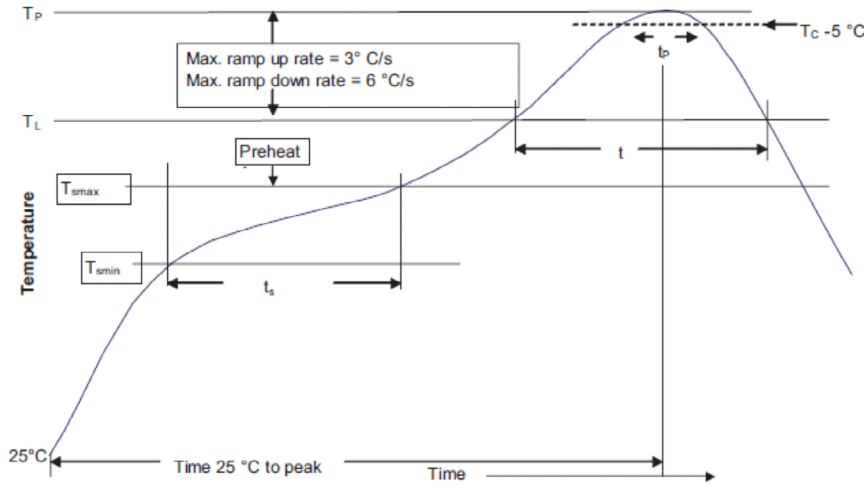


Table 1 - Standard SnPb solder (T_C)

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

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >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 _{smin})	100 °C	150 °C
• Temperature max. (T _{smax})	150 °C	200 °C
• Time (T _{smin} to T _{smax}) (t _s)	60-120 seconds	60-120 seconds
Ramp up rate T _L to T _p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T _L)	183 °C	217 °C
Time (t _L) maintained above T _L	60-150 seconds	60-150 seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)* within 5 °C of the specified classification temperature (T _C)	20 seconds*	30 seconds*
Ramp-down rate (T _p to T _L)	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_p) 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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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

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