

50Ω 100-6000 MHz



## Product Overview

Mini-Circuits' ZTS series platform allows multiple solid-state switch types to be combined and integrated into a single rack-mount package with software control via USB and Ethernet.

ZTS-32SP2T-63VH accommodates 32 independent SPDT switches, each operating from 100 MHz to 6 GHz with fast switching, ultra-high isolation (better than 100 dB typ) and high power handling (+33 dBm). The system is configured with all RF connectors (Com and ports 1-2 of each switch) on the front panel of the 5U chassis. All RF connectors are SMA female.

The system can be controlled via USB or Ethernet (supporting both HTTP and Telnet network protocols). Full software support is provided, including our user-friendly GUI application for Windows and a full API with programming instructions for Windows and Linux environments (both 32-bit and 64-bit systems).

Mini-Circuits' novel daisy-chain control feature allows multiple ZT-32SP2T-63VH systems to be cascaded via their respective Serial Out & Serial In control connections on the rear, for control of all SPDT switches through a single USB or Ethernet interface and software application.

## Key Features

| Feature                          | Advantages   |
|----------------------------------|--|
| High performance switches        | Mini-Circuits' high performance solid-state switch modules are used, combining fast switching with high isolation  |
| Rack-mountable chassis           | The 5U height, rack-mountable chassis allows easy integration into automated production test environments  |
| Ethernet-TCP/IP (HTTP & Telnet)  | Remote control from any Windows®, Mac®, or Linux® computer, or even a mobile device with a network connection and Ethernet-TCP/IP (HTTP or Telnet protocols) support. Using a VPN would allow remote control from anywhere in the world.                               |
| USB HID (Human Interface Device) | Local control via USB connection. Plug-and-Play, no driver required. Compatible with Windows® or Linux® operating systems using 32 and 64 bit architectures.   |
| Full software support            | The user friendly Windows GUI (graphical user interface automation) allows manual control straight out of the box. A full API (application programming interface), programming examples and manuals are provided to allow automation in most programming environments. |

Please contact [testsolutions@minicircuits.com](mailto:testsolutions@minicircuits.com) for support

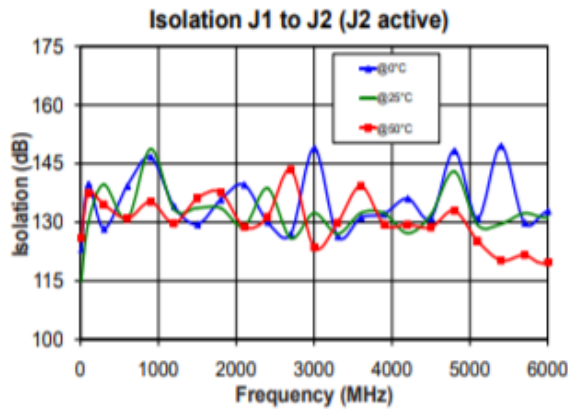
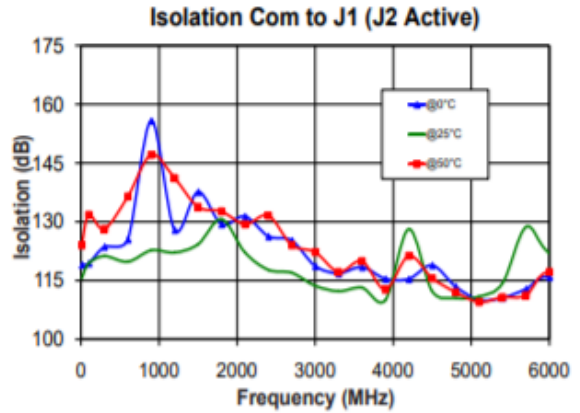
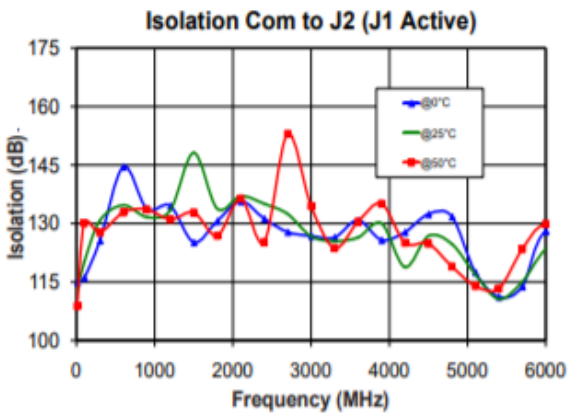
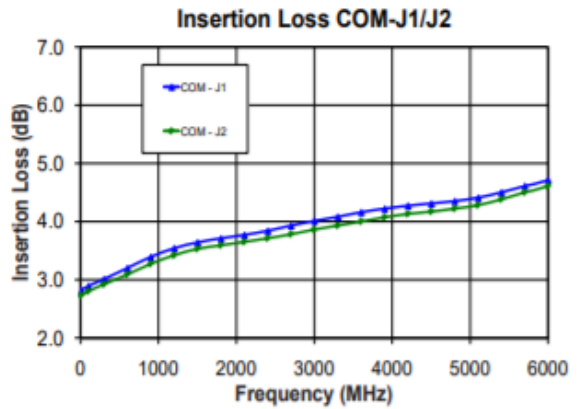
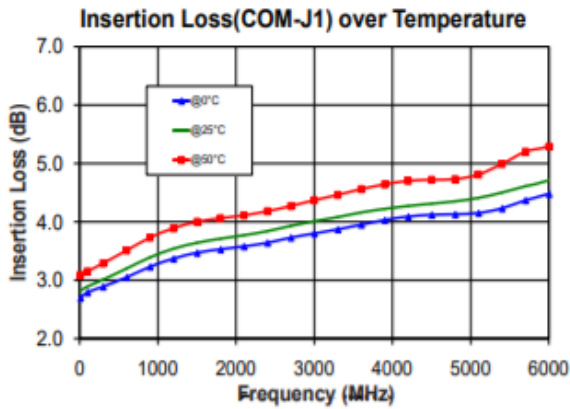
## Mechanical Specifications

