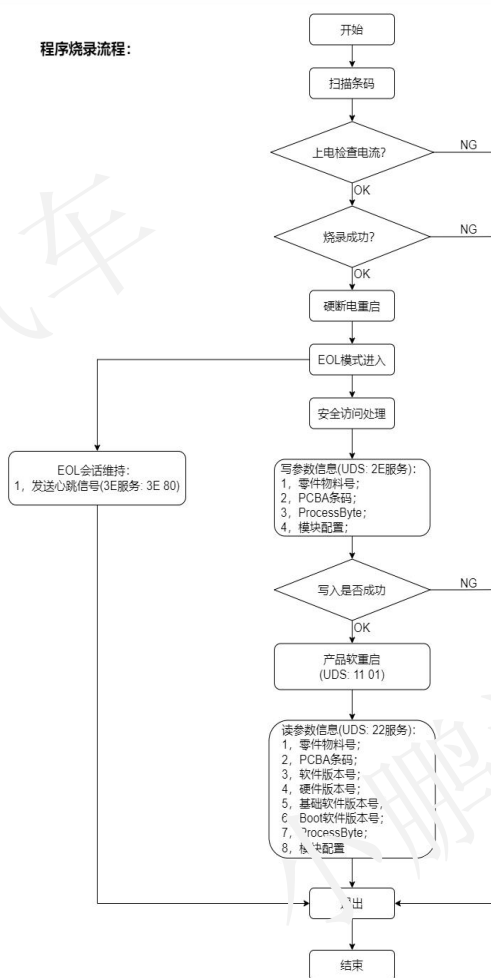


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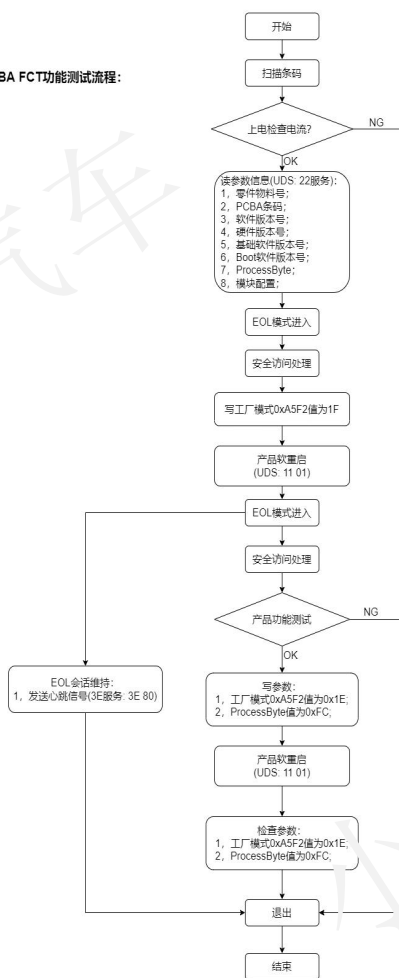
H93左域诊断通信为CANFD

程序烧录流程:



## H93左域诊断通信为CANFD

PCBA FCT功能测试流程:



基于UDS on CANFD标准进行通信:

1, EOL模式进入:

分别发送10 03和10 60, 分别获取到正反馈50 03 XX XX XX XX XX XX和50 60 XX XX XX XX XX XX后进入EOL测试模式

2, 安全访问:

请求Seed: 27 01, 正反馈67 01 XX XX XX XX

计算Key

发送Key: 27 02 XX XX XX XX, 正反馈67 02

3, RoutineControl通信:

