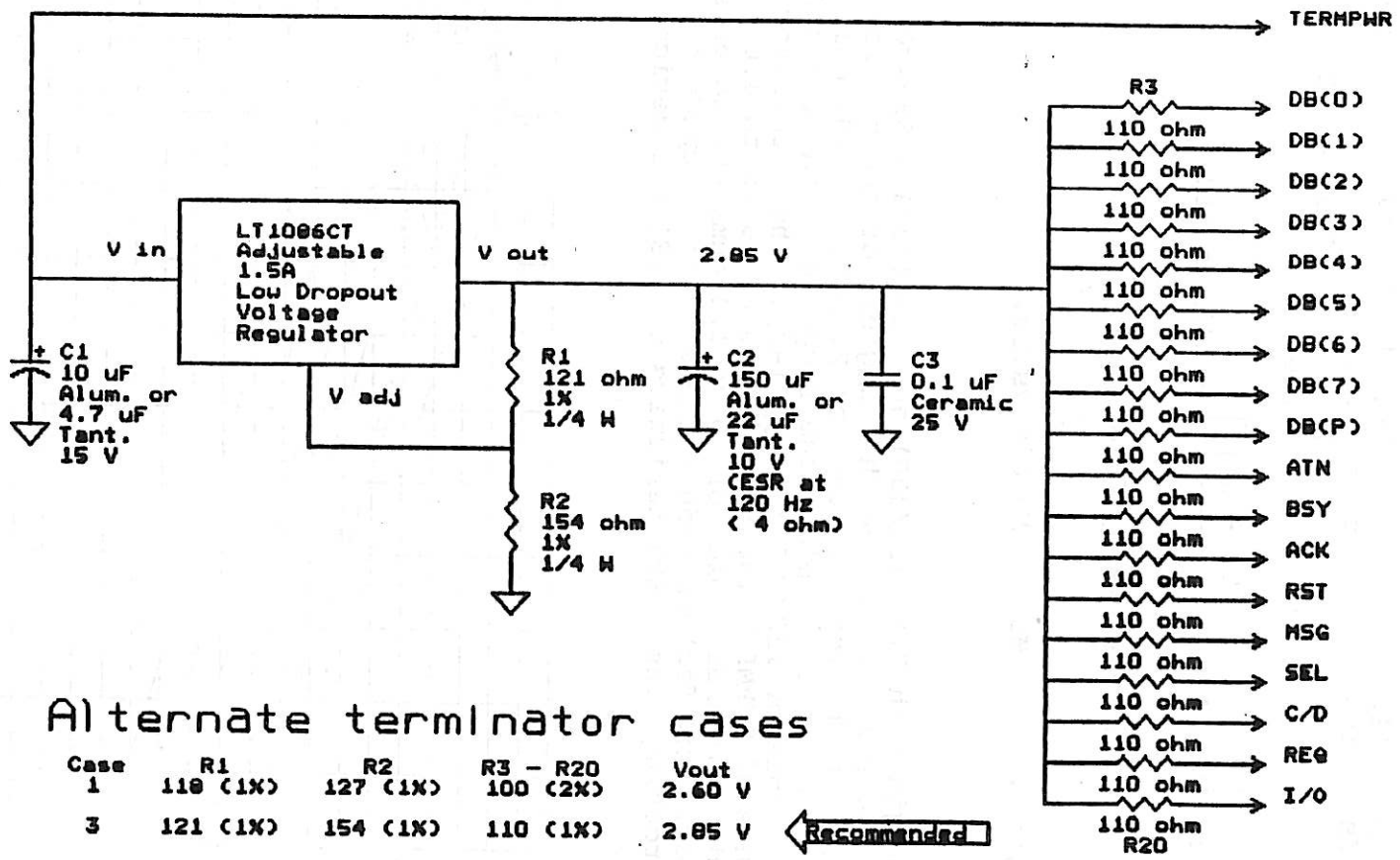
X3T9.2/89-004R1



Alternate terminator cases

Case	R1	R2	R3 - R20	Vout	
1	118 (1%)	127 (1%)	100 (2%)	2.60 V	
3	121 (1%)	154 (1%)	110 (1%)	2.85 V	Recommended

Proposed Single-Ended SCSI Bus Terminator

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30 Jan 89

LH

X3T9.2/89-004 R1

Single - Ended SCSI Bus Noise Margins given reflections due to mismatch between termination impedance and bus impedance.

Vthreshold := 2.0

Vn := 2.85 Zn := 110

Vs := 2.60 Zs := 100

$$Vp := \begin{bmatrix} 5.0 \\ 4.75 \\ 4.50 \\ 4.25 \\ 4.00 \end{bmatrix}$$

$Vto := \overrightarrow{(0.6 \cdot Vp)}$

Zto := 132

Z := 59 ..121

$$Margin(Vt,Zt,Zo) := \left[Vt \cdot \left[1.0 - \frac{|Zt - Zo|}{Zt + Zo} \right] \right] - Vthreshold$$

i := 0 ..4

$Mo_{i,Z} := Margin[Vto_i, Zto, Z]$

$Mn_Z := Margin(Vn,Zn,Z)$

$Ms_Z := Margin(Vs,Zs,Z)$

SCSI Bus Noise Margin with Old (220/330) and New (X3T9.2/89-4r0) Termination. The upper 2 curves give the margins for the new scheme. The 2 new cases are (top to bottom) 110 ohms at 2.85 V, and 100 ohms at 2.60 V. The lower family of 5 curves plots the response of the 220/330 termination at 5 levels of TERMPWR as supplied to the terminator assembly. The range of TERMPWR input is from 5.0 V down to 4.0 V. Note that the standard recommends cables of 90 to 110 ohms characteristic impedance, however, many factors reduce the effective impedance. Among these are cable routing, the characteristics of SCSI bus devices and stub clusterring.