|                          |   |
|--------------------------|---|
| <b>Dimensions</b>        | 19" (W) x 5U (H) x 13" (D)  |
| <b>Case Material</b>     | Aluminum (with protective coatings to prevent corrosion)  |
| <b>Case Drawing</b>      | 99-01-2580  |
| <b>RF Connectors</b>     | N-type female   |
| <b>Front panel</b>       | a) On / off switch with LED indicator<br>b) 32 x SPDT switches (ports Com and 1-2 per switch, SMA female)<br>c) Carry handles   |
| <b>Rear panel</b>        | a) AC mains power supply input<br>b) USB & RJ45 control connections<br>c) Serial In & Out daisy-chain control connections<br>d) Label with date code/serial number/MCL part# for traceability |
| <b>Control Interface</b> | a) USB and Ethernet TCP/IP supporting HTTP and TELNET protocols   |
| <b>Power supply</b>      | a) AC mains power supply (90-260 V, 47-63 Hz)<br>b) 2A, 250V fuse rating  |
| <b>Operating temp</b>    | 0° to +50° C  |

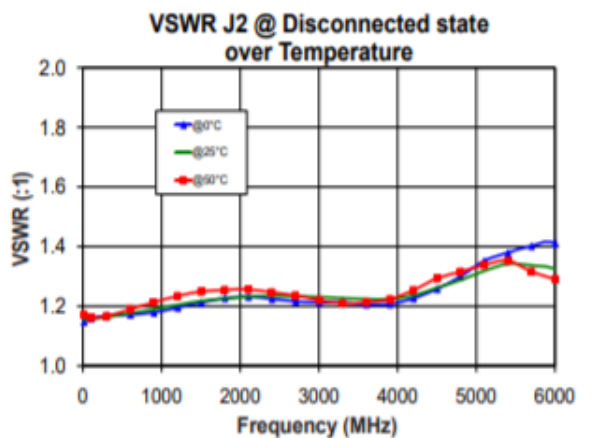
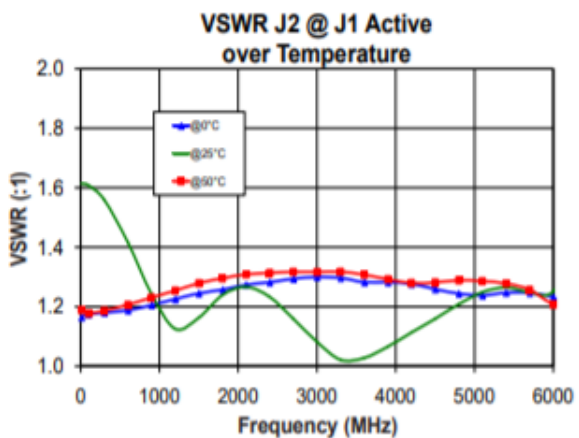
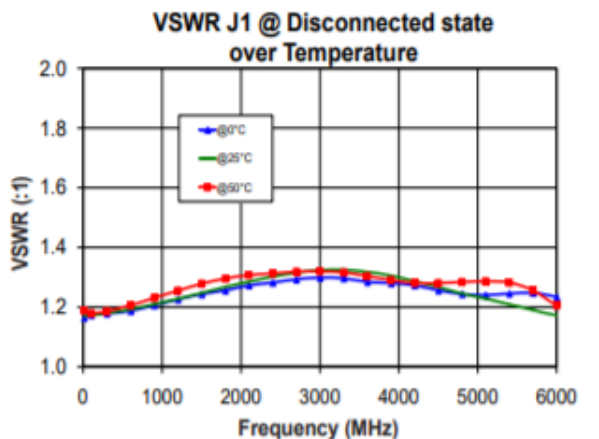
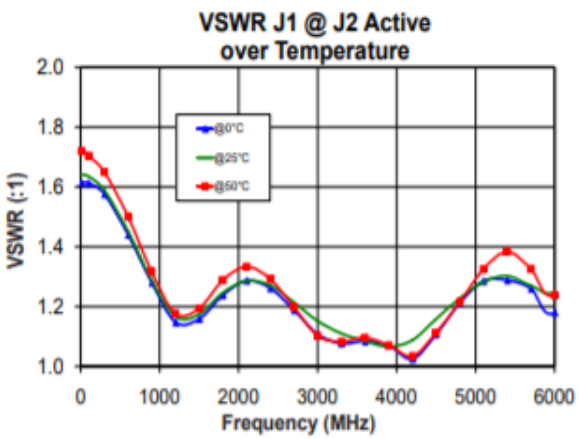
