RACK-MOUNTED | USB & ETHERNET CONTROLLED

Solid-State SP80T Switch

ZTS-1SP80T-63H

50Ω **10 – 6000 MHz** **SMA**

THE BIG DEAL

- Solid-state, high-performance switch
- Convenient rack-mountable chassis
- High port count (1 to 80)
- Ethernet & USB control



Model Name	ZTS-1SP80T-63H
Case Style	99-01-3086
Connector	N-type & SMA female

Refer to our website for compliance methodologies and qualifications

CE UK CA

APPLICATIONS

- High volume production testing / ATE
- 5G FR1, WiFi 6E, Bluetooth testing
- MIMO antenna testing
- RF signal routing / switch matrices

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-1SP80T-63H integrates a combination of Mini-Circuits' USB-1SP16T-83H (SP16T) and USB-1SP8T-63H (SP8T) models into a single SP80T (1 x 80) switch configuration, operating from 10 MHz to 6 GHz with fast switching and high isolation. All RF connections are accessible on the front panel of the 19-inch 2U height rack chassis, with N-type for the COM port and SMA for ports J1-J80.

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.

Mini-Circuits' novel serial interface allows multiple switch racks to be cascaded together into a daisy-chain; the full chain effectively becoming a single system with every switch controlled through a single USB or Ethernet connection and software interface.

KEY FEATURES

Feature	Advantages
High performance switches	Single SP80T (1 x 80) configuration with high isolation is well suited to automated test setups with large numbers of devices or channels under test
Rack-mount chassis	Compact, 2U height 19" rack-chassis with all RF connections on the front, suits integration in automated production test environments
Ethernet & USB control	USB HID and Ethernet (HTTP / Telnet / SSH) interfaces ensure compatibility with most software environments and connection requirements.

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ELECTRICAL SPECIFICATIONS @ 25°C

Parameter	Conditions	Min	Typ	Max	Units
Frequency		10	-	6000	MHz
Path Loss	10 – 3000 MHz	-	10	13	dB
	3000 – 6000 MHz	-	14	17	
Isolation	Between Ports	65	75	-	dB
	COM to any terminated port	65	75	-	
Return Loss	1 – 3000 MHz	-	18	-	dB
	3000 – 6000 MHz	-	12	-	
Input Power	Thru Path, Cold Switching	-	-	+30	dBm
	Into Termination	-	-	+24	

MECHANICAL SPECIFICATIONS

Dimensions	19" (W) x 2U (H) x 15" (D)			
Case Drawing	99-01-3086			
Case Material	Aluminum (with protective coating to prevent corrosion)			
RF Connectors	**Panel**	**Connector**	**Quantity**	**Port Labels**
	Front	N-type female	1	Com
		SMA female	80	J1-J80
	Front Panel			**Rear Panel**
Panel Marking	• ZTS-1SP80T-63H • Solid-State SP80T • 10-6000 MHz			• CE / EAC / UKCA • Serial number / date code / model name
Panel Items				• Power on / off switch with LED • AC mains power input (IEC C14 inlet) • USB type B socket • RJ45 (LAN) socket • 2 x D-Sub 9-pin (SPI In & Out)
Power Supply	AC mains power input (AC mains (100-240 V, 50 / 60 Hz))			
Fuse	2A, 250V rating			

