

### FC-SCT5.0 –Series Current Sense Transformers

Height: 5.5mm Max

It is used as DC current transformer for various electronic device detection

Current Rating: up to 20A

Frequency Range: 100 kHz, 0.1 Vrms

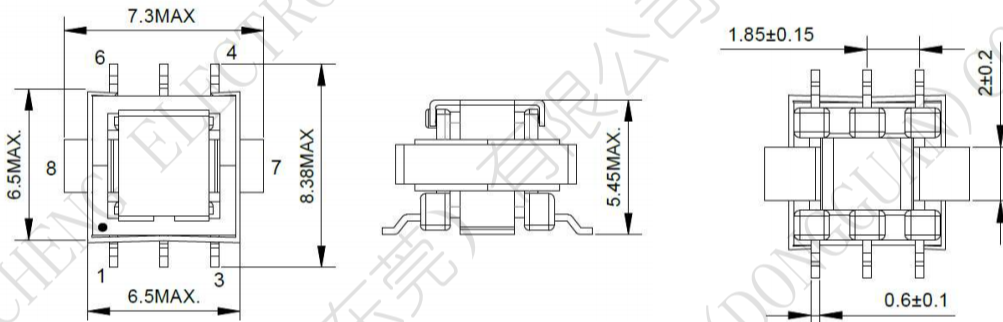
Low Primary DCR version

Ambient temperature -40° C to +85° C

Storage temperature Component: -40° C to +125° C



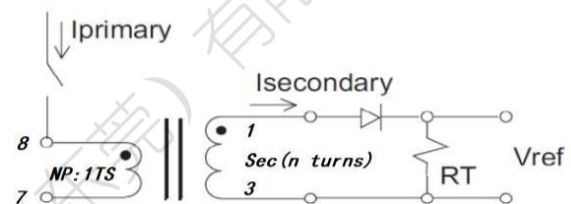
#### 1. Dimensions:mm



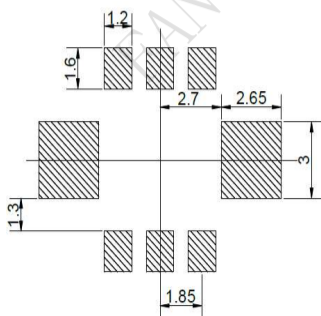
#### 2.Schematic:



#### 3.Application:



#### 3.LAYOUT RECOMMENDATION



$$R_t (W) = V_{ref} * N / (I_{peak\_primary})$$



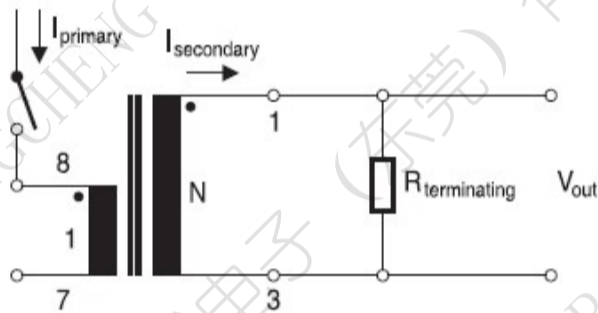
It is used as DC current transformer for various electronic device detection

5. ELECTRIC CHARACTERISTICS

| Part Number         | Turns Ration | Current Rating <sub>2</sub><br>NP8-7,(A) | Secondary Inductance<br>(mH min) | DCR (mΩ MAX)     |                    | Hipot<br>(V <sub>RMS</sub> ) |
|---------------------|--------------|--|----------------------------------|------------------|--------------------|------------------------------|
|                     |              |  |                                  | Primary<br>(8-7) | Secondary<br>(1-3) | Np-Ns                        |
| FC-SCT5.0-1:20-20A  | 1:20         | 20                                       | 0.08                             | 0.75             | 550                | 1500V                        |
| FC-SCT5.0-1:30-20A  | 1:30         | 20                                       | 0.18                             | 0.75             | 870                | 1500V                        |
| FC-SCT5.0-1:40-20A  | 1:40         | 20                                       | 0.32                             | 0.75             | 1140               | 1500V                        |
| FC-SCT5.0-1:50-20A  | 1:50         | 20                                       | 0.5                              | 0.75             | 1500               | 1500V                        |
| FC-SCT5.0-1:60-20A  | 1:60         | 20                                       | 0.72                             | 0.75             | 2250               | 1500V                        |
| FC-SCT5.0-1:70-20A  | 1:70         | 20                                       | 0.98                             | 0.75             | 4750               | 1500V                        |
| FC-SCT5.0-1:100-20A | 1:100        | 20                                       | 2.0                              | 0.75             | 5500               | 1500V                        |
| FC-SCT5.0-1:125-20A | 1:125        | 20                                       | 3.0                              | 0.75             | 6500               | 1500V                        |

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C .

6. Application circuit and pinning



$$B_{max} = \frac{V_{sense,max} \cdot \delta_{max}}{n_s \cdot A_e \cdot f_{osc}}$$

$$R_T = \frac{V_{sense,max} \cdot n_s}{I_{prim,max}}$$

With:1

B<sub>max</sub> Maximum magnetic flux density in the ferrite core of the current sense transformer

V<sub>sense,max</sub> Maximum output voltage of the measurement signal δ<sub>max</sub> Maximum duty cycle

n<sub>s</sub> Number of turns of the secondary winding of the current sense transformer

A<sub>e</sub> Effective magnetic area of the ferrite core

f<sub>osc</sub> Operating frequency of the switching operator IC

Typical value for A<sub>e</sub>: 2.5 x 10<sup>-6</sup> m<sup>2</sup>

Typical B<sub>max</sub>: 200 m

With:2

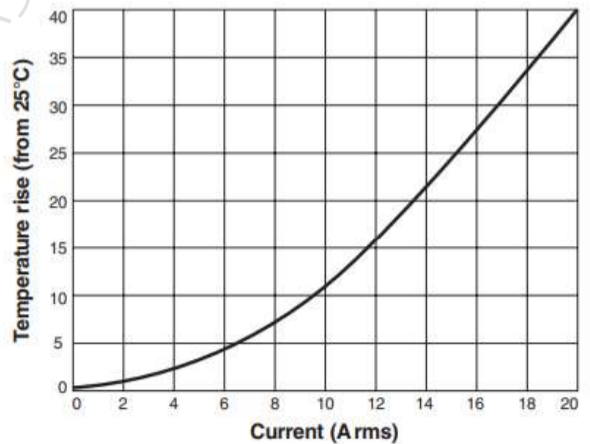
R<sub>T</sub> Resistance of burden resistor

V<sub>sense,max</sub> Maximum output voltage of the measurement signal

n<sub>s</sub> Number of turns on the secondary side of the CT

I<sub>prim,max</sub> Maximum primary current (peak current)

7. Temperature Rise vs Current



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