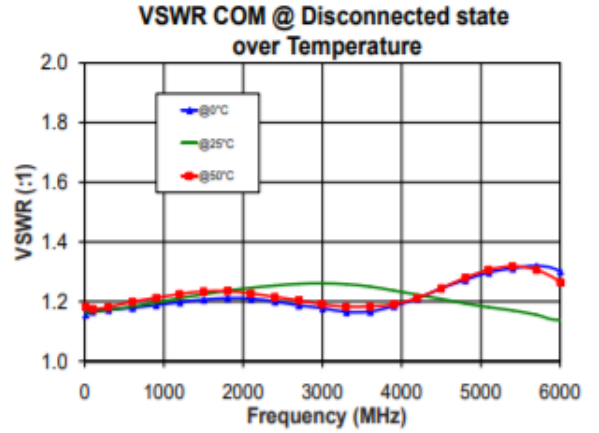
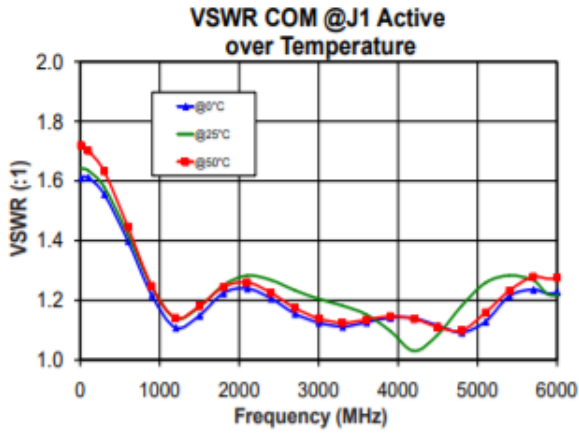
## Electrical Specifications at 25°C (per Switch)

| Parameter             | Conditions                   | Min | Typ | Max  | Units |
|-----------------------|------------------------------|-----|-----|------|-------|
| <b>Frequency</b>      |                              | 100 |     | 6000 | MHz   |
| <b>Insertion Loss</b> | 100 MHz                      |     | 3   |      | dB    |
|                       | 6000 MHz                     |     | 5   |      |       |
| <b>Return Loss</b>    | 100 MHz                      |     | 15  |      | dB    |
|                       | 6000 MHz                     |     | 15  |      |       |
| <b>Isolation</b>      | Between ports 1 <-> 2        |     | 100 |      | dB    |
|                       | COM to 1 or 2 in "off" state |     | 100 |      |       |
| <b>Input Power</b>    | Per port                     |     |     | +33  | dBm   |
|                       | Max dissipation              |     |     | +36  |       |