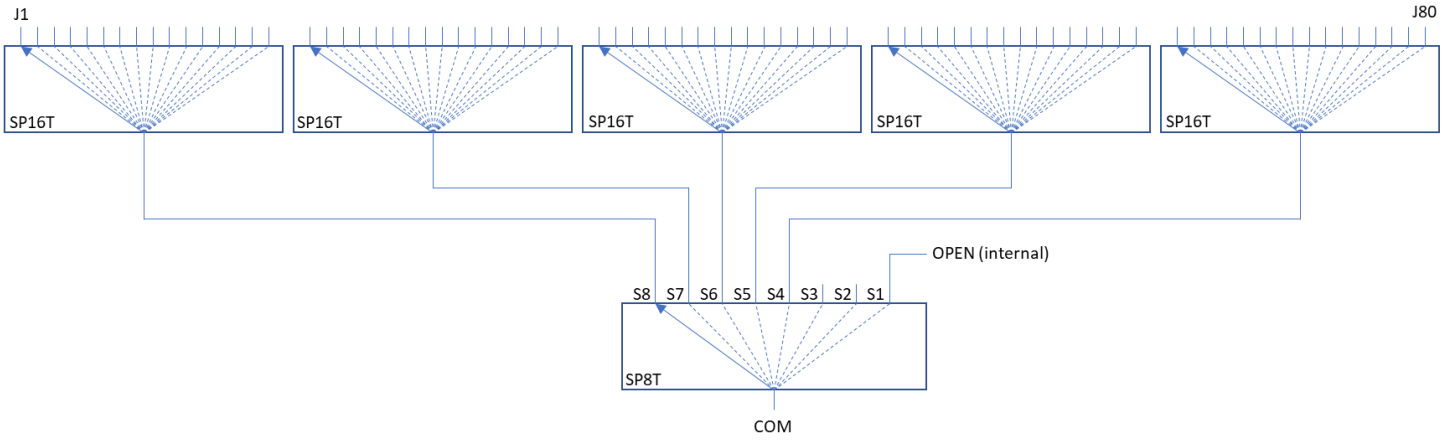
MAX RATINGS

Parameter	Conditions	Limits	Units
Temperature	Operating	0 to +50	°C
	Storage	-15 to +60	
Input Power (No Damage)	Through path	+30	dBm
	Into internal termination	+24	

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FUNCTIONAL BLOCK DIAGRAM

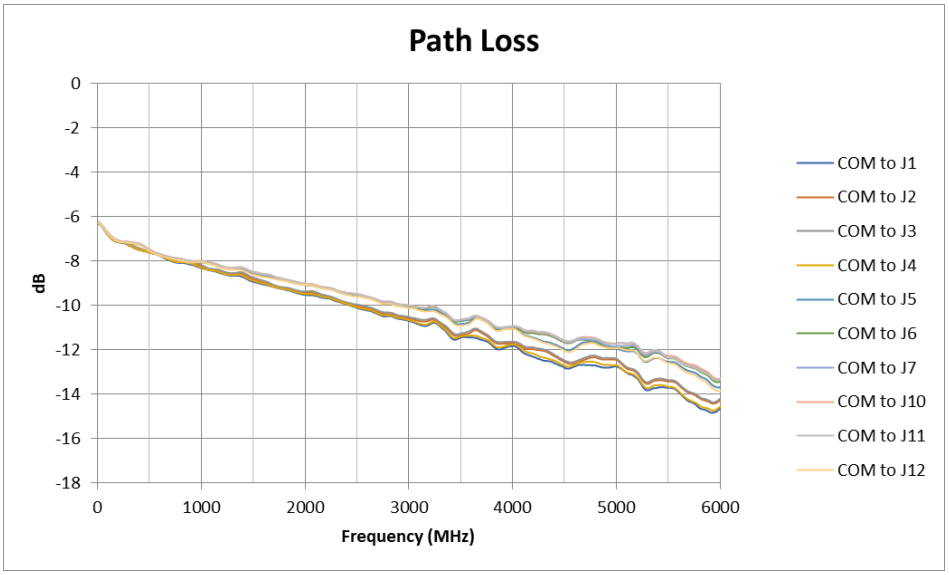
- Absorptive SP80T (single-pole, eighty throw) switch
- Ports J1 to J80 are internally terminated in 50Ω when disconnected
- COM is reflective in the disconnected state (connected internally to S1 - open circuit)

