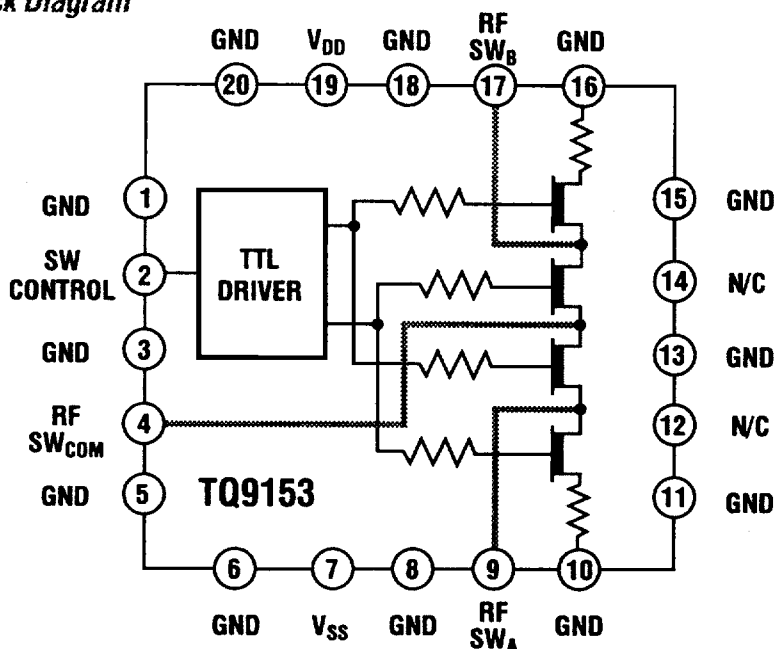


TQ9153

Block Diagram



DC – 10 GHz SPDT Switch (with Driver)

Product Description

The TQ9153 is a fast, broadband microwave SPDT switch (absorptive) with an on-chip TTL-level driver. Several switches can be cascaded together to implement multi-port configurations. The TQ9153 is available mounted in a hermetic surface-mount package or in die form. The die size is 54 x 43 mils.

Switch Logic

TTL Ctrl.	RF SW _A	RF SW _B
Low	ON	OFF
High	OFF	ON

Features

- DC – 10 GHz broad bandwidth
- "On" Insertion Loss < 1.5 dB
- "Off" Isolation > 25 dB
- Input/Output VSWR < 2:1
- Switching speed < 3 ns
- Termination 50Ω in OFF state

Electrical Characteristics

	Min	Typ	Max	Units
Frequency of Operation	DC		10	GHz
"ON" Insertion Loss		1.5	2.5	dB
"OFF" Isolation – 1 GHz	40	45		dB
"OFF" Isolation – 10 GHz	20	25		dB
Input/Output VSWR		1.7:1	2:1	
DC Supply Current @ ±5 V		15	20	mA
Positive Supply	4.5	5	5.5	V
Negative Supply	-4.5	-5	-5.5	V

Applications

- T/R switches
- Antenna switches
- Pulse generators

TQ9153 2022

TQ9153

DC Characteristics @ 20°C (T_C)

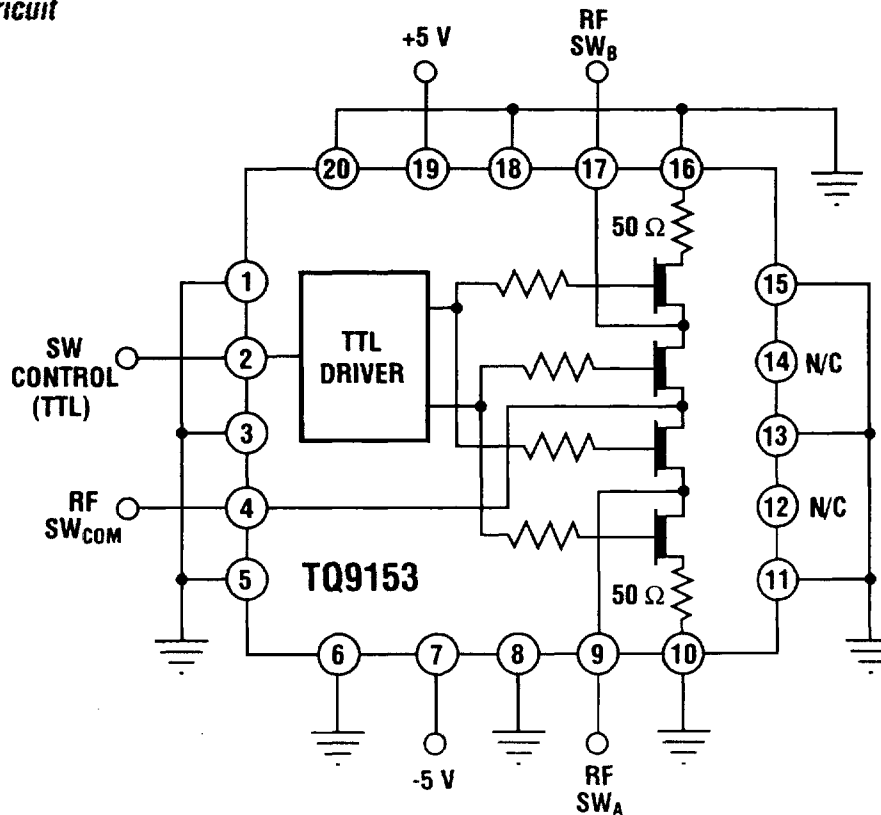
	Min.	Typ.	Max.	Unit
DC Power Supply (+V _{DD} , -V _{SS})	± 4.5	± 5	± 5.5	V
DC Supply Current		15	20	mA
Power Dissipation		150	250	mW
Switch Control Levels		Std. TTL		

