Midspan PSE
## AC Disconnection impacted by PDs on both ends?

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Issue: Could a Mid-Span AC Disconnect method be affected by existence of PDs on both ends of link?

• Mid-Span spec does not prohibit PDs being attached on both ends
• Mid-Span spec implementation that supports 1000BASE-T must have AC continuity from end to end
• AC continuity must be high-freq (>50KHz) to pass 10/100/1000T signals
• Will such a circuit be susceptible to AC disconnect method?
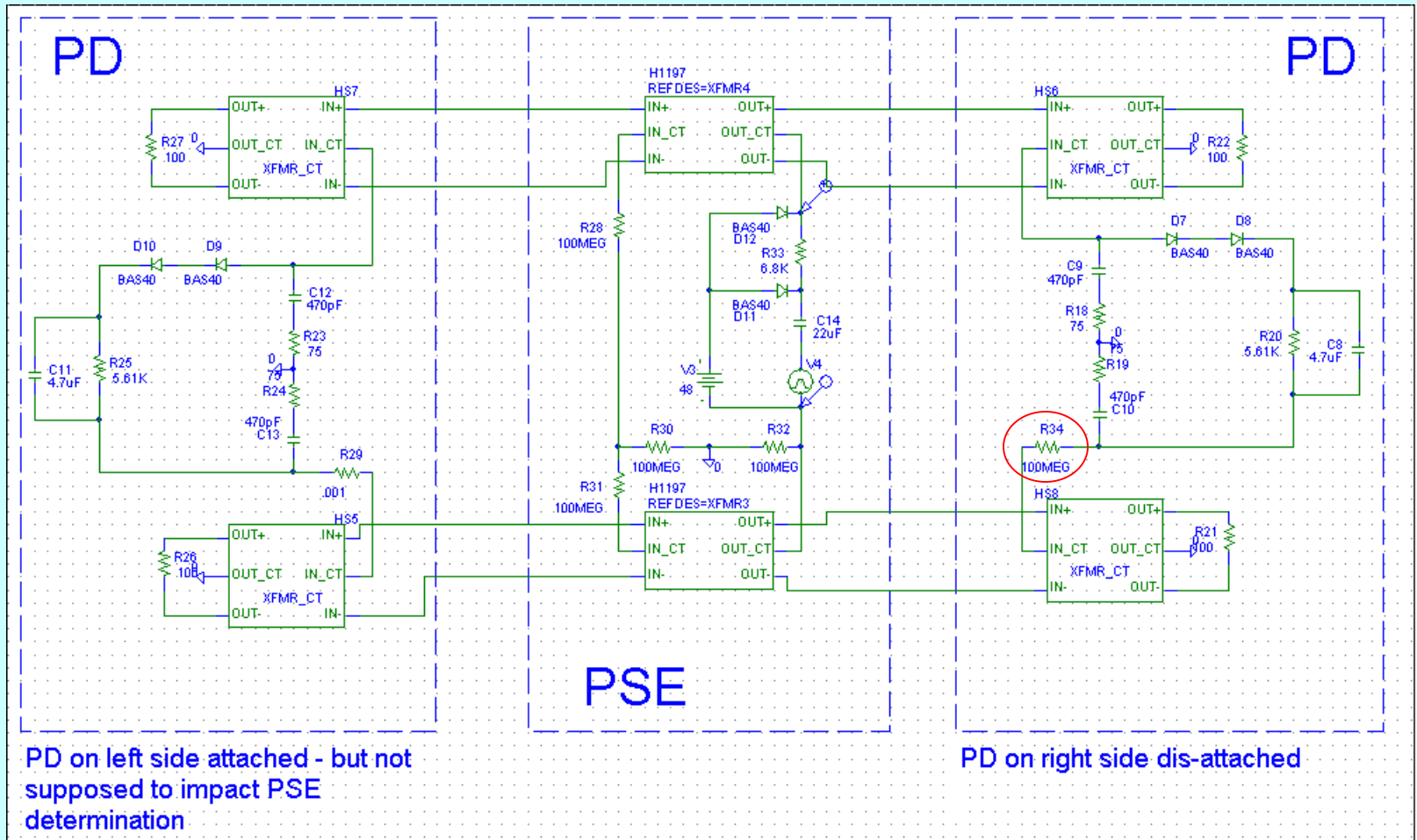
Midspan PSE with Center-tapped Xformer