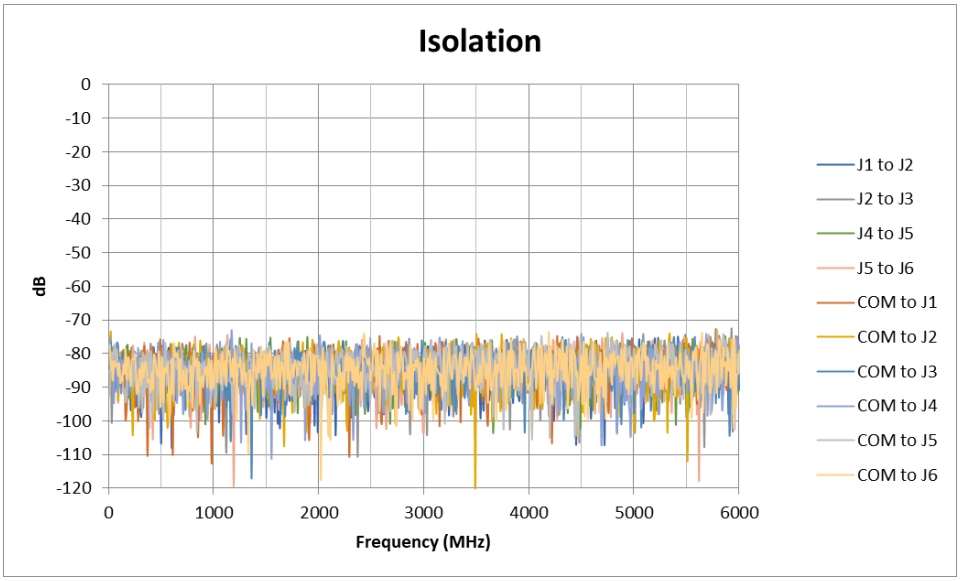


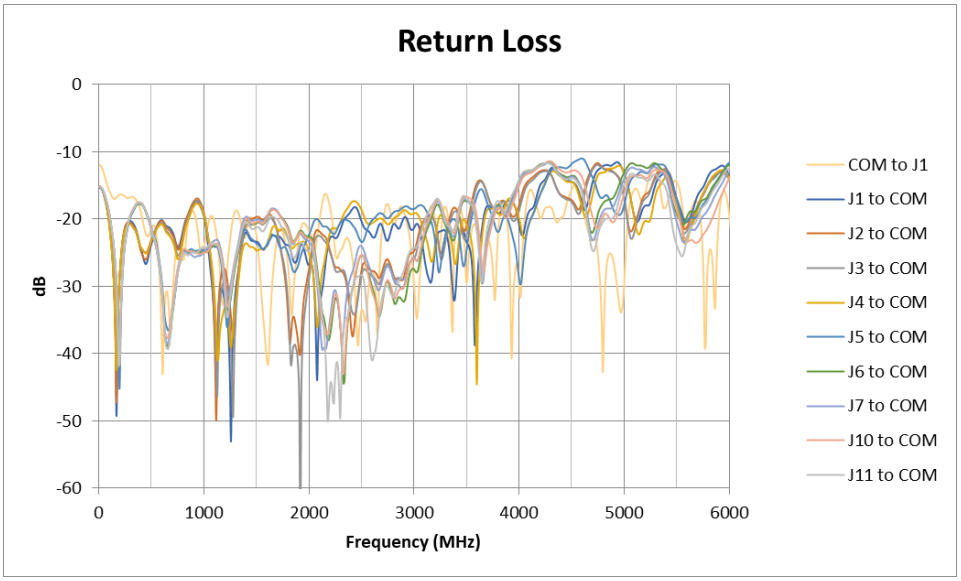
SWITCH STATE TABLE

Command	Switch Path
:SP80T:STATE:0	All ports disconnected
:SP80T:STATE:1	Com to port J1
:SP80T:STATE:2	Com to port J2
:SP80T:STATE:3	Com to port J3
:SP80T:STATE:4	Com to port J4
:SP80T:STATE:5	Com to port J5
:SP80T:STATE:6	Com to port J6
:SP80T:STATE:7	Com to port J7
:SP80T:STATE:8	Com to port J8
...	...
:SP80T:STATE:80	Com to port J80

