



Working Together for a Greener Society

Future of Power Electronics and the Earth



Off-line Converter Design Support Tool

Sanken STR Pro





Do you have any trouble designing a power supply?

- I need to finish my project much faster.
- It always takes me too long to choose a part.
- I've found it difficult to design a transformer.



Here's how we can help you:
Get our *Sanken STR Pro*

This design support tool will fix your problems!

02. Very Simple and Easy to Use

Input Parameters

| | | |
|------------------------|--------------|--------|
| Input Voltage Range | Manual Input | |
| V _{IN} (max.) | 265 | [Vrms] |
| V _{IN} (min.) | 90 | [Vrms] |
| Frequency | 50/60 | [Hz] |

Output Parameters

| | | |
|--|------|-----|
| V _{OUT} | 15.0 | [V] |
| I _{OUT} (typ.) | 1.00 | [A] |
| Settable Maximum I _{OUT} (typ.) | 1.75 | [A] |
| I _{OUT} (max.) | 1.00 | [A] |
| Settable Maximum I _{OUT} (max.) | 1.75 | [A] |

Optional Parameters Set Optional Parameters Reset

IC Specifications

| | | |
|----------------------------|-------------|-------|
| Part Number | Auto Select | |
| V _{DSS} (min.) | - | [V] |
| R _{DS(ON)} (max.) | - | [Ω] |
| OVP/TSD Operation Mode | - | |
| Other Function | - | |
| Switching Frequency | - | [kHz] |

Color Legend

- Pull-down Input
- Enter Values
- Auto Fill

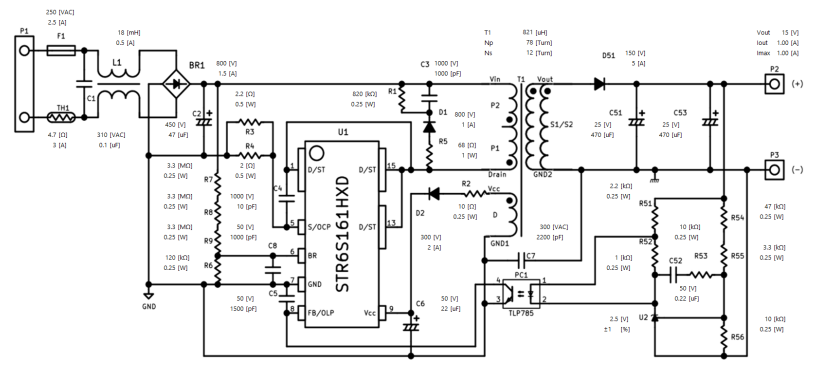
Calculate

STATUS

You only have to enter your power supply specs and click **Calculate**.

Sanken STR Pro auto-creates a circuit diagram, bill of materials, and transformer spec sheet.

Circuit Diagram



Bill of Materials

| Reference | Category | Rating | Manufacturer | Reference model number | Remarks |
|-----------|------------------------|------------------|--------------|------------------------|-----------------------------|
| F1 | Fuse | 250[VAC]2.5[A] | - | - | Safety standard product |
| TH1 | Thermister | 4.7[Ω]3[A] | - | - | - |
| C1 | Film capacitor | 310[VAC]0.1[μF] | - | - | X2-Safety Class |
| C2 | Electrolytic capacitor | 450[V]47[μF] | - | - | High ripple current product |
| C3 | Chip Ceramic Capacitor | 1000[V]1000[pF] | - | - | - |
| C4 | Chip Ceramic Capacitor | 1000[V]10[pF] | - | - | - |
| C5 | Chip Ceramic Capacitor | 50[V]1500[pF] | - | - | - |
| C6 | Electrolytic capacitor | 50[V]22[μF] | - | - | - |
| C7 | Ceramic Capacitor | 300[VAC]2200[pF] | - | - | X1Y1 Class |
| C8 | Chip Ceramic capacitor | 50[V]1000[pF] | - | - | - |
| C51 | Electrolytic capacitor | 25[V]470[μF] | - | - | Low impedance product |
| C52 | Chip Ceramic Capacitor | 50[V]0.22[μF] | - | - | - |
| C53 | Electrolytic capacitor | 25[V]470[μF] | - | - | Low impedance product |
| BR1 | Bridge Diode | 800[V]1.5[A] | - | - | - |
| D1 | Snubber Diode | 800[V]1[A] | Sanken | SARS05 | - |
| D51 | Schottky Diode | 150[V]5[A] | Sanken | SIPE-T15 | - |
| D2 | Fast Recovery Diode | 300[V]2[A] | Sanken | SIPX-H3 | - |
| L1 | Line Filter | 18[mH]0.5[A] | - | - | - |
| T1 | Transformer | EI22 | - | - | - |

