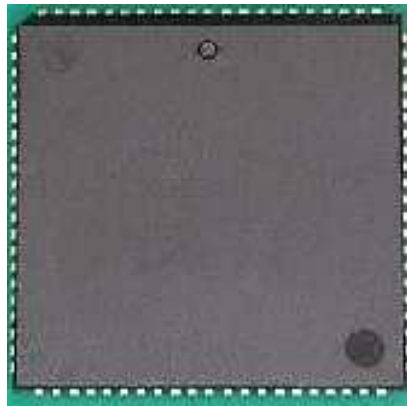
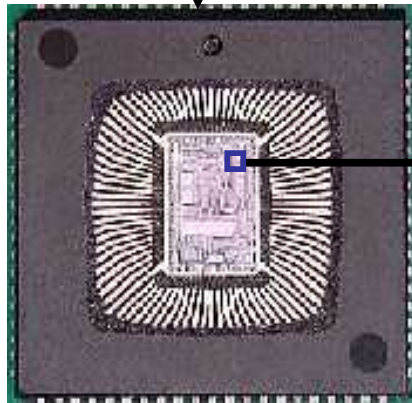


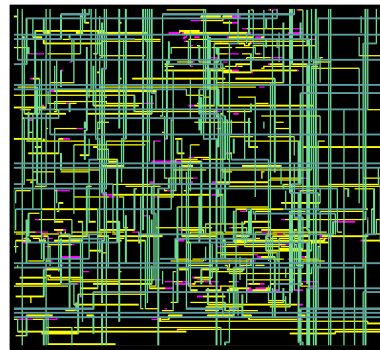
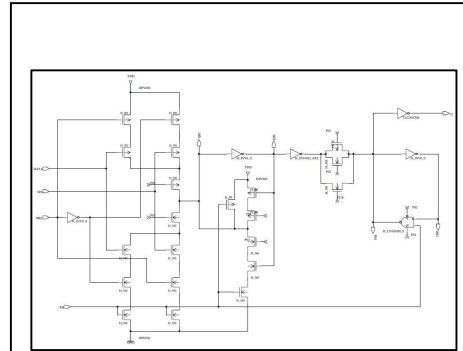
故障LSIの原因の究明



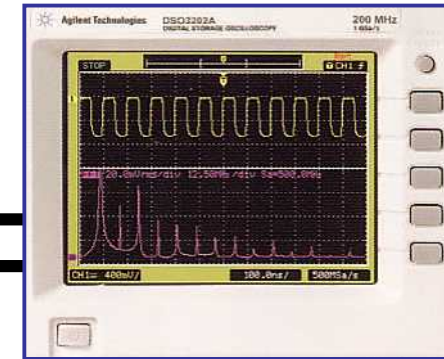
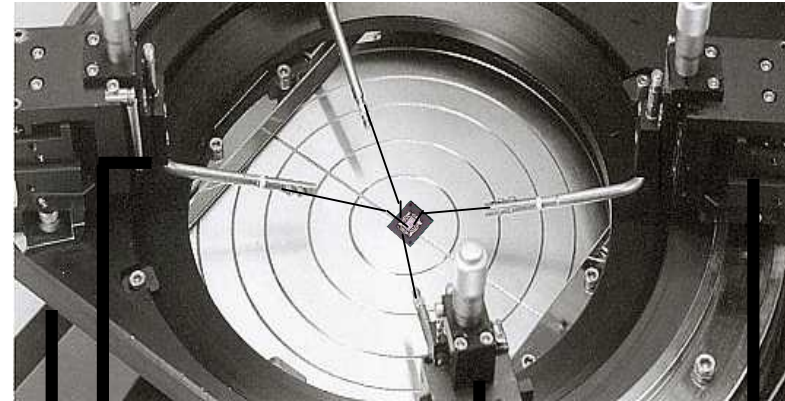
故障LSI