TYPICAL PERFORMANCE DATA



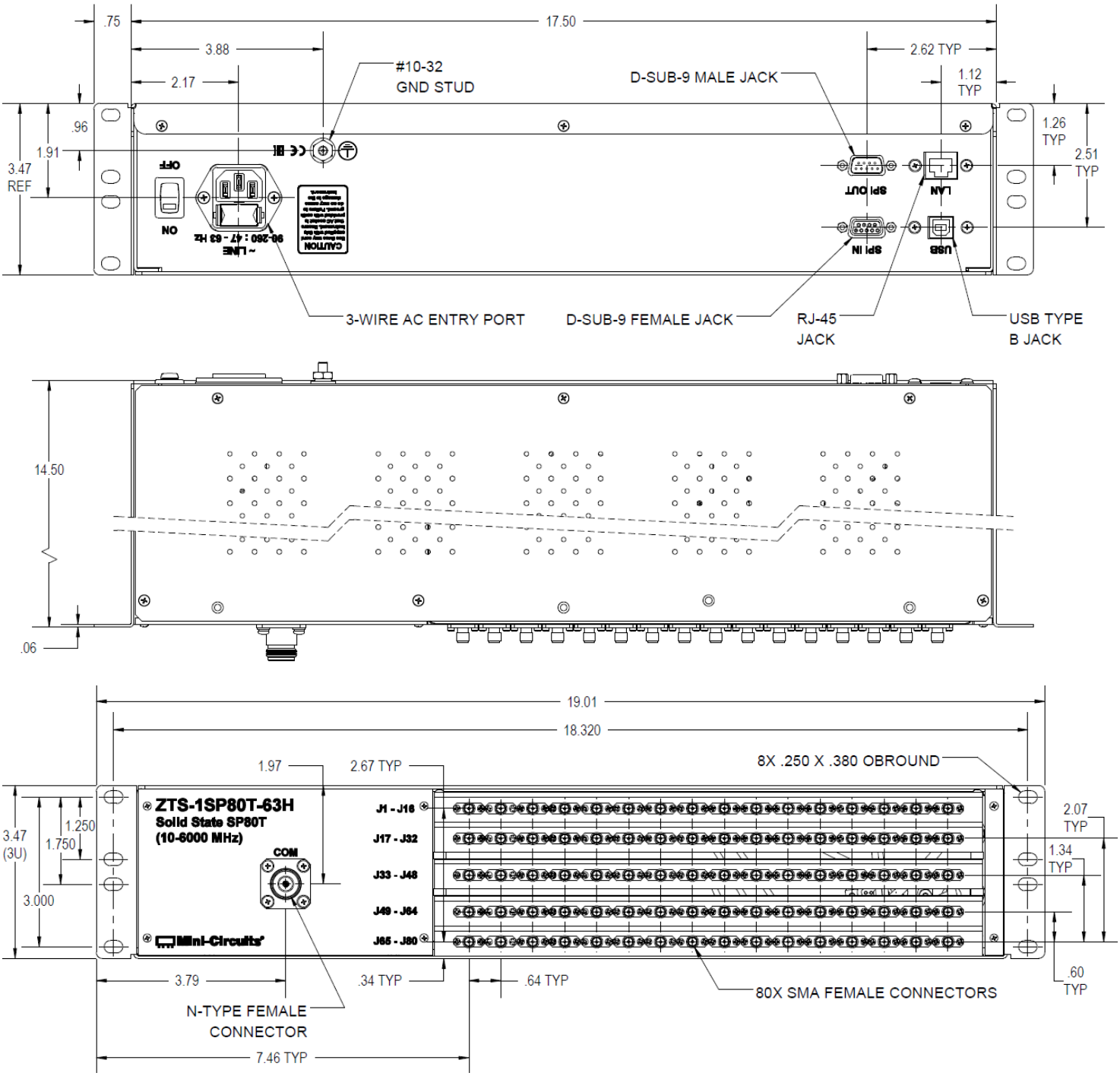




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OUTLINE DRAWING



DIMENSIONS ARE IN INCHES

TOLERANCES ON:
2 PL DECIMALS ± .03
3 PL DECIMALS ± .015

SOFTWARE SPECIFICATIONS

Please contact testsolutions@minicircuits.com for support

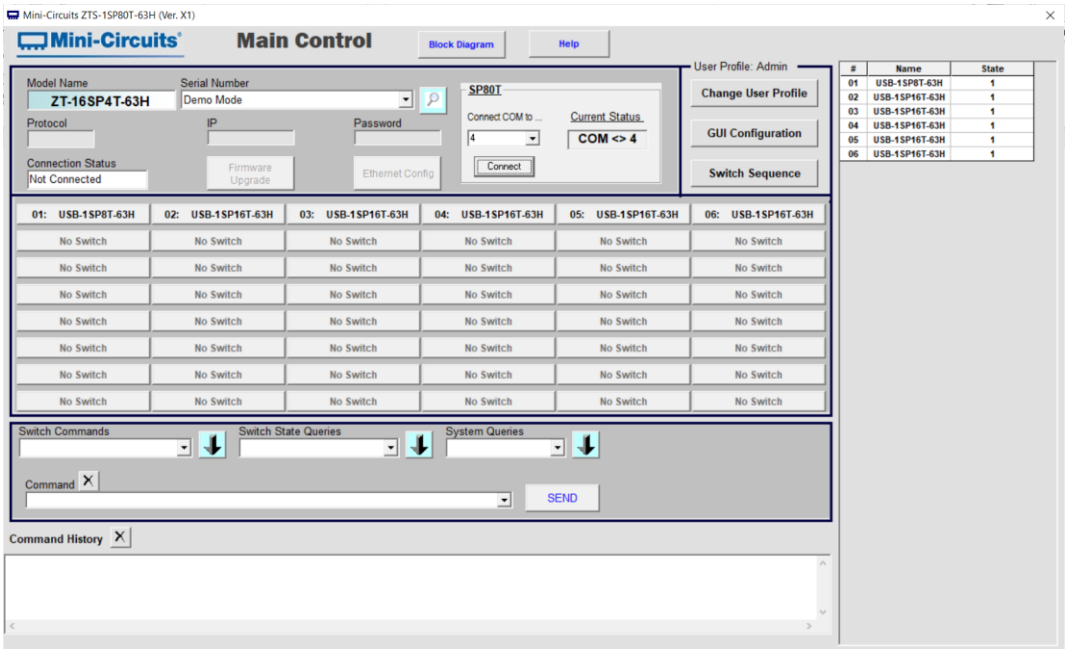
Ethernet Control	**Supported Protocols**	TCP / IP, SSH, HTTP, Telnet, DHCP, UDP
	Max Data Rate	100 Mbps (100Base-T Full Duplex)
USB Control	**Supported Protocols**	HID - High Speed
	Min Communication Time	400 µs typ
Software Support	• Mini-Circuits' Universal GUI for USB & LAN control (Windows only) • ASCII / SCPI command syntax for LAN programming (all OS) • ActiveX / .Net DLL APIs for USB programming (Windows only) • Interrupt codes for direct USB programming (all OS) • Full programming instructions and examples for a wide range of languages	
Downloads	**Software & Documentation**	https://www.minicircuits.com/softwaredownload/multissw.html

PROGRAMMING COMMANDS

- The key ASCII / SCPI commands for control of the system are summarized below
- These can be sent via the USB or Ethernet API
- Please refer to the programming manual for full details

Command / Query	Description
:MN?	Read model name
:SN?	Read serial number
:FIRMWARE?	Read firmware version