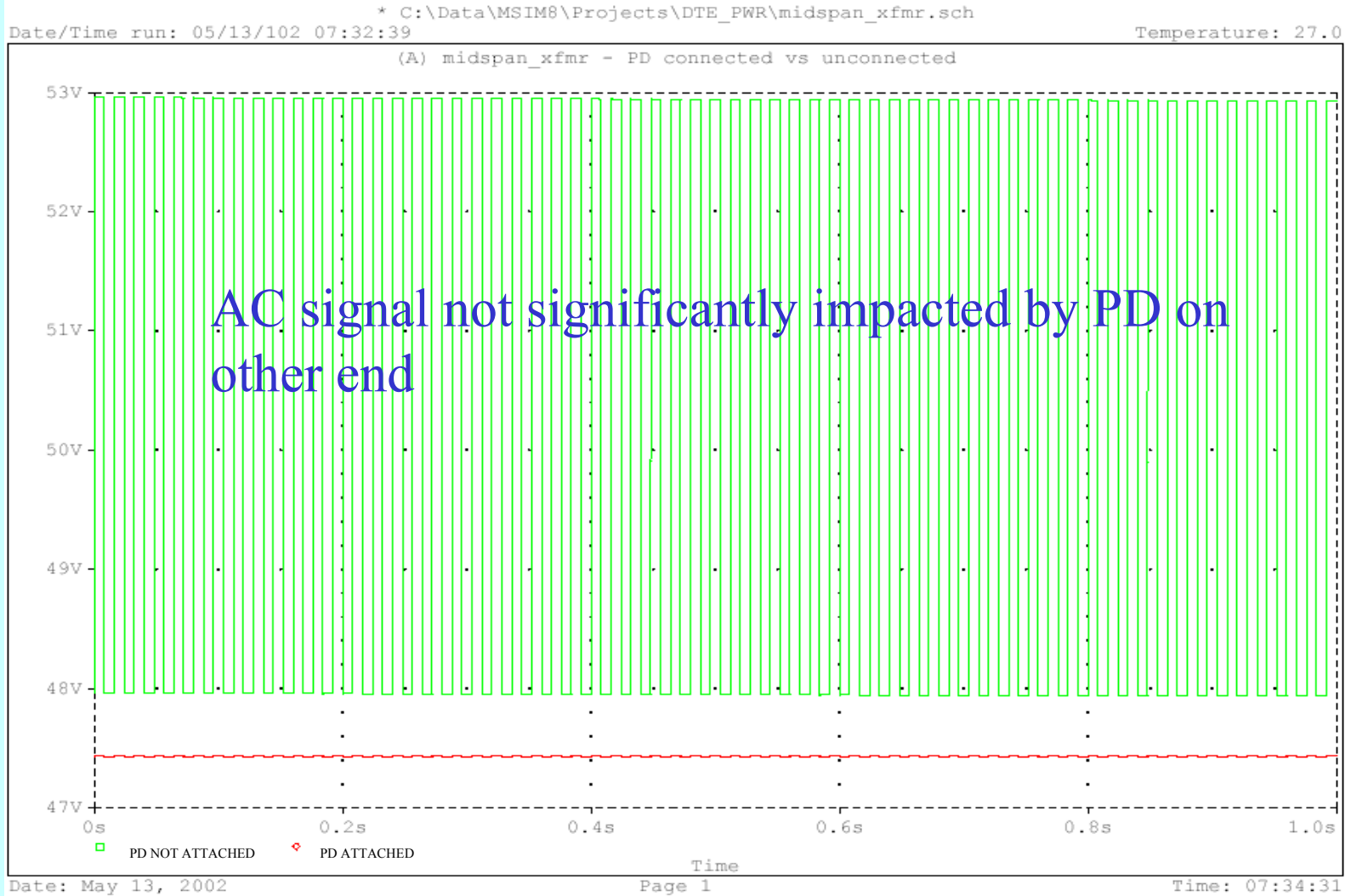Pulse Xformer Modules provided by H. Hinrichs – Pulse Engineering