化学エッチング処理
によるLSI表面出し



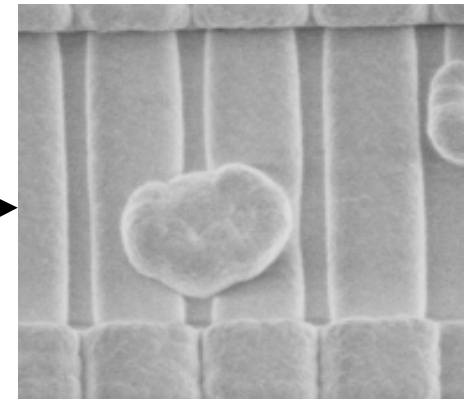
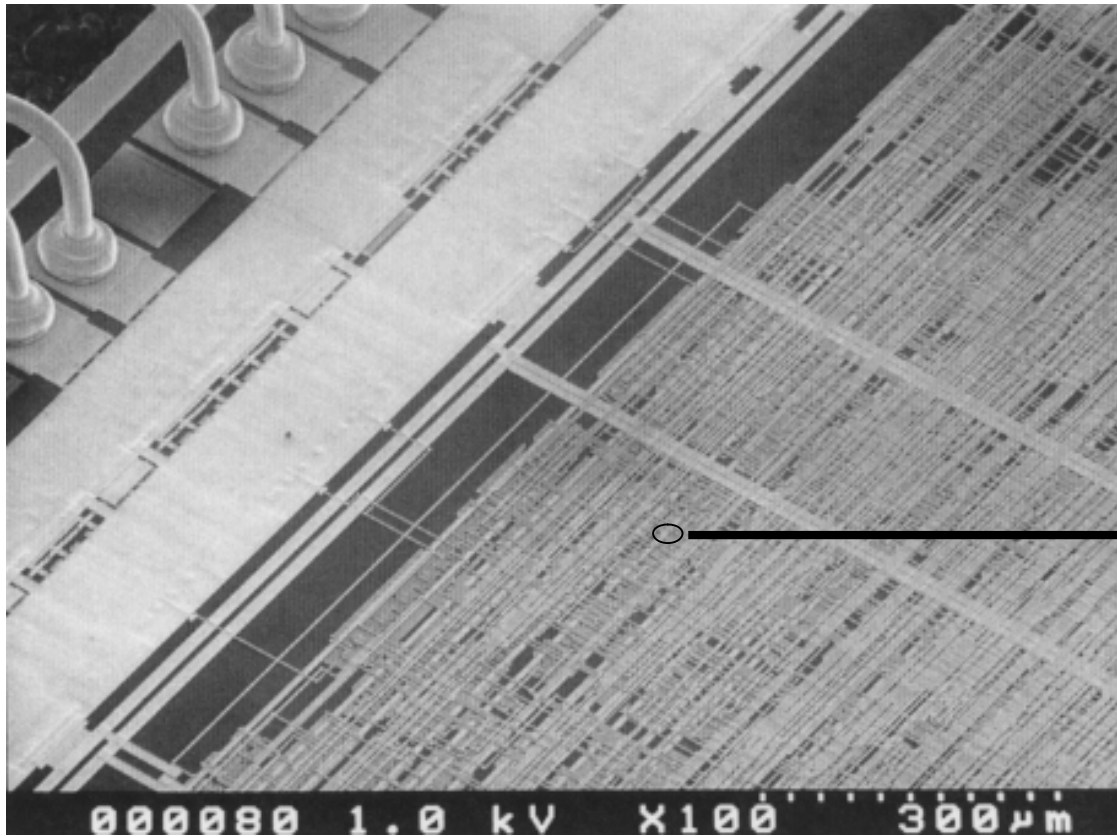
レイアウト解析による
回路図とデバイス構造図