:SP80T:STATE:port	Set the switch path: port = the switch port to connect Example. :SP80T:STATE:48 (set switch to state 48)
:SP80T:STATE?	Get the state of the SP80T

GRAPHICAL USER INTERFACE (GUI)



ORDERING INFORMATION

Please contact Mini-Circuits' Test Solutions department for price and availability:

testsolutions@minicircuits.com

INCLUDED ACCESSORIES

Model Name	Quantity	Description
CBL-3W-xx*	1	AC power cord (IEC C13 connector to local plug)
USB-CBL-AB-7+	1	USB cable (6.8 ft)
CBL-RJ45-MM-5+	1	Ethernet cable (5 ft)
HT-4-SMA	1	SMA Cable Wrench (4 in)

*Please specify one option on the purchase order, at no charge

Cable Model	Region
CBL-3W-US	USA
CBL-3W-EU	Europe
CBL-3W-IL	Israel
CBL-3W-UK	UK
CBL-3W-AU	Australia / China

Revision	Updates	Date	Creator	Reviewer
1	Original web publication	2-Nov-21	LW	N/A
2	Updated format; added block diagram; added max ratings	10-Feb-23	LW	CM

NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Mini-Circuits

Environmental Specifications **ENV56**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-0° to 40° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-15° to 85° C Ambient Environment	Individual Model Data Sheet
Operating and Storage Humidity	5% to 85% RH (non-condensing)	Ambient
Bench Handling Test	Bench Top Tip 45° & Drop	MIL-PRF-28800F
Transit Drop Test	Free Fall Drop, 20 cm (7.9 inches)	MIL-PRF-28800F Class 3

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