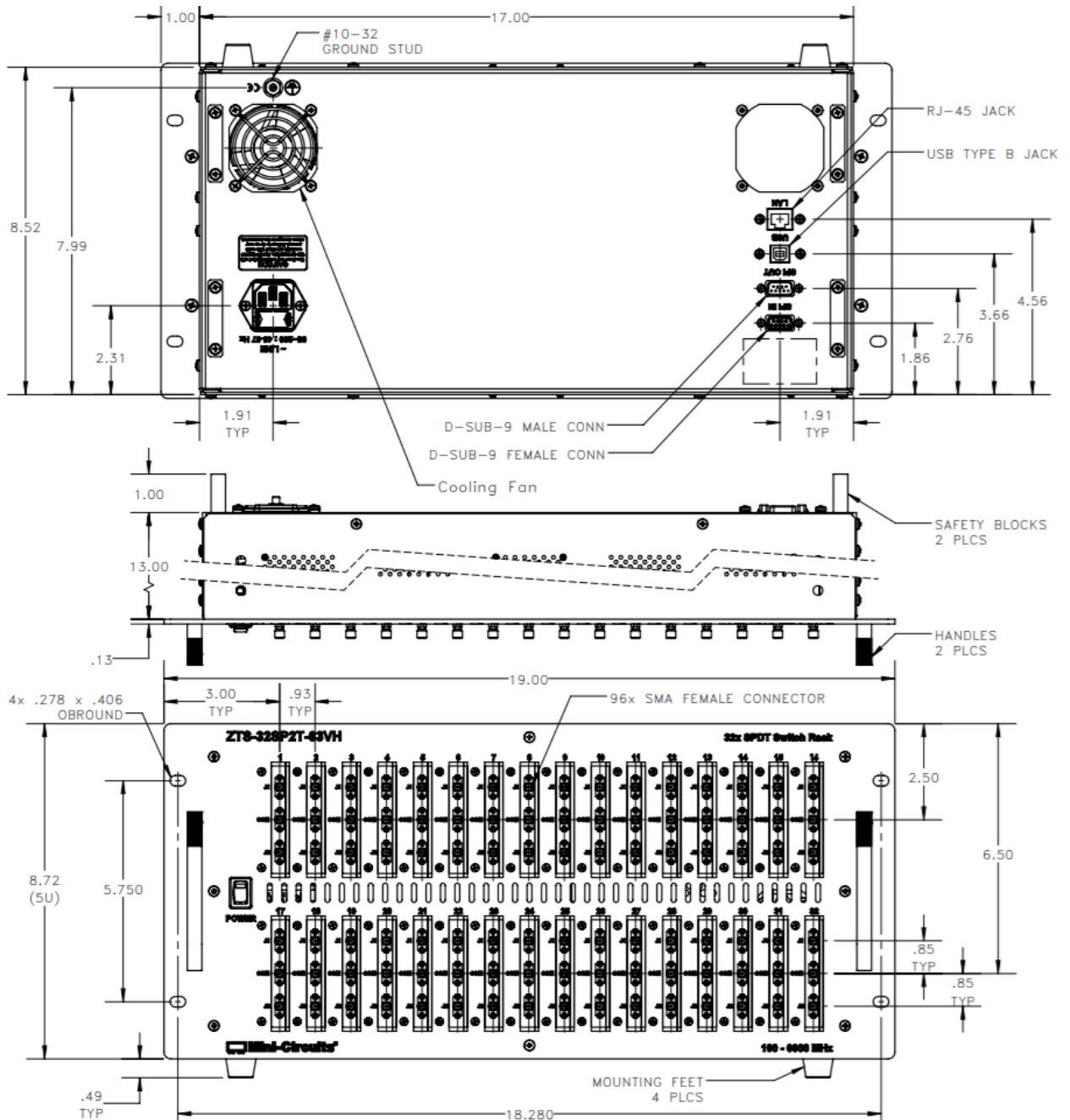
**Typical Performance Data (per Switch)**



**Typical Performance Data (per Switch)**



**Outline Drawing**



## Software Specifications

### Software & Documentation Download:

- Mini-Circuits' full software and support package including user guide, Windows GUI, DLL files, programming manual and examples are available on request
- Please contact [testsolutions@minicircuits.com](mailto:testsolutions@minicircuits.com) for support

### Minimum System Requirements:

| Parameter           | Requirements                        |  |
|---------------------|-------------------------------------|--|
| Interface           | USB HID & Ethernet (HTTP & Telnet)  |  |
| System Requirements | GUI                                 | Windows 98 or later  |
|                     | USB API DLL                         | Windows 98 or later and programming environment with ActiveX or .NET support     |
|                     | USB Direct Programming              | Linux; Windows 98 or later   |
|                     | Ethernet                            | Windows, Linux or Mac computer with a network port and Ethernet TCP / IP support |
| Hardware            | Pentium II or later with 256 MB RAM |  |

### Application Programming Interface (API)

#### Ethernet Support:

- Simple ASCII / SCPI command set for attenuator control
- Communication via HTTP or Telnet
- Supported by most common programming environments

#### USB Support (Windows):

- ActiveX COM DLL file for creation of 32-bit programs
- .NET library DLL file for creation of 32 / 64-bit programs
- Supported by most common programming environments (refer to application note [AN-49-001](#) for summary of supported environments)

#### USB Support (Linux):

- Direct USB programming using a series of USB interrupt codes

Full programming instructions and examples available for a wide range of programming environments / languages.

## Graphical User Interface (GUI) for Windows - Key Features

- Connect via USB or Ethernet
- Run GUI in “demo mode” to evaluate software without a hardware connection
- View and set all switch states
- Rename and switch or port
- Control multiple ZT-24SP2T-63VH switch racks from a single GUI
- Configure Ethernet settings
- Upgrade firmware
- Send SCPI commands

