

Driver Precomp Proposal, Review

00-227r0

Paul Aloisi - TI 320 400 500 600 700 800 Millivolt drive

Nominal Voltage

No Terminator tolerance factor in

No driver imbalance, matched assertion and negation

Driver fall back 15% 272 340 425 510 595 680 376.4706 mV

First step min 650 mV with cable loss

Driver fall back 25% 240 300 375 450 525 600 426.6667 mV

Driver Fall back 33% 211.2 264 330 396 462 528 484.8485 mV

Driver Fall Back 40% 192 240 300 360 420 480 533.3333 mV

Worst case

Min high drive, for 320 mV

Cable roll off to 60% signal

Trans FB 15% to assert (60%) 83.2 **104** **130** **156** **182** **208** mV signal at the receiver minus cable loss

70.72 88.4 110.5 132.6 **154.7** **176.8** 15% cable loss, double counting?

Trans FB 25% roll off to 60% 96 120 **150** **180** **210** **240** mV signal at the receiver minus cable loss

Trans FB 33% roll off to 60% 107.52 134.4 **168** **201.6** **235.2** **268.8** mV signal at the receiver minus cable loss

Trans FB 40% roll off to 60% 115.2 **144** **180** **216** **252** **288** mV signal at the receiver minus cable loss

97.92 122.4 **153** **183.6** **214.2** **244.8** 15% cable loss, double counting?

80 mV @ receiver

60 mV noise/crosstalk **140** **140** **140** **140** **140** **140** mV Signal required with Noise + Crosstalk

100 mV @ receiver

160 **160** **160** **160** **160** **160** mV

Red 80 mV receiver
Blue 100 mV receiver

Tolerance driver

Cable roll off to 60% signal

Trans FB min to assert (60%) 53.68 **59.6** **67** **74.4** **81.8** **89.2** mV signal at the receiver minus cable loss

45.628 50.66 56.95 63.24 69.53 75.82 15% cable loss, double counting?