プロービングによる
LSIの内部動作解析

SW、HWを用いた診断

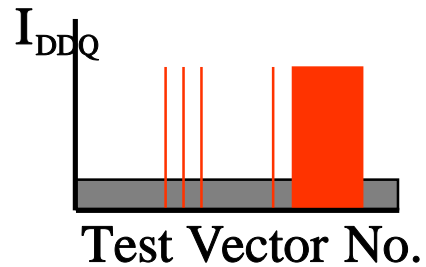
故障LSIの原因の究明



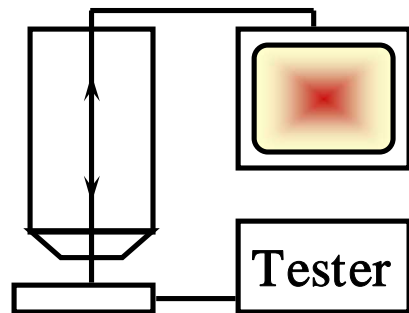
Particle起因の
配線間ショート故障を検出

I_{DDQ} 異常現象の利用

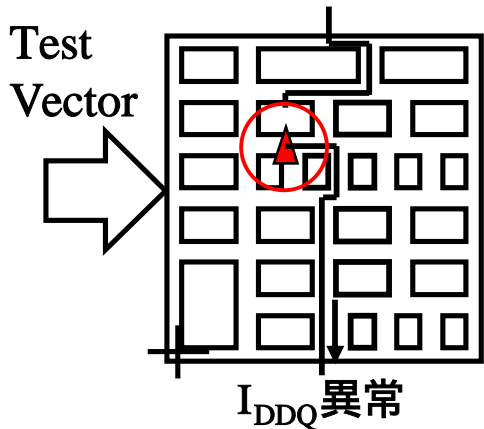
テスト



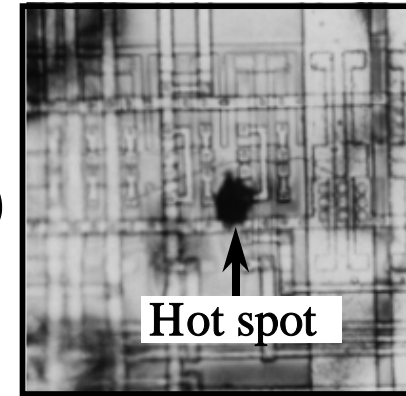
解析



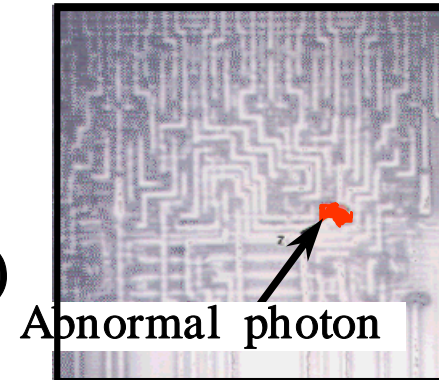
診断



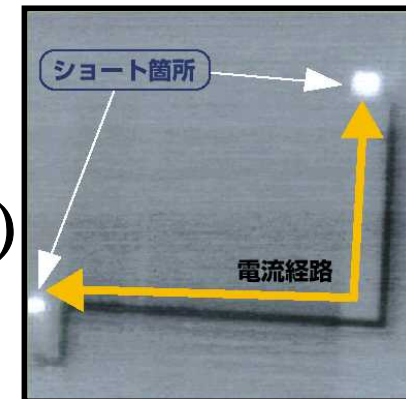
異常発熱
(液晶塗布法)



異常発光
(エミッション顕微鏡)



異常電流
(OBIRCH法)



論理異常の利用

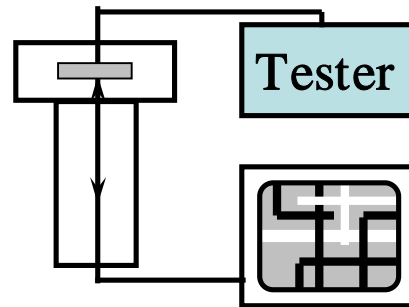
テスト

TVN	0	0	0	0	0
	1	2	3	4	n
1	1	1	0	0	0
2	1	1	1	H	1
⋮	期待値異常				
m	0	0	0	0	0

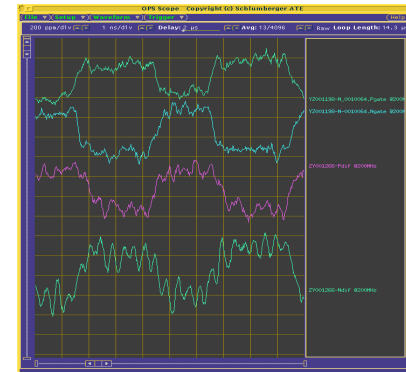
電子ビーム利用
(EBT)
論理と2次電子像



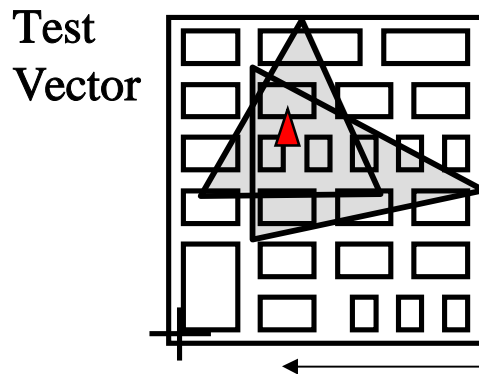
解析



レーザービーム利用
(LVP)