RF Characteristics @ 20°C (T_C)

	Min.	Typ.	Max.	Unit
Frequency of Operation	1		10	GHz
"On" Insertion Loss		1.5	2.5	dB
"Off" Isolation – 1 GHz	40	45		dB
"Off" Isolation – 10 GHz	20	25		dB
Input/Output VSWR		1.7 : 1	2 : 1	
Switching Speed		< 3		ns
Max. RF Input Power ¹		> + 20		dBm
Third-Order Intercept ¹		+35		dBm

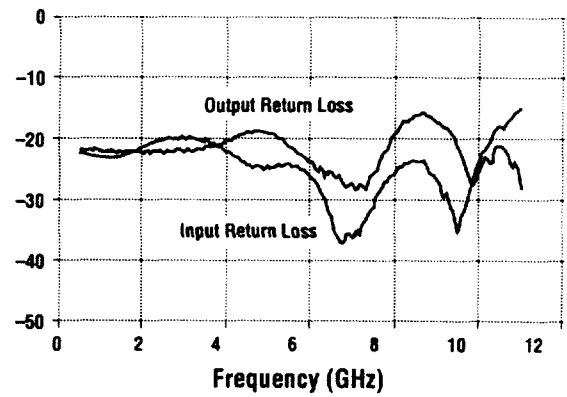
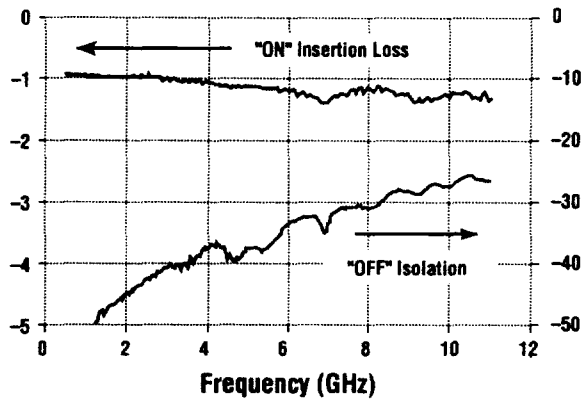
Note: 1. P1dB and 3rd OIP decrease below 1 GHz.

Test/Application Circuit



TQ9153

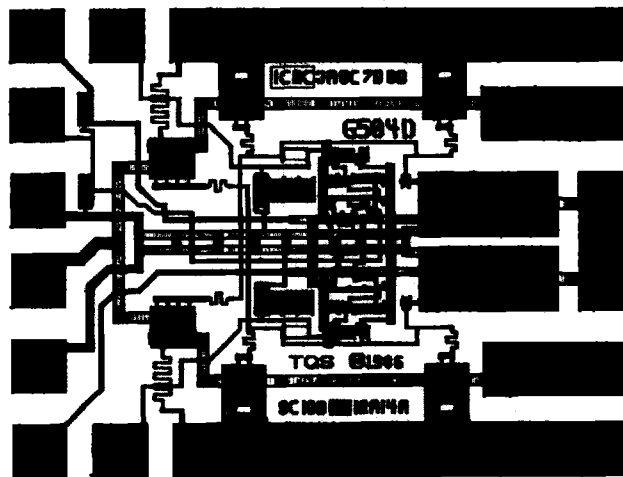
Typical TQ9153 Packaged Performance



Pin Functions

Pin Names	Pin #	Description
SW Control (TTL)	2	Switch control; TTL logic input.
RF SW _{COM}	4	Common RF input; DC-coupled.
V _{SS}	7	V _{SS} : Negative supply voltage.
RF SW _A	9	RF input A; DC-coupled. ON for a logic LOW applied to SW control.
N/C	12	No connect
N/C	14	No connect
RF SW _B	17	RF input B; DC-coupled. ON for a logic LOW applied to SW control.
V _{DD}	19	V _{DD} : Positive supply voltage.
GND	1, 3, 5, 6, 8, 10, 11, 13, 15, 16, 18, 20	Ground

Die Diagram

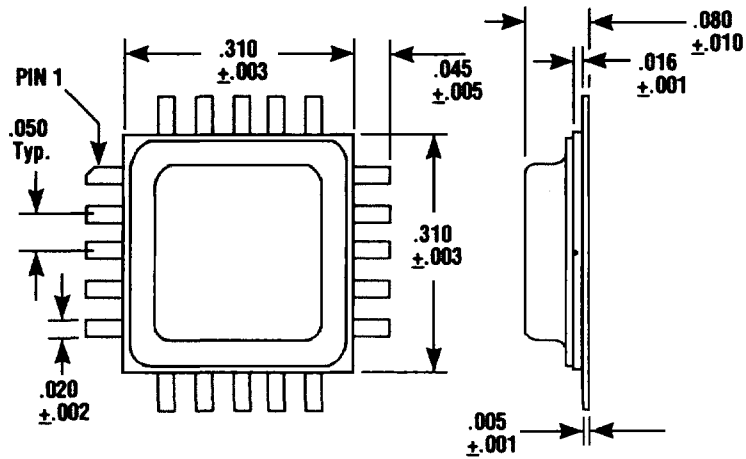


TQ9153

Absolute Maximum Ratings

	Min.	Typ.	Max.	Unit
DC Power Supply			± 7	V
Operating Temperature	- 55		+ 85	°C
Storage Temperature	- 55		+ 150	°C
Power Dissipation			1.0	W

Package Outline



Ordering Information

TC-9153-A

U – Ceramic Package
D – Die

For more information contact
Customer Service Department:

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