

ECSTA1V0504

Automotive grade SMT current sense transformer



Product features

- AEC-Q200 qualified
- EE4.4 SMT package (4.8 mm x 3.65 mm x 3.55 mm)
- Very low DC resistance
- Wide selection of turns ratios
- Sensed current – primary rated for 7 A
- Frequency range: 50 kHz to 1 MHz
- Moisture sensitivity level (MSL): 1

Applications

- Motor drive
- On-board chargers
- DC/DC converters
- Wireless chargers
- Battery management systems (BMS)
- EV charging
- Feedback control
- Overload sensing

Environmental compliance and general specifications

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

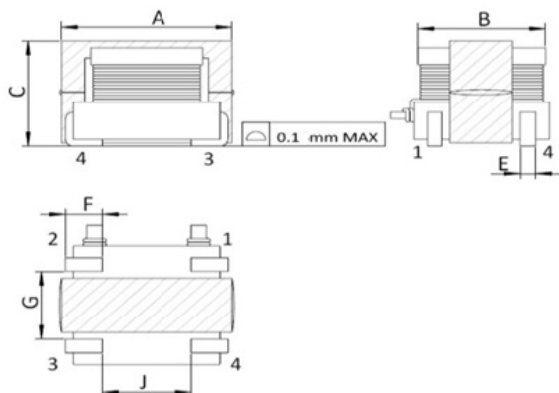


Product specifications

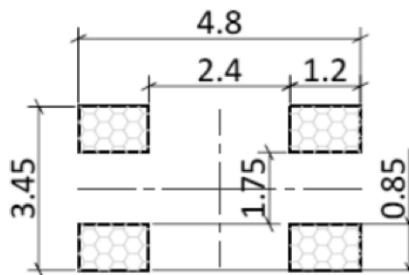
Part number ³	Turns ratio sec :pri	Secondary inductance (μH) @ 100 kHz 0.1 V minimum	DCR sec (Ω) maximum	DCR pri (mΩ) reference	Hi-pot pri to sec @ 2 mA 3 seconds 50 Hz	Sensed current ¹ (A) maximum
ECSTA1V0504-1020-R	20:1	33	0.35	3	500 Vac	7
ECSTA1V0504-1030-R	30:1	74	0.8	3	500 Vac	7
ECSTA1V0504-1040-R	40:1	132	1.6	3	500 Vac	7
ECSTA1V0504-1050-R	50:1	205	2.5	3	500 Vac	7
ECSTA1V0504-1060-R	60:1	295	3.6	3	500 Vac	7
ECSTA1V0504-1070-R	70:1	400	4.6	3	500 Vac	7
ECSTA1V0504-1100-R	100:1	820	9.5	3	500 Vac	7
ECSTA1V0504-1125-R	125:1	1280	13	3	500 Vac	7
ECSTA1V0504-1150-R	150:1	1800	21	3	500 Vac	7

1. Primary current of 7 A causes less than 40°C temperature rise @ +2 5°C ambient. Higher current causes a greater temperature rise
2. Electrical specifications at +25 °C
3. Part Number Definition: ECSTA1V0504-1xxx-R
ECSTA1V0504 = Product code and size
1xxx= Turns ratio sec:pri 1=pri, xxx=sec; 1020= 20:1
-R suffix = RoHS compliant

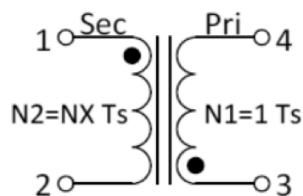
Mechanical parameters, schematic, pad layout (mm)