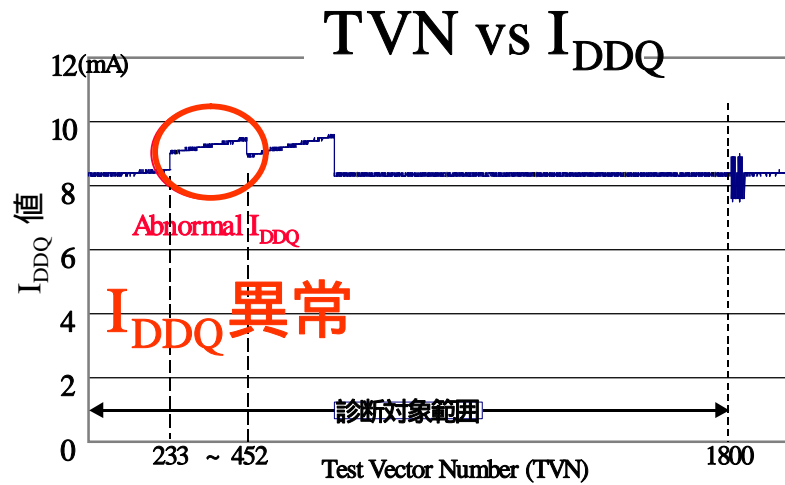
診断



時間分解能
EMMI利用



I_{DDQ} 利用故障診断

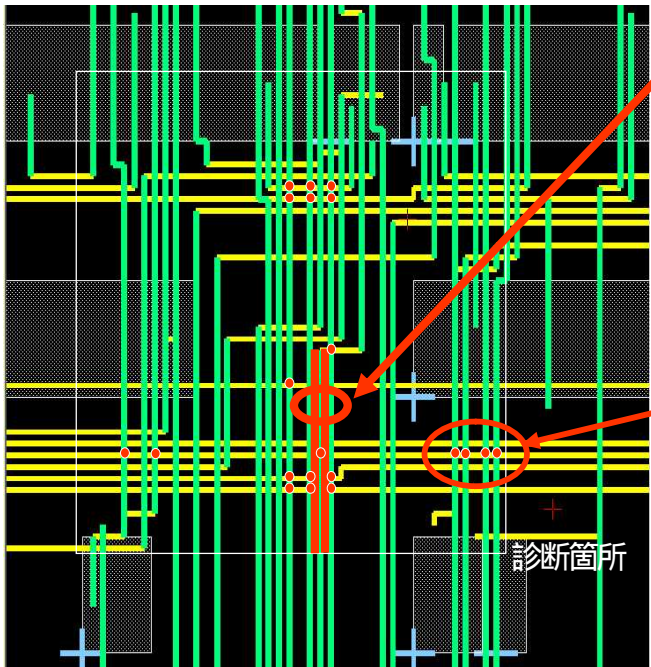


診断結果

出力リスト

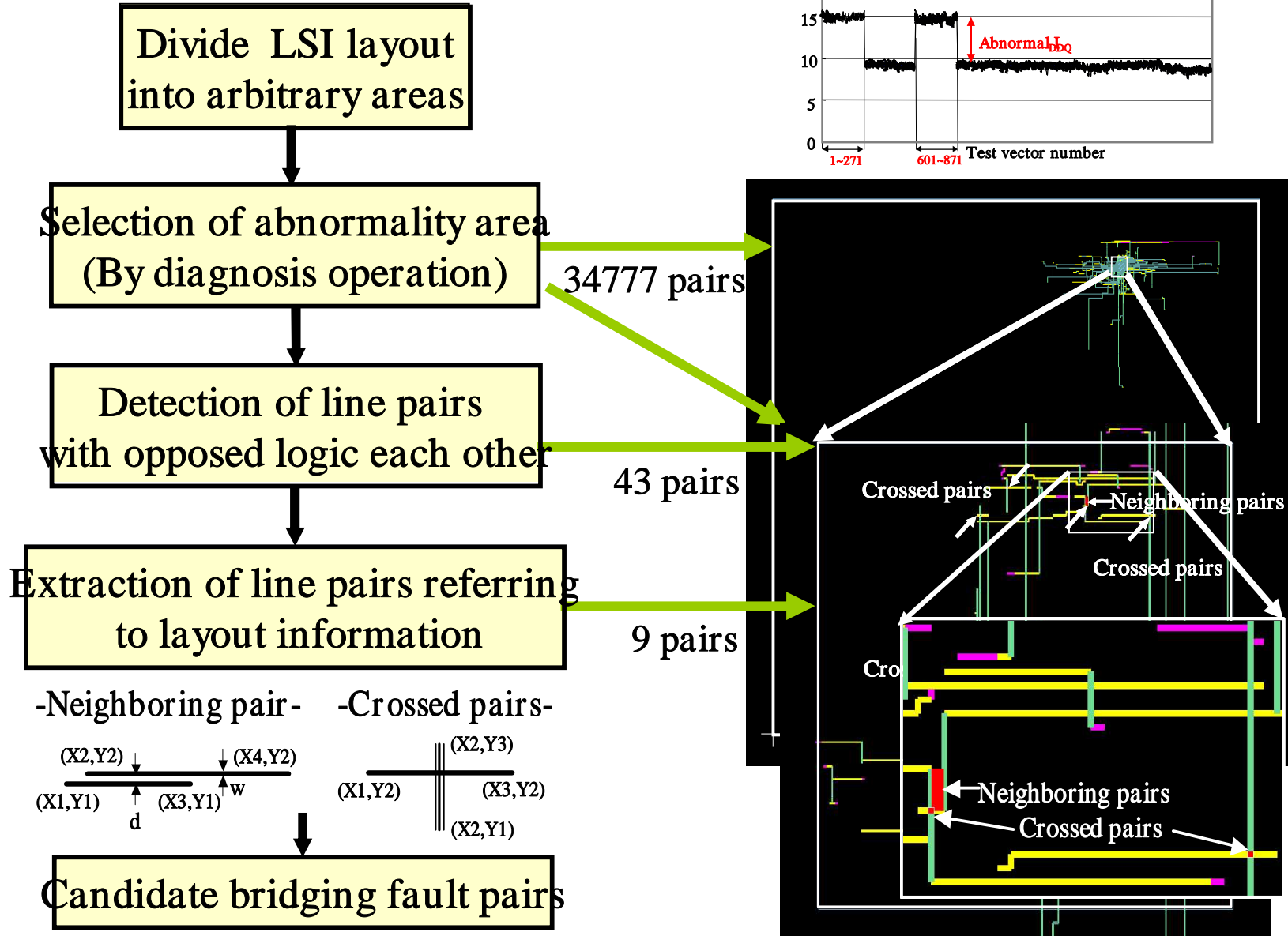
隣接配線間の短絡対候補			
No.	stepid	Coordinate	Net
1	1AL	(245000 639200)	(SBCK J112/J0/CLQ)
1	1AL	(245000 639200)	(J112/J0/CLQ J106/J0/BA_SA5)

