

```
module melayfsm(a,clk,z);
    input a,clk;
    output z;
    reg z;
    parameter st0=0,st1=1,st2=2,st3=3;
    reg [0:1] melay_state;
    initial
    begin
        melay_state=st0;
    end
    always@(posedge(clk))
    case(melay_state)
    st0:begin
        if(a) begin
            z=1;
            melay_state=st3;
        end
        else
            z=0;
        end
    st1:begin
        if(a)begin
            z=0;
            melay_state=st0;
        end
        else
            z=1;
        end
    st2:begin
        if(a)begin
            z=1;
            melay_state=st1;
        end
        else
            z=0;
        end
    st3:begin
        z=0;
        if(a) begin
            melay_state=st1;
        end
        else
            melay_state=st2;
        end
    endcase
endmodule
```