

Quick selection guide

For logic analyzer pod connection	Connection to system under test	Single-ended* or differential	Number of channels	Agilent model number or part number	Page
40-pin	Flying leads	Single-ended	17	E5383A	12
40-pin	Pro Series soft touch	Single-ended	34	E5404A	21
40-pin	Half-size soft touch	Single-ended	17	E5396A	23
40-pin	Soft touch connectorless	Single-ended	34	E5394A	20
40-pin	Samtec connector	Single-ended	34	E5385A	28
40-pin	Mictor connector	Single-ended	34	E5346A	28
40-pin	Mictor connector	Single-ended, low voltage	34	E5339A	28
40-pin	Mictor connector	Single-ended, no isolation networks	34	E5351A	32
90-pin	Flying leads	Single-ended	17	E5382A	61
90-pin	Flying leads	Differential	17	E5381A	64
90-pin	Pro Series soft touch	Differential	17	E5405A	42
90-pin	Pro Series soft touch	Single-ended	34	E5406A	42
90-pin	Half-size soft touch	Single-ended	17	E5398A	52
90-pin	Soft touch connectorless	Single-ended	34	E5390A	43
90-pin	Soft touch connectorless	Differential	17	E5387A	41
90-pin	Samtec connector	Single-ended	34	E5378A	57
90-pin	Samtec connector	Differential	17	E5379A	57
90-pin	Mictor connector	Single-ended	34	E5380A	59

* Isolation networks are included unless designated otherwise.

Designing and Probing with Target Connections

For All Agilent Logic Analyzers with 40-pin Pod Connectors

Agilent Technologies E5346A, E5339A, and E5385A Probes

The E5346A, E5339A, and E5385A probes include the required isolation networks for the logic analyzer right at the probe tip, close to the target. The E5346A and E5385A are designed to acquire signals with peak-to-peak amplitude as low as 500 mV. The E5339A is designed to acquire signals as small as 250 mV peak-to-peak. Figure 5.18 shows the equivalent load for the E5339A, and Figure 5.19 shows the equivalent load for the E5346A. Figure 5.20 shows the equivalent load for the E5385A.

To use the E5346A, E5339A, or E5385A at high clock speeds, the following design guidelines should be observed:

- Calculate the electrical length of the probe hookup stub.
- For PC board material with $E_r=4.9$, use a propagation delay of 160 ps/inch.
- Check that the propagation delay of the probe hookup stub is less than 20% of the bus signal risetime (T_r). If it is, the E5346A, E5339A, or E5385A can be used for connection.

For example, if $E_r=4.9$, a 2.5 inch probe hookup stub generates a propagation delay of 400 ps. If T_r is > 2 ns, the E5346A, E5339A, or E5385A is a viable probing choice.

The E5346A and E5339A use the AMP Mictor 38-pin connector. The E5385A uses a 100-pin connector manufactured by Samtec. Agilent recommends the E5394A or E5385A for new applications, due to the reduced input capacitive loading and improved isolation between adjacent channels.

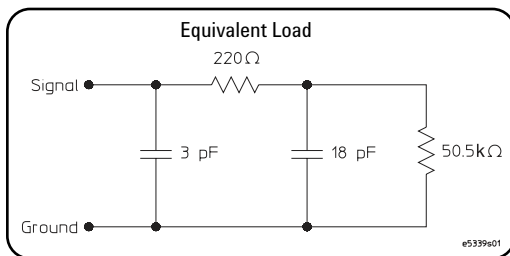


Figure 5.18. E5339A input equivalent load

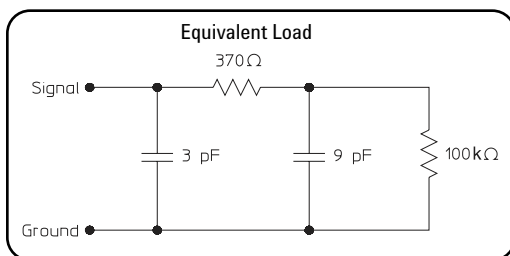


Figure 5.19. E5346A input equivalent load

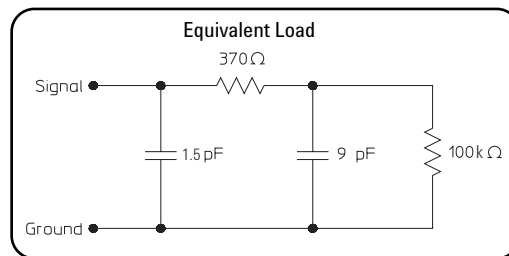


Figure 5.20. E5385A input equivalent load

For additional information on designing connectors into a target system, refer to the following documents:

Agilent Technologies E5346A/E5351A Probe/Adapter Cable	Installation Note E5346-92014	http://literature.agilent.com/litweb/pdf/E5346-92014.pdf
Agilent Technologies E5339A Low Voltage Probe	Installation Note E5339-92002	http://literature.agilent.com/litweb/pdf/E5339-92002.pdf
Agilent Technologies E5385A Probe	Installation Note E5385-92001	http://literature.agilent.com/litweb/pdf/E5385-92001.pdf