交叉配線間の短絡対候補			
No.	stepid	Coordinate	Net
1	1AL	(245000 639200)	(SDFOK FD_UCLK)
1	1AL	(245000 639200)	(SDFOK J113/TG_EFTSM)
1	1AL	(245000 639200)	(SDFOK J112/J0/CLQ)
1	1AL	(245000 639200)	(SDFOK J109/J7/EXBC_HD6P)
1	1AL	(245000 639200)	(SDFOK J113/I/TI_GTDIV)
1	1AL	(245000 639200)	(SDFOK J109/J7/J25/n554)
1	1AL	(245000 639200)	(SDFOK J109/J7/J25/n552)
1	1AL	(245000 639200)	(SDFOK J109/J7/J25/n535)
1	1AL	(245000 639200)	(SBCK J112/J0/cell_99_J5_Z_1)
1	1AL	(245000 639200)	(SBCK J109/J7/EXBC_HD4AP)
1	1AL	(245000 639200)	(SBCK J109/J7/J15/EXBC_SBPSLW)
1	1AL	(245000 639200)	(SBCK J109/J7/J15/EXBC_BSFCP)
1	1AL	(245000 639200)	(SBCK J109/J7/J15/n959_D1)
1	1AL	(245000 639200)	(J112/J0/cell_99_J5_Z_1 J112/J0/n611)
1	1AL	(245000 639200)	(J112/J0/cell_99_J5_Z_1 J106/J0/BA_SA5)
1	1AL	(245000 639200)	(J112/J0/n611 J109/J7/EXBC_HD4AP)
1	1AL	(245000 639200)	(J112/J0/n611 J109/J7/J15/EXBC_SBPSLW)
1	1AL	(245000 639200)	(J112/J0/n611 J109/J7/J15/EXBC_BSFCP)
1	1AL	(245000 639200)	(J112/J0/n611 J109/J7/J15/n959_D1)
1	1AL	(245000 639200)	(J112/J0/CLQ J106/J0/BA_SA5)
1	1AL	(245000 639200)	(J109/J7/EXBC_HD4AP J106/J0/BA_SA5)
1	1AL	(245000 639200)	(J106/J0/BA_SA5 J109/J7/J15/EXBC_SBPSLW)
1	1AL	(245000 639200)	(J106/J0/BA_SA5 J109/J7/J15/EXBC_BSFCP)
1	1AL	(245000 639200)	(J106/J0/BA_SA5 J109/J7/J15/n959_D1)



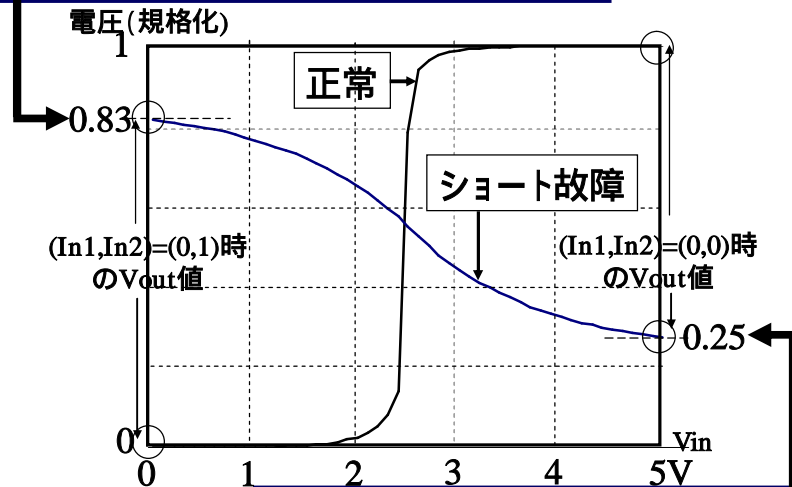
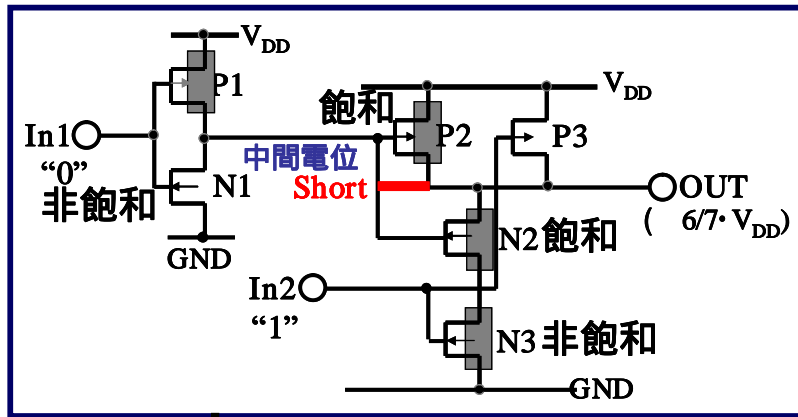
短絡対候補箇所のレイアウト表示