Smith Termination

Determines whether PD is attached
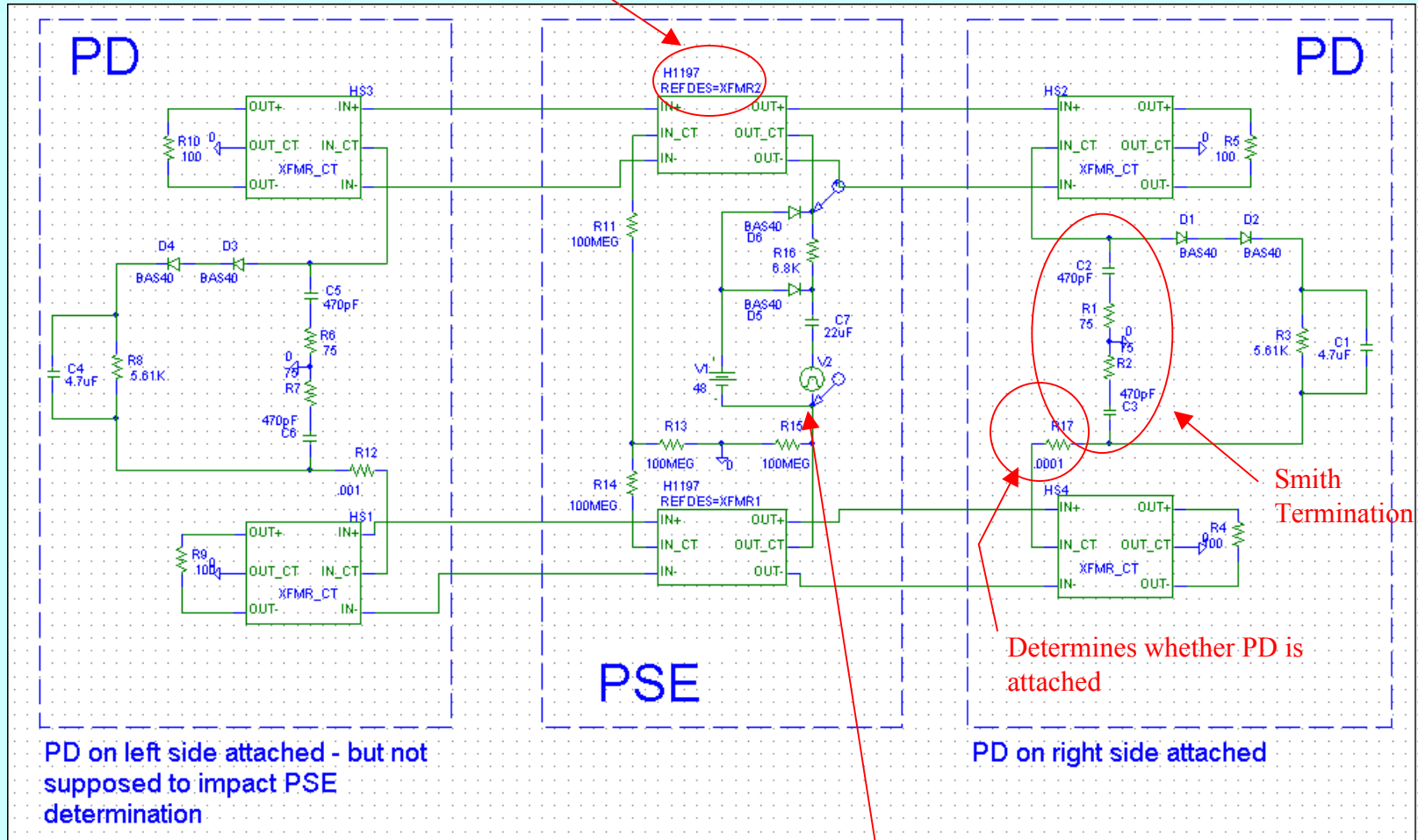
Used 5V, 60Hz, 10us RT/FT trapezoid

(Much faster slew rate than Yair's #s)

