

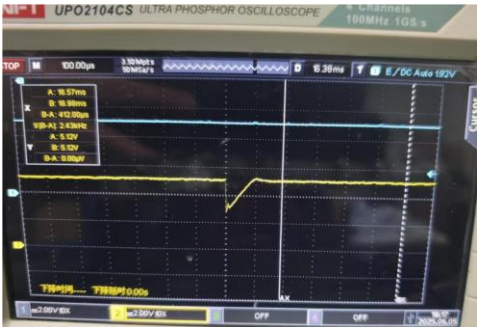
1. Undervoltage and overvoltage faults are random events. The output voltage of the SBC power chip is detected in real time through an oscilloscope to capture voltage abnormalities. When overvoltage or undervoltage occurs, the SBC power chip alarm conditions are met, but no SBC power chip state machine register alarm is actually detected. However, in the event of an overvoltage or undervoltage alarm on the SBC power chip (this abnormal situation was obtained through random experiments), the oscilloscope detected an overvoltage alarm on the VSOUT2 pin. The actual real-time voltage on the VSOUT2 pin was normal, and there were no abnormal voltage fluctuations within a few seconds before and after



SBC power chip overvoltage waveform

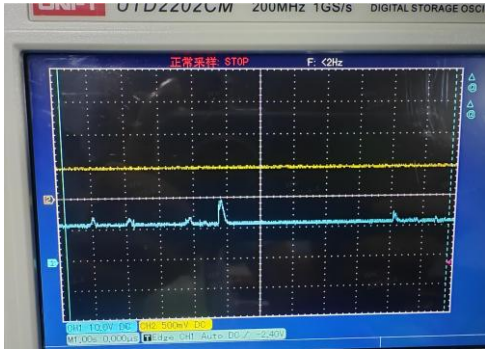


Yellow: SBC-SOut2 output voltage  
Blue: SBC-SOut1 output voltage

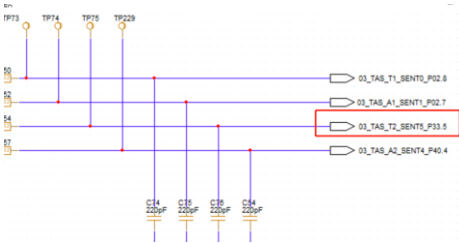


SBC power chip undervoltage waveform

When overvoltage alarm occurs SBC power chip outputs real-time voltage

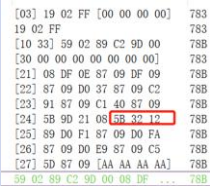

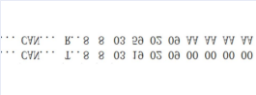



Yellow: SBC-SOut2 output voltage  
Blue: Power Supply Voltage



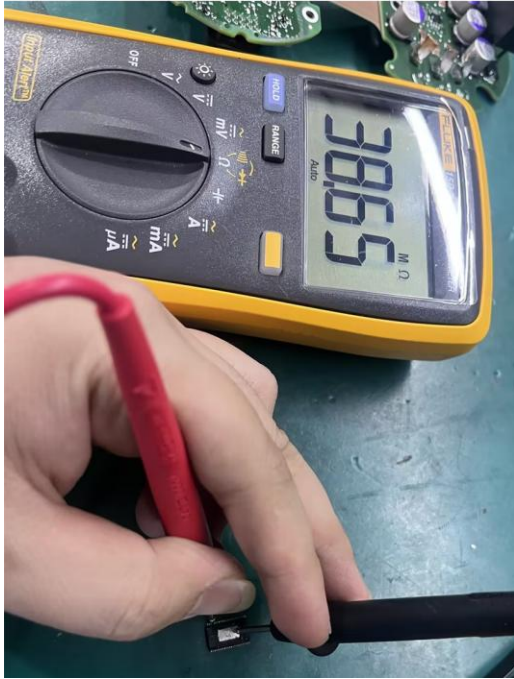
The SBC-SOut1 and SBC-SOut2 pins supply power to the TAS torque angle sensor, and the load is the TAS sensor

SBC Power Chip Swap Verification ABAVerification condition - EPS power supply 13V, random left and right direction, SBC power chip failure randomly reproduced

SBC chip+motor status	Has the fault been reproduced	Capture the waveform of SBC output power supply voltage oscilloscope during fault reproduction
Faulty chip+new motor circuit	YES 	
New chip+original faulty motor circuit	NO 	

C1B3212	5B	32	12	SBC电源芯片故障
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Summary: After ABA replacement verification, the original faulty chip fault was reproduced and falsely reported under normal voltage conditions. The fault code was locked to be caused by SBC power chip failure.



Fault component VSOUT2 impedance



Normal VSOUT2 impedance