Trans fb 25% roll off to 60% 66.48 75.6 **87** **98.4** **109.8** **121.2**

Trans fb 33% roll off to 60% 78 90 **105** **120** **135** **150**

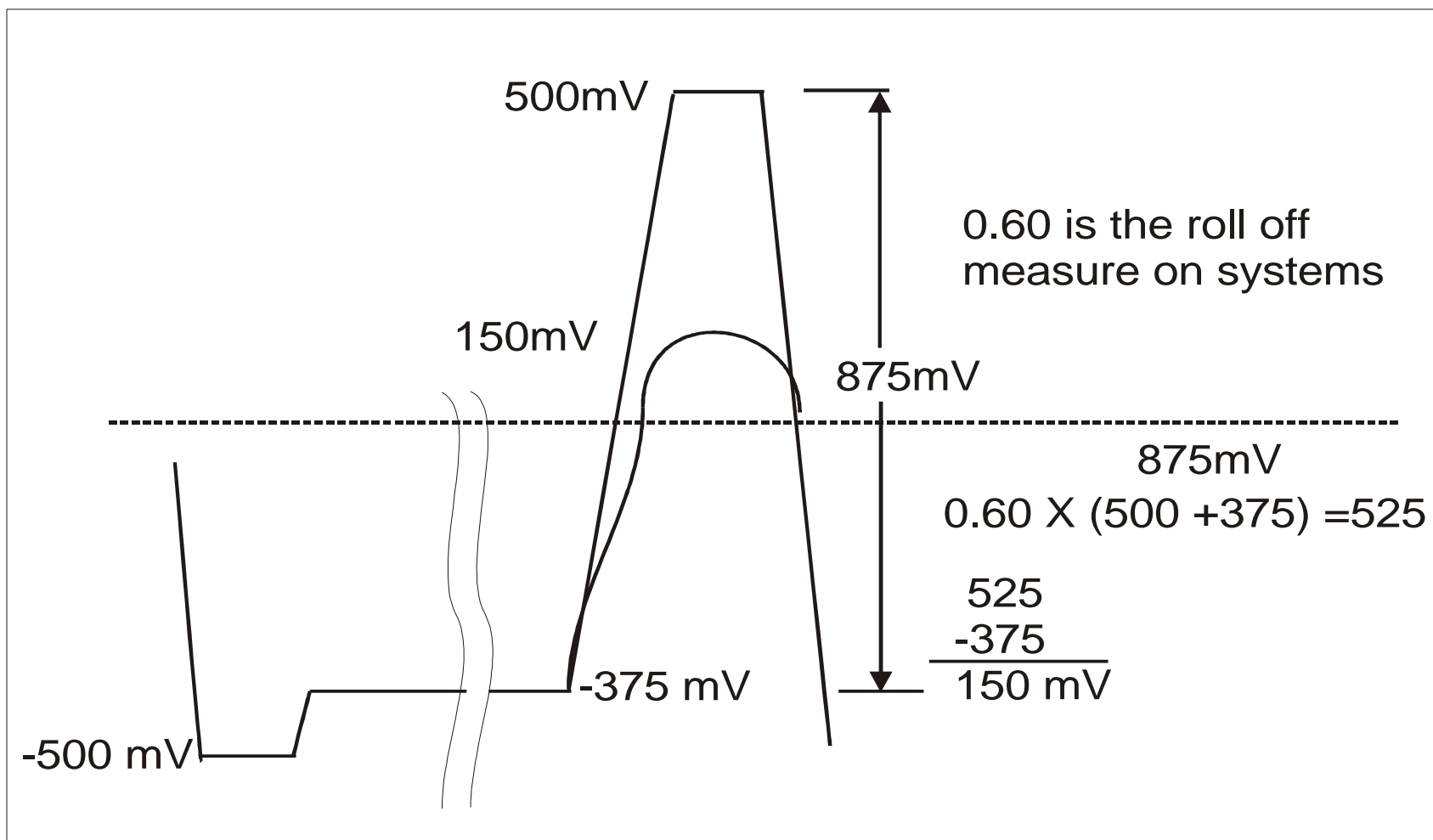
Trans fb 40% roll off to 60% 85.68 99.6 117 **134.4** **151.8** **169.2** mV signal at the receiver minus cable loss

72.828 84.66 99.45 114.24 129.03 **143.82** 15% cable loss, double counting?

Drive tolerance calculation

$((0.69 \cdot V) + 50 + V_{fb}) \cdot 0.6 - V_{fb}$

Signal at the receiver



SPI-3	320	400	500	600	700	800	Millivolt drive
Nominal Voltage							
Driver fall back 0%	320	400	500	600	700	800	320 mV First step min 320 mV
Driver Fall Back 40%	192	240	300	360	420	480	533.3333 Min high dr mV
Trans min to assert (85%)	224	280	350	420	490	560	mV signal at the receiver minus cable loss
	190.4	238	297.5	357	416.5	476	15% cable loss
Trans fb max 85%	243.2	304	380	456	532	608	mV signal at the receiver minus cable loss
	206.72	258.4	323	387.6	452.2	516.8	15% cable loss
80 mV @ receiver							
60 mV noise	140	140	140	140	140	140	mV
100 mV @ receiver	160	160	160	160	160	160	mV
Tolorance driver							
Driver fall back 0%	320	400	500	600	700	800	320 mV First step 320 mV marginal
Driver Fall Back 40%	192	240	300	360	420	480	533.3333 Min high dr mV
Cable roll off to 85% signal							
Trans FB min to assert (85%)	182.18	217.1	260.75	304.4	348.05	391.7	mV signal at the receiver minus cable loss
	154.853	184.535	221.6375	258.74	295.8425	332.945	15% cable loss
Trans fb max 85%	201.38	241.1	290.75	340.4	390.05	439.7	mV signal at the receiver minus cable loss
	171.173	204.935	247.1375	289.34	331.5425	373.745	15% cable loss