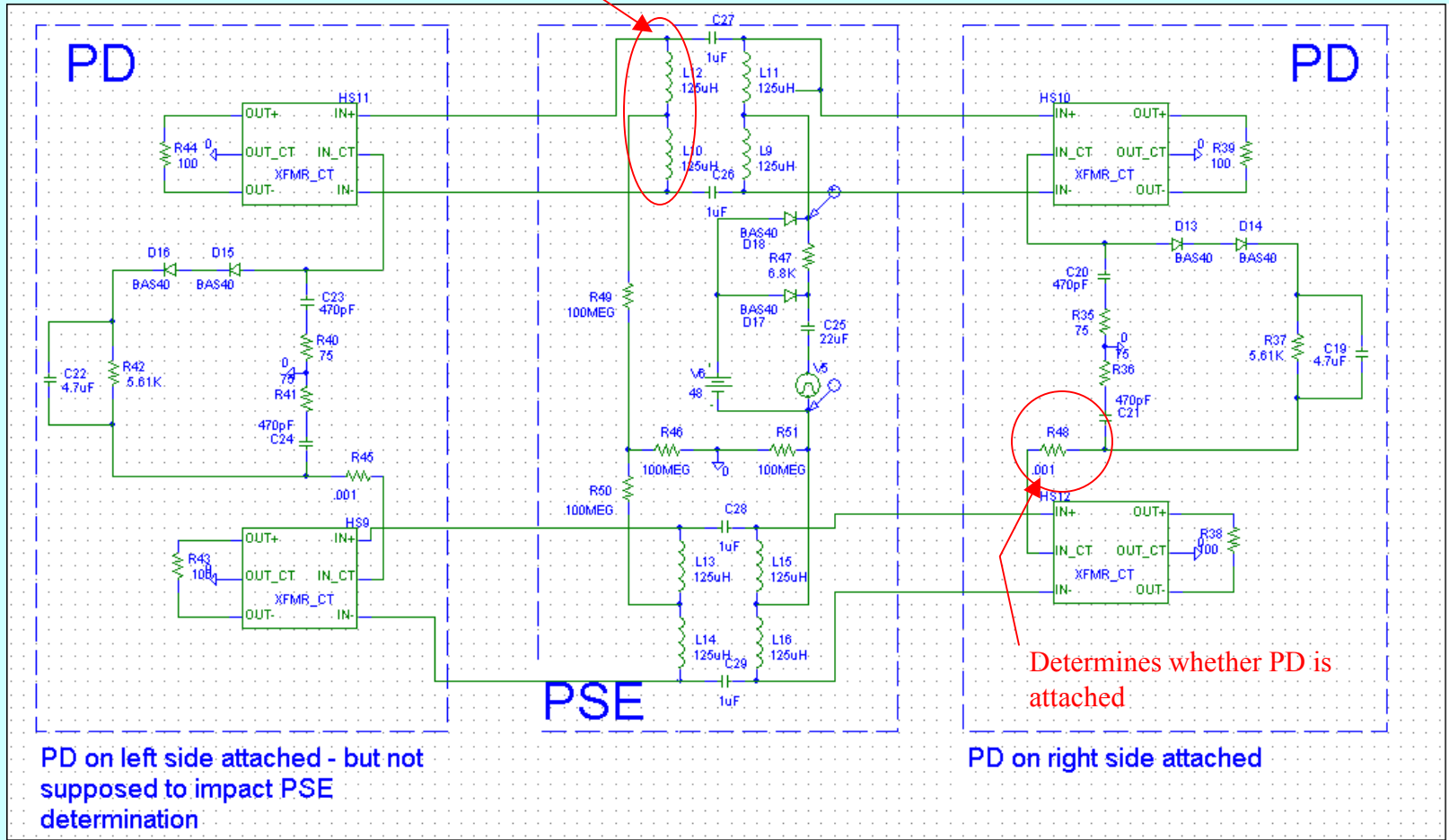# Midspan PSE with Center-tapped Xformer

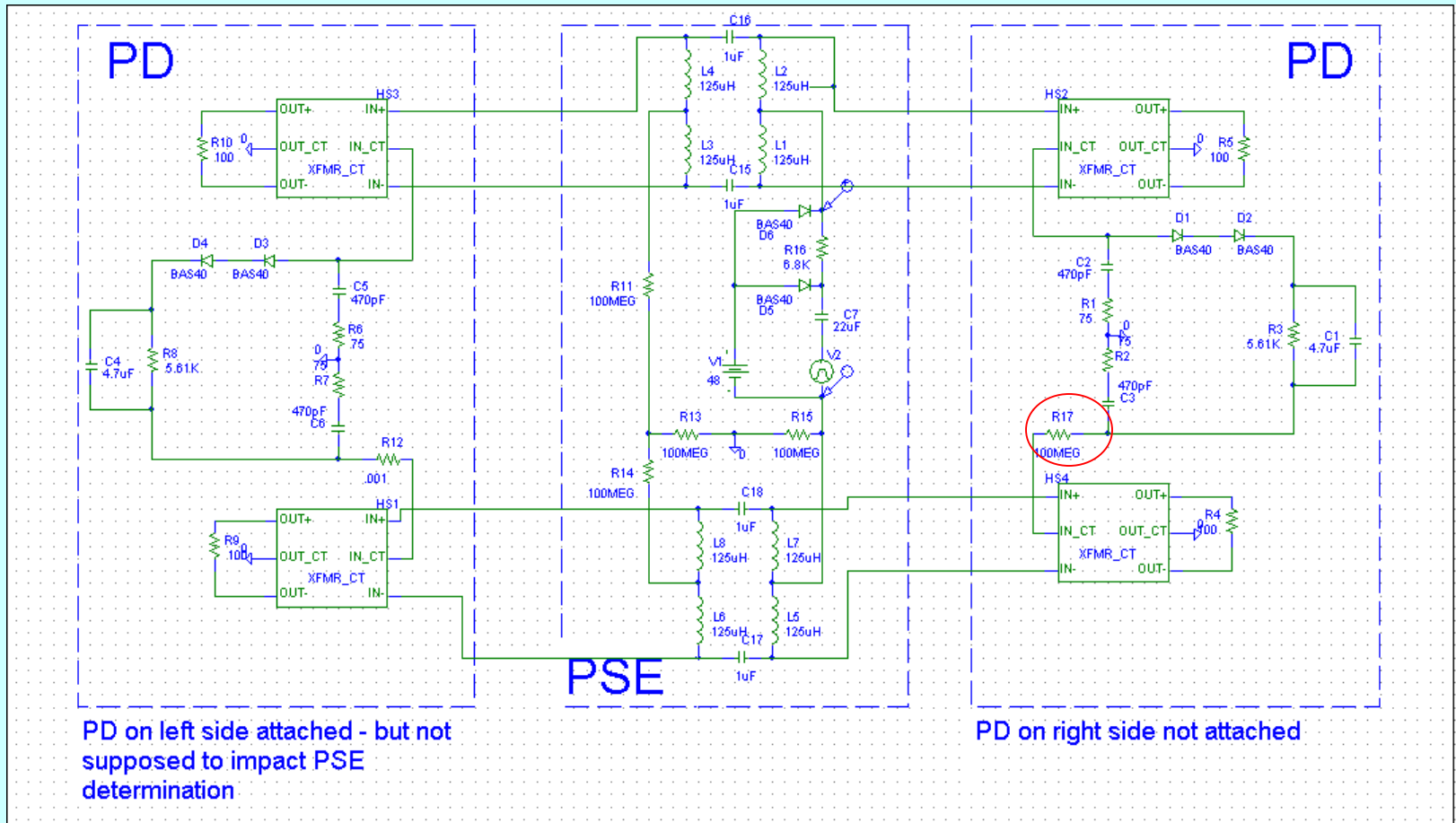# Midspan PSE with Center-tapped Xformer

AC signal not significantly impacted by PD on other end

* C:\Data\MSIM8\Projects\DTE_PWR\midspan_xfmr.sch

Date/Time run: 05/13/102 09:45:05   Temperature: 27.0

(A) midspan_xfmr AC Coupling from PSE to PD on other end of xfmr

□ 20*log10(V(C12:2,R29:2))

Frequency

Date: May 13, 2002   Page 1   Time: 09:49:15
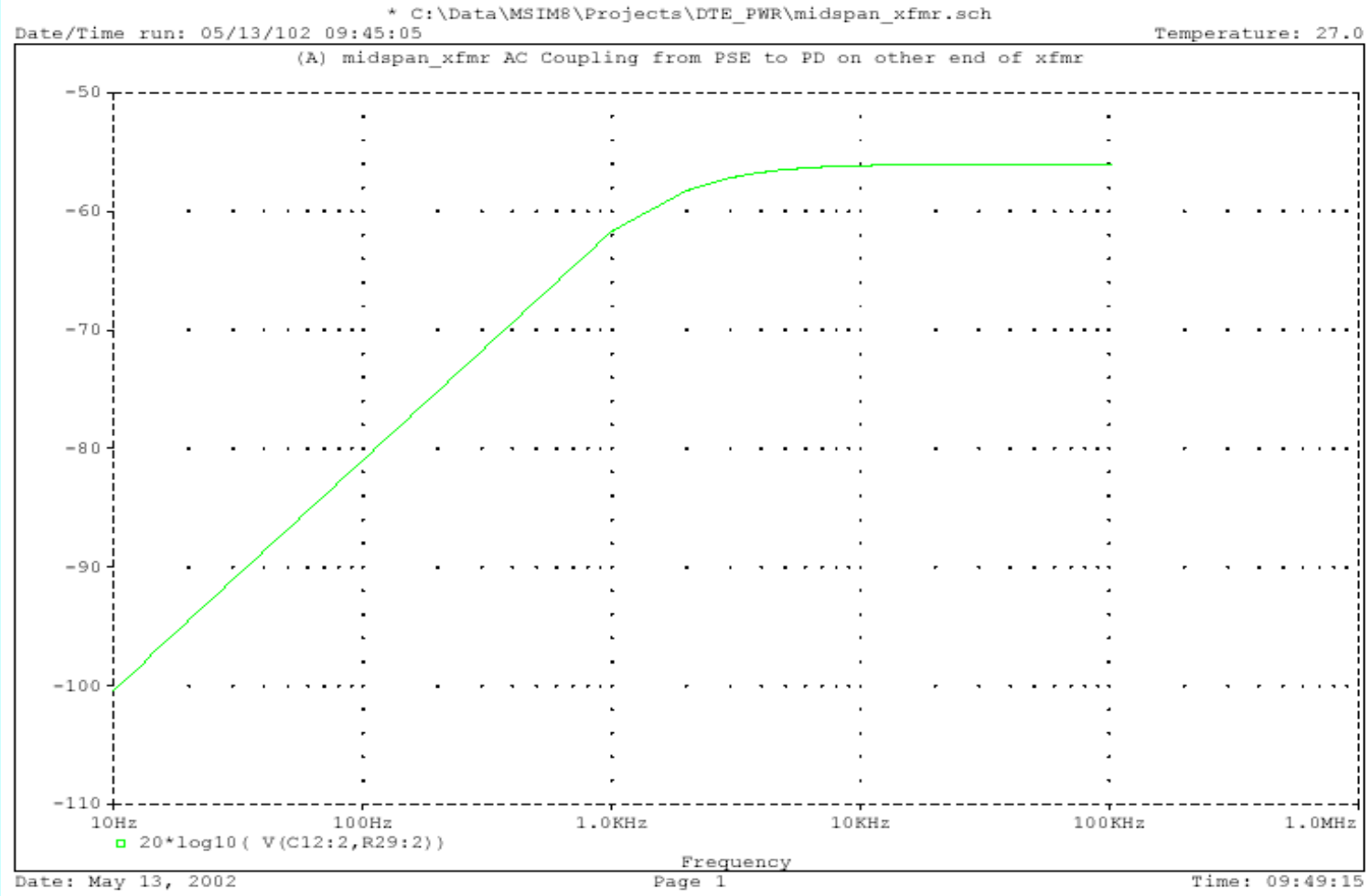
Midspan PSE with Center-tapped Chokes