发送请求: 31 01 + RID + Cmd\_Data

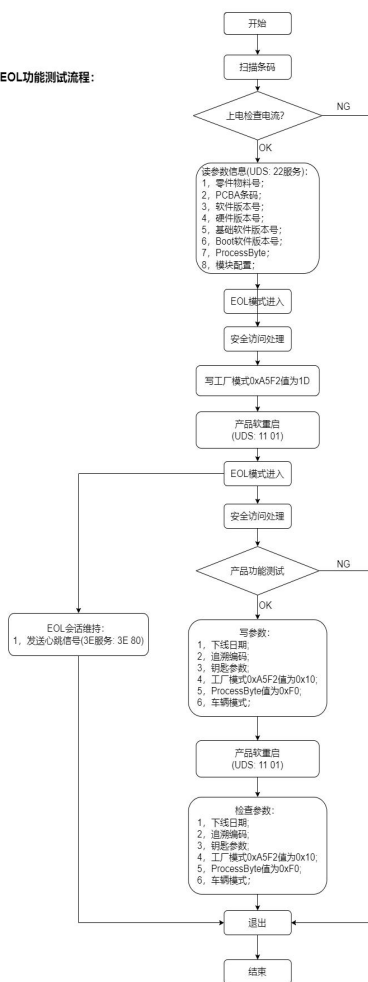
获取结果: 31 03 + RID

备注: 1) 对于数字输入/模拟输入/PWM 输入等获取结果的, 发送命令为31 03 + RID; 2) 对于数字输出/PWM输出/电机控制输出等控制信号输出, 发送指令为31 01 + RID + Cmd\_Data, RID和Cmd\_Data参考协议部分

4, 产品软重启指令11 01需要在Default模式(10 01)下发送;

## H93左域诊断通信为CANFD

EOL功能测试流程:



基于UDS on CANFD标准进行通信:

## 1, EOL模式进入:

分别发送10 03和10 60, 分别获取到正反馈50 03 XX XX XX XX XX XX和50 60 XX XX XX XX XX XX XX XX后即进入EOL测试模式

## 2, 安全访问:

请求Seed: 27 01, 正反馈67 01 XX XX XX XX  
计算Key  
发送Key: 27 02 XX XX XX XX, 正反馈67 02

## 3, RoutineControl通信:

发送请求: 31 01 + RID + Cmd\_Data

获取结果: 31 03 + RID

备注: **1)** 对于数字输入/模拟输入/PWM输入等获取结果的, 发送命令为**31 03 + RID**; **2)** 对于数字输出/PWM输出/电机控制输出等控制信号输出, 发送指令为**31 01 + RID + Cmd\_Data**, RID和Cmd\_Data参考协议部分

## 4, 产品软重启指令11 01需要在Default模式(10 01)下发送;



## H93左域EOL测试通信协议

| 产品参数 | 参数项目 | DID     | UDS服务   | 读写             | 长度 (Byte)      | 读写格式 (UDS) | 备注   |      |     |     |        |        |        |        |        |    |
|------|------|---------|---------|----------------|----------------|------------|------|------|-----|-----|--------|--------|--------|--------|--------|----|
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
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|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| 功能   | ID   | Widgets | RID     | xtineControlTy | 长度             | 开始数        | 位分辨率 | 默认值  | 最小值 | 最大值 | Factor | Offset | 单位     | 周期(ms) | 互锁     |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
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|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
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|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  | 位分辨率 | 默认值 | 最小值 | 最大值    | Factor | Offset | 单位     | 周期(ms) | 互锁 |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
|      |      |         |         |                |                |            |      |      |     |     |        |        |        |        |        |    |
| I_   | 功能   | ID      | Widgets | RID            | xtineControlTy | 长度         | 开始数  |      |     |     |        |        |        |        |        |    |



| Lin Result           | Lin Result  | MD 名稱 |           | 0xC0BA | 0x3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
|----------------------|-------------|-------|-----------|--------|-----|---|---|---|---|---|---|---|---|---|---|---|
| sin_channel_1 Result | Lin 頻道 1 結果 |       |           | 0xC0BA | 0x3 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| sin_channel_2 Result | Lin 頻道 2 結果 |       |           | 0xC0BA | 0x3 | 1 | 1 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| sin_channel_3 Result | Lin 頻道 3 結果 |       |           | 0xC0BA | 0x3 | 1 | 2 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| sin_channel_4 Result | Lin 頻道 4 結果 |       |           | 0xC0BA | 0x3 | 1 | 3 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| sin_channel_5 Result | Lin 頻道 5 結果 |       |           | 0xC0BA | 0x3 | 1 | 4 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| sin_channel_6 Result | Lin 頻道 6 結果 |       |           | 0xC0BA | 0x3 | 1 | 5 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | - |
| data_snr_1d          |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d16        |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d32        |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d64        |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d128       |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d256       |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d512       |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d1024      |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d2048      |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |
| data_snr_1d4096      |             |       | tableCell | 0xC0B0 | 0x3 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | - |