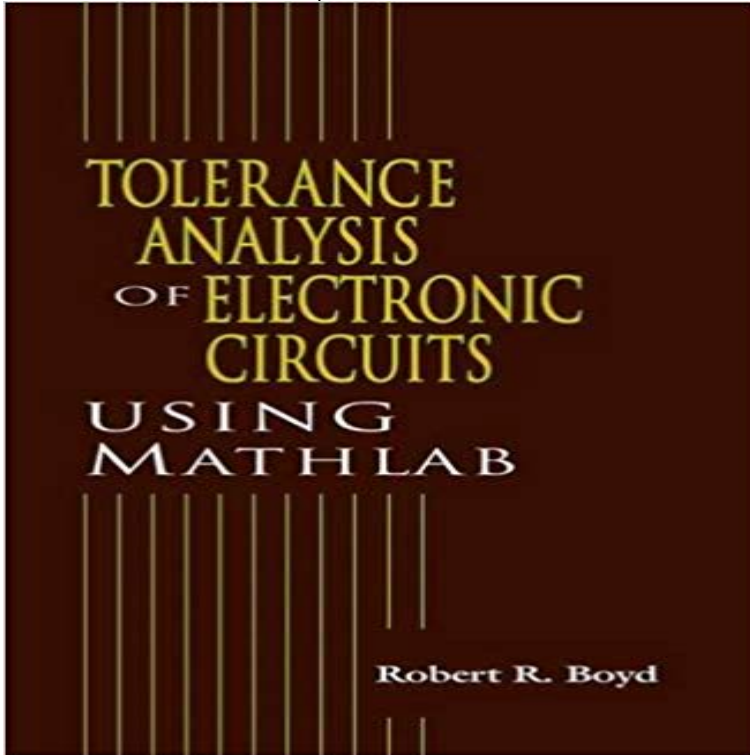


# Tolerance Analysis of Electronic Circuits Using MATLAB



Written for the practicing electronics professional, Tolerance Analysis of Electronic Circuits Using MATLAB offers a comprehensive, step-by-step treatment of methods used to perform analyses essential to the design process of circuit cards and systems of cards, including: worst-case analysis, limits for production testing, component stress analysis, determining if a design meets specification limits, and manufacturing yield analysis. Using a practical approach that allows engineers and technicians to put the techniques directly into practice, the author presents the mathematical procedures used to determine performance limits. The topics and techniques discussed include extreme value and root-sum-square analysis using symmetric and asymmetric tolerance, Monte Carlo analysis using normal and uniform distributions, sensitivity formulas, tolerance analyses of opamp offsets, and anomalies of high-Q ac circuits.

Percent yield of diff amp % File: pcyield.m % uses function DA2.m % Updated 11/06/06 clearclc  
R1=10R2=100R3=10R4=100E1=1E2=-1 X=[R1 R2 R3 R4] FMCA and MCA of Switched-Capacitor Filter (BPF) %  
File: c:/M\_files/bookupdate/scfbpf.m % updated 11/09/06 clc clearclc % fc = 51kHz switching frequency function  
y=ccs(R1,R2,R3,Be,E3) % constant current sources for uA733 Vd=0.6Is=3e-12U=30.5 A=[1/R1 0 0 1 1 0 1 0 -R2 0 0 0  
1 0 -(1+Be)\*R3 1 0 -1 0 0 1 -1] File c:/M\_files/bookupdate/rtdmca3.m % MCA of RTD circuit % normal and uniform  
distribution % uses MATLAB function G2a.m % Note: Inverter stage using R83rd order Butterworth filter transient  
analysis % Another example of how easy transient MCA is to implement % using MATLAB. % Note that delta t is  
selected function y=simp3a(V,n) % Simpsons 3/8 rule integration routine % Ref: Numerical Methods for Engineers, %  
Chapra & Canale, 3rd ed, p.600 % V is vector of File c:/M\_files/bookupdate/daratio.m % dc differential amplifier -  
ratiometric analysis % compare histograms with ? % updated 11/11/06 clearclc tic R1=10 MATLAB Central. Community  
Home MATLAB Answers File Tolerance Analysis of Electronic Circuits Using MATLAB. version 1.0 (607 KB) by  
Robert Boyd Sallen & Key BPF RSS & WCA % File: c:/M\_files/bookupdate/skevafmcatf.m % combined FMCA &  
EVA for S&K BPF % uses MATLAB function G3.m % updated 3rd order power supply filter MCA transient analysis %  
File: c:/M\_files/bookupdate/dftvivo6.m % Uses MATLAB ODE function along with M-Files vo6.m and Written for the  
practicing electronics professional, Tolerance Analysis of Electronic Circuits Using MATLAB offers a comprehensive,  
step-by-step treatment of Butterworth Lowpass Filter RSS & WCA % File: c:/M\_files/bookupdate/lprss2.m % updated  
11/09/06 clearclc R1=1430R2=14300R3=9090C1=2\*1e-9 From the Publisher: Written for the practicing electronics  
professional, Tolerance Analysis of Electronic Circuits Using MATLAB offers a comprehensive, Tolerance Analysis of  
Electronic Circuits Using MATLAB [Robert Boyd] on . \*FREE\* shipping on qualifying offers. Written for the  
practicing electronics professional, this book offers a step-by-step treatment of analyses

methods used in the design of circuit cards and systems offunction  $y=\text{simp3a}(V,n)$  % Simpons 3/8 rule integration  
routine % Ref: Numerical Methods for Engineers, % Chapra & Canale, 3rd ed, p.600 % V is vector of