Pulse Choke Modules provided by H. Hinrichs – Pulse Engineering

Determines whether PD is attached

Midspan PSE with Center-tapped Chokes

PD on left side attached - but not supposed to impact PSE determination

PD on right side not attached

Midspan PSE with Center-tapped Chokes

AC signal not significantly impacted by PD on other end
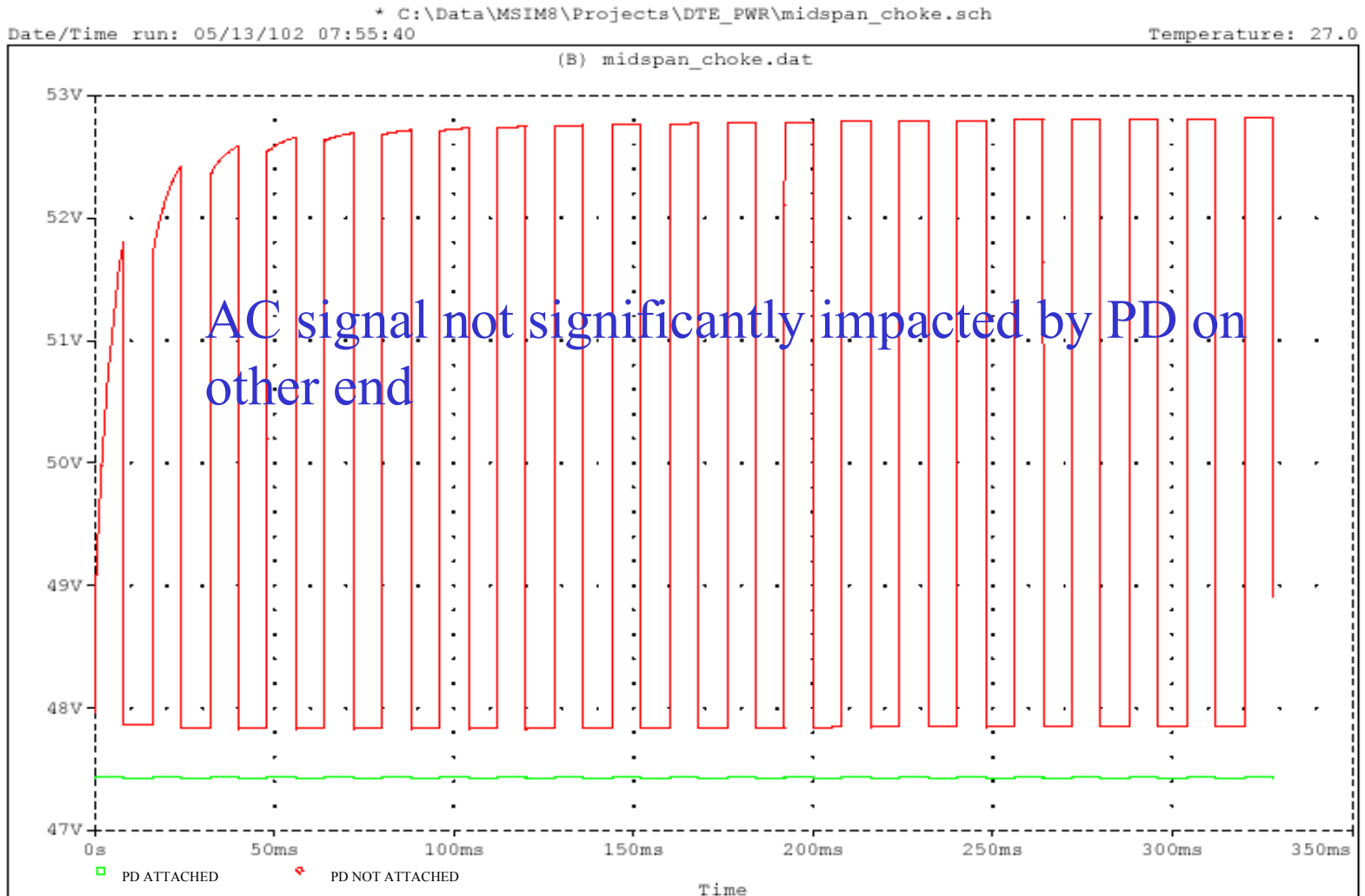
Midspan PSE with Center-tapped Chokes
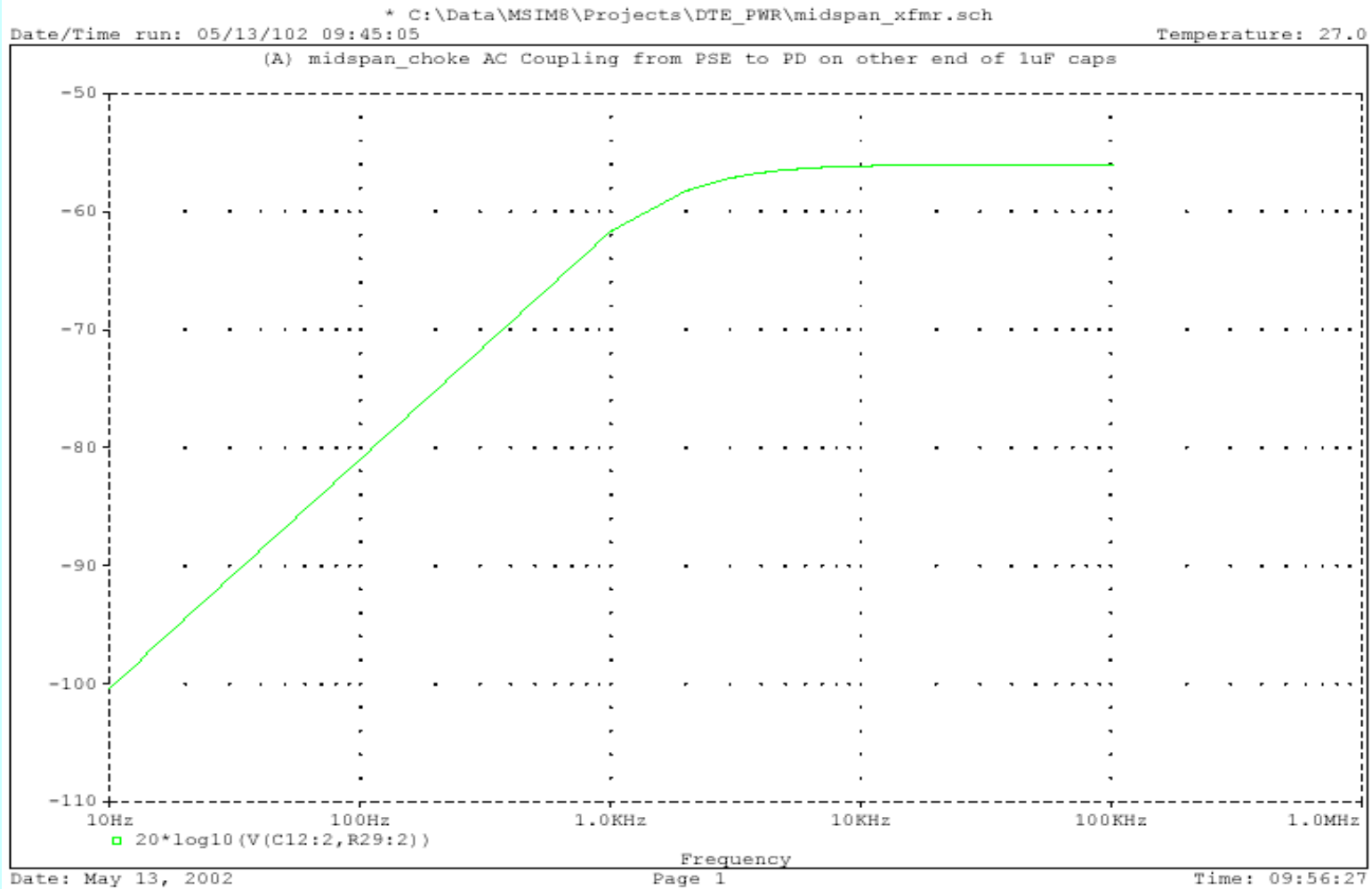
Conclusions:

- Mid-Span AC disconnect works with transformers at insertion point
- Mid-Span AC disconnect works with chokes at insertion point

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