I_{DDQ} 利用故障診断

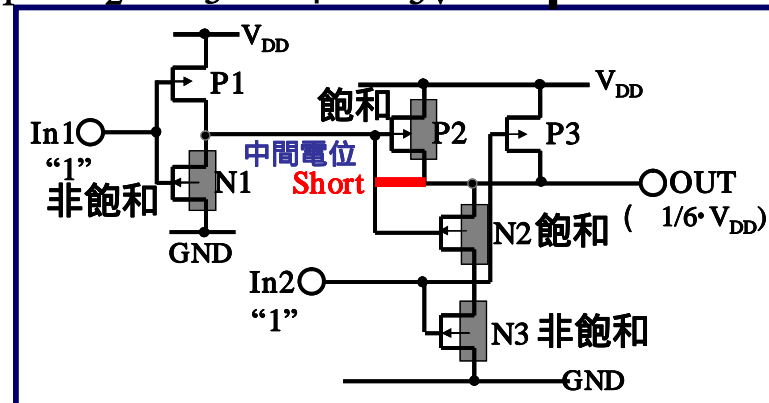


Tr動作点解析を用いた故障診断

ショート故障診断

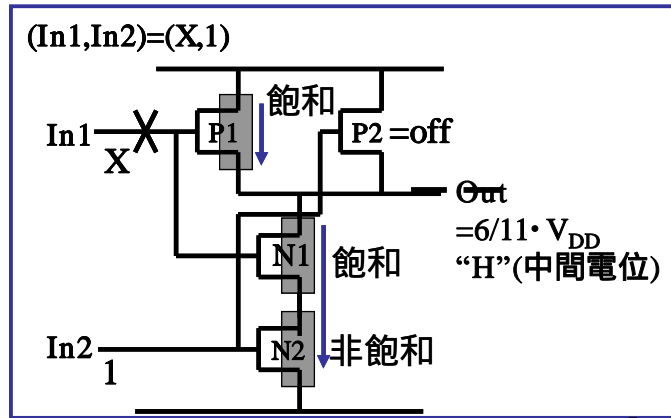


ショート故障箇所

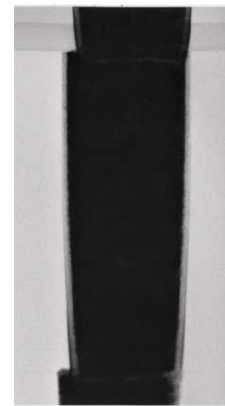
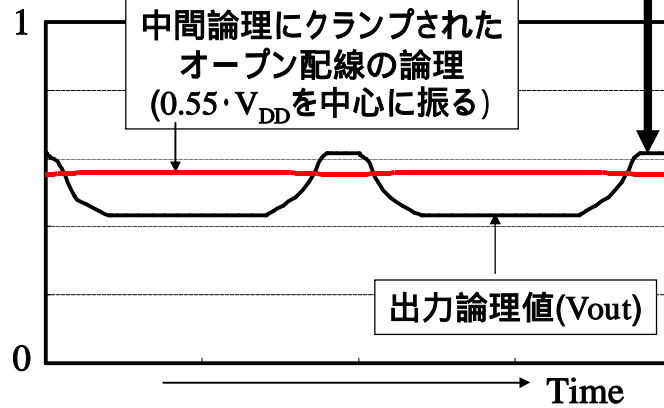


Tr動作点解析を用いた故障診断

オープン故障診断

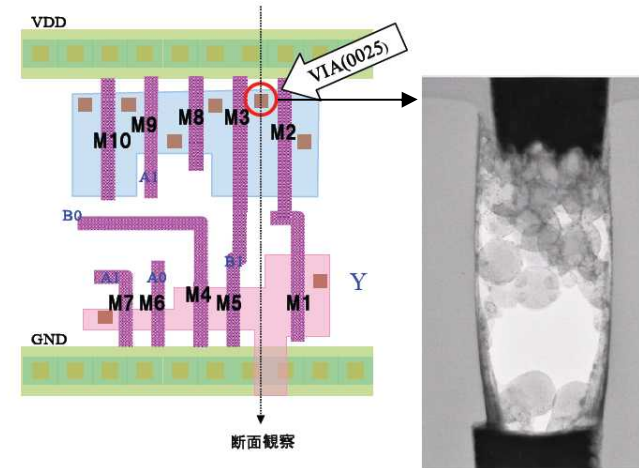


電圧値(規格化)



正常Via像

TEM観察結果



Viaオープン
故障箇所検出