Designing and Probing with Target Connections

For All Agilent Logic Analyzers with 40-pin Pod Connectors

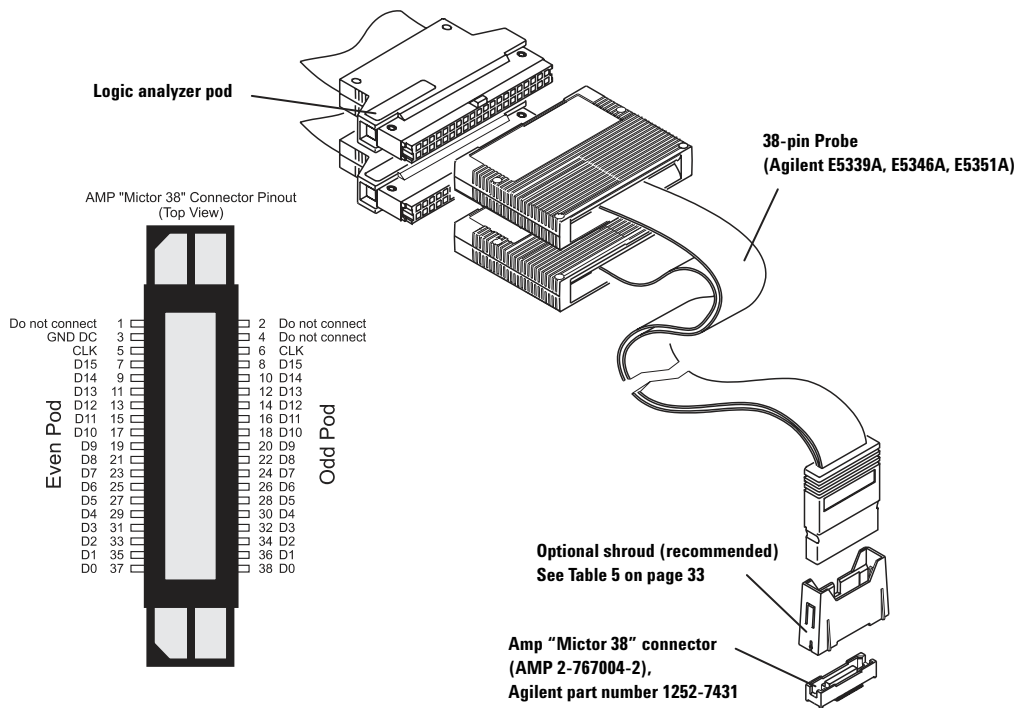


Figure 5.21. Agilent E5339A, E5346A, and E5351A connection and pinout

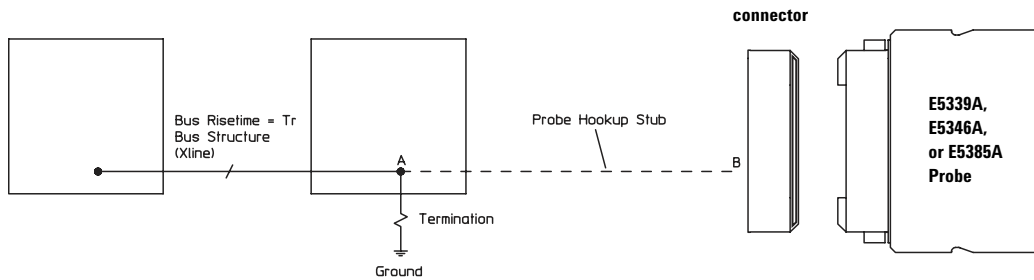


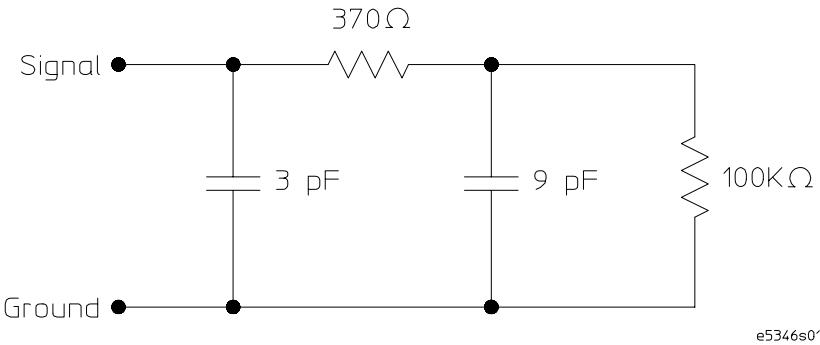
Figure 5.22. Agilent E5339A, E5346A, and E5385A design rules

Characteristics

The following characteristics apply to the combination of the E5346A 38-pin probe and any compatible Agilent state and timing analysis module (16557D, 16710A, 16711A, 16712A, 16715A, 16716A, 16717A, 16718A, 16719A, 16750A, 16751A, or 16752A).

Input resistance and capacitance	See equivalent probe load diagram
Minimum voltage swing	500 mV p-p
Minimum input overdrive	250 mV
Threshold range	-6 V to +6 V in 10 mV increments
Input dynamic range	+/-10 V about threshold
Maximum input voltage	+/-40 V peak

The following equivalent probe load diagram includes the logic analyzer and 38-pin MICTOR connector.



Equivalent probe load