



NOTES:
 ABM2I4: $\text{LIMIT}((6.28\text{m} \times F_U / \text{SR}) \times (V(\text{IN}_1, \text{IN}_2) + (V(\text{IN}_1) + V(\text{IN}_2)) / (2 \times \text{CMRR})), -1\text{m}, 1\text{m})$.
 ABM48: $((V(\text{IN}_3, \text{IN}_4) - V_{\text{RP}} - V_{\text{RN}}) / 3.14) \times \text{ATAN}(\text{SR} / F_U \times A_v / 2 \times V(\text{IN}_1, \text{IN}_2)) / ((V(\text{IN}_3, \text{IN}_4) - V_{\text{RP}} - V_{\text{RN}}) + (V(\text{IN}_3) + V(\text{IN}_4) - V_{\text{RP}} + V_{\text{RN}})) / 2$.
 ABM2: $(V(\text{IN}_1) + V(\text{IN}_2)) / 2$.
 EI+: IF $(V(\text{IN}+) > 0, V(\text{IN}+), 0)$.
 EI-: IF $(V(\text{IN}+) < 0, -1 \times V(\text{IN}+), 0)$.
 EIL+: IF $(V(\text{IN}+) > \text{ILP}, 10\text{K} \times (V(\text{IN}+) - \text{ILP}), 0)$.
 EIL-: IF $(V(\text{IN}+) > \text{ILN}, 10\text{K} \times (V(\text{IN}+) - \text{ILN}), 0)$.
 CP1 AND CP2: $1 / (6.28\text{K} \times F_U \times (128 / (90 - \text{PM}) - 0.422))$.
 CC: $1\text{m} / \text{SR}$.

Figure 1 This new op-amp macromodel overcomes many accuracy deficiencies of other models and uses mathematical functions to allow it to use data-sheet parameters for all of its model parameters.