Transformer Spec Sheet

Transformer Design

| 1. Specifications of Power Supply | | 2. Target Value of Calculation | |
|-----------------------------------|------------------------|--------------------------------|-------------|
| AC input voltage | AC 90 [V] ~ AC 265 [V] | IC | STR6S161HXD |
| Frequency | 50 / 60Hz | Average input current | 0.16 A |
| Total output power | 15.0W(Thermal rating) | Peak switching current | 0.656 A |
| | 15.0W(Peak load) | Max. on duty | 48.7 % |
| | | IC control type | PWM 100kHz |

| 3. Transformer Specifications | |
|-------------------------------|-----------------------|
| Core material / size | PC40 / EI22 |
| Center gap thickness (Ref.) | 0.53 mm |
| AL - value | 135 nH/N ² |
| Lp - value | 821 μH |

Our Proven Know-how at Your Fingertips

Inexperienced with designing a power supply? Sanken STR Pro offers you our long-standing design expertise. You will be able to easily design what you wish.

Automated Transformer Design and Parts Selection

Leave your laborious tasks to Sanken STR Pro!
Sanken STR Pro auto-calculates the parameters of a transformer and the constants of peripheral parts that are ideal for your project.

Design Data in a Manufacturer-supported Format*

Sanken STR Pro auto-creates a transformer spec sheet directly submittable to transformer manufacturers (e.g., Sanshin Electric). Your design-to-prototype process will be more time-saving.

* Modifications to the design data may be required per manufacturer.

| Series | Part Number | V _{DSS} (Min.) | R _{DS(ON)} (Max.) | f _{OSC(AVG)} (Typ.) | Standby Operating Point Adjustment | Brown-in / Brown-out | AC Input High-voltage Protection (HVP) | Overshoot Prot. (OVP) Thermal Shutdown (TSD) | Package |
|---------------------------|-----------------------------|-------------------------|----------------------------|------------------------------|------------------------------------|----------------------|--|--|---------|
| STR6A100xV STR6A100xVD | STR6A153MV | 650 V | 1.9 Ω | 65 kHz | ✓ | — | — | Latched | DIP8 |
| | STR6A153MVD | | | | | | | Auto-restart | |
| | STR6A168HV | 700 V | 10 Ω | 100 kHz | ✓ | — | — | Latched | DIP8 |
| | STR6A168HVD | | 10 Ω | | | | | Auto-restart | |
| | STR6A169HVD | | 6 Ω | | | | | Auto-restart | |
| | STR6A161HV | | 3.95 Ω | | | | | Latched | |
| | STR6A161HVD | | 3.95 Ω | | | | | Auto-restart | |
| STR6A100HZ | STR6A169HZ | 700 V | 6 Ω | 100 kHz | — | ✓ | — | Latched | DIP8 |
| | STR6A161HZ | | 3.95 Ω | | | | | | |
| | STR6A163HZ | | 2.3 Ω | | | | | | |
| STR6S161HXD | STR6S161HXD | 700 V | 3.95 Ω | 100 kHz | — | ✓ | ✓ | Auto-restart | SOIC16 |

[SanKen STR Pro Special Page](#)

Go to the special page and download it now!

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