Recommended PCB Layout



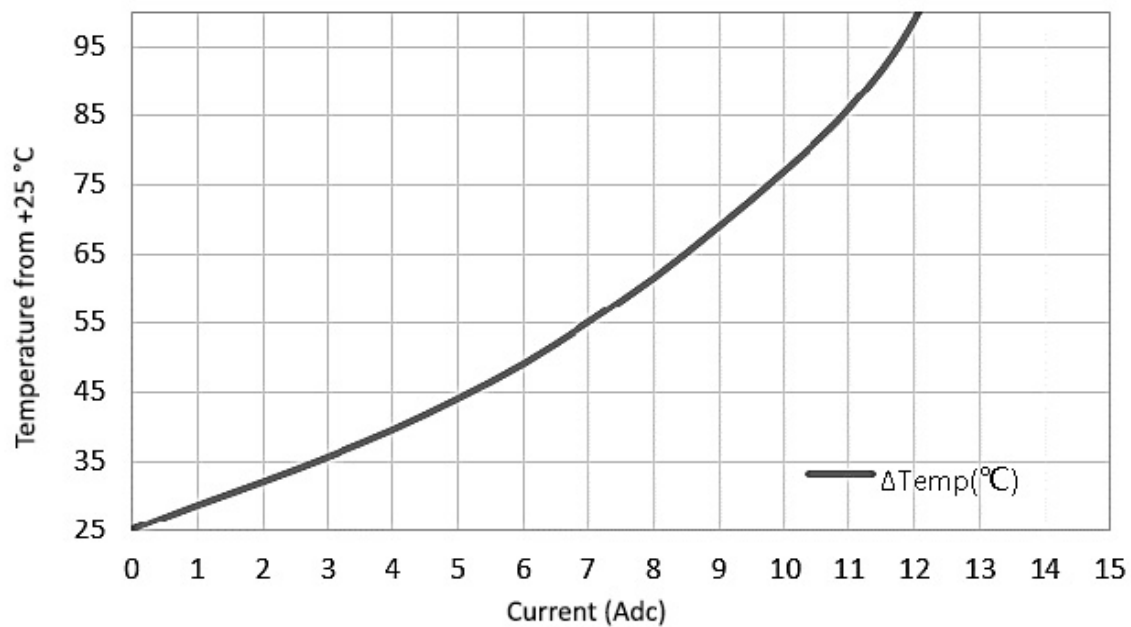
Schematic



Dimension	Value
A	4.80 maximum
B	3.65 maximum
C	3.55 maximum
E	0.4
F	0.85
G	2.10
J	2.50

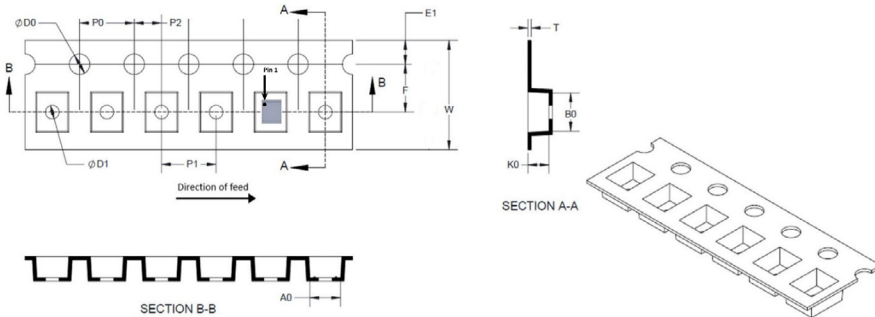
Part marking: White dot, Pin 1 indicator
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.1 millimeters unless stated otherwise
Traces or vias underneath the inductor is not recommended

Temperature rise vs current

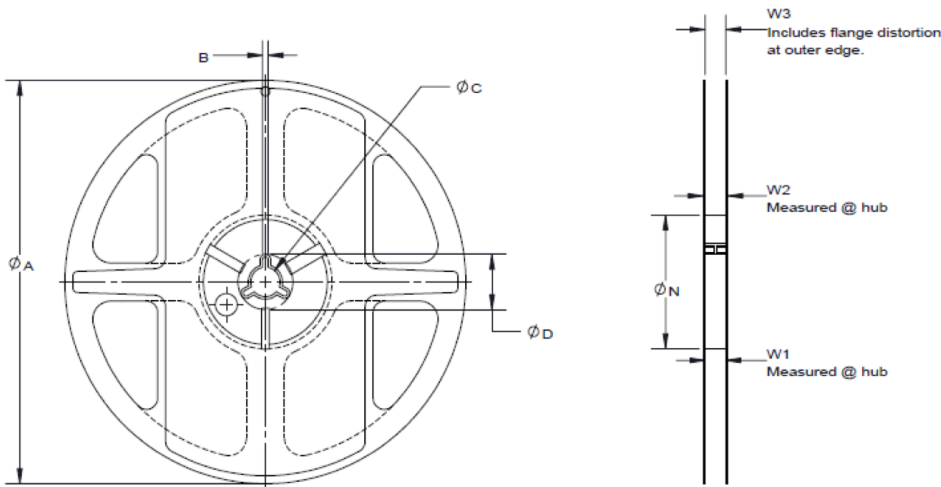


Packaging information (mm)

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)
2000 parts per reel



Dimension	Value
W	12.0 \pm 0.3
P1	8.0 \pm 0.1
E1	1.75 \pm 0.1
F	5.50 \pm 0.05
P2	2.0 \pm 0.05
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
B0	4.4 \pm 0.1
A0	4.8 \pm 0.1
K0	3.5 \pm 0.1
P0	4.0 \pm 0.1
T	0.35 \pm 0.05



Dimension	Value
A	330 \pm 3.0
B	2.6 \pm 0.3
N	100 \pm 1.0
C	13+0.5/-0.2
D	21.5 \pm 0.5
W1	12.4+2.0/-0.0
W2	18.4 max
W3	na