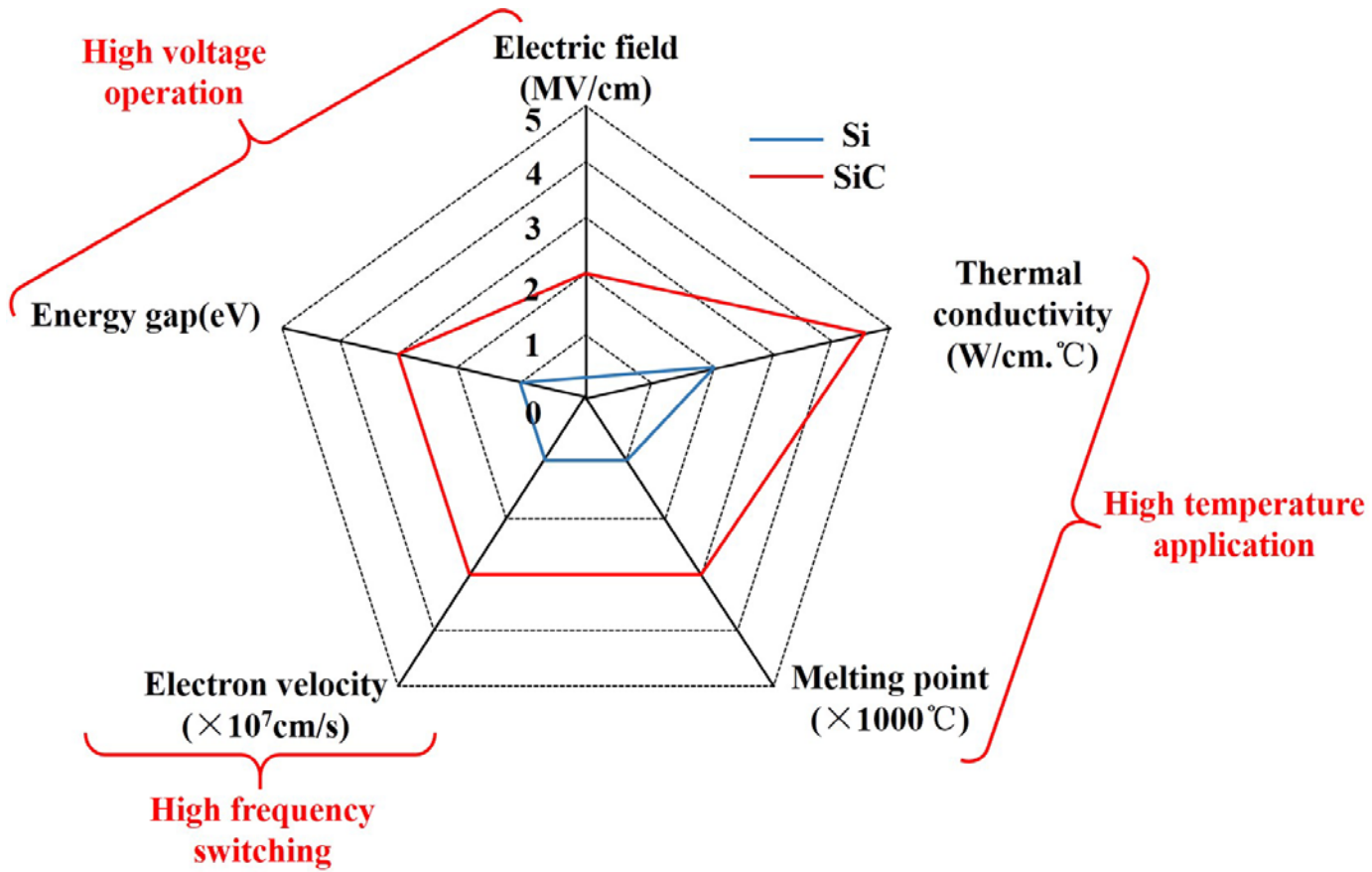


On-State Characteristics Measurement of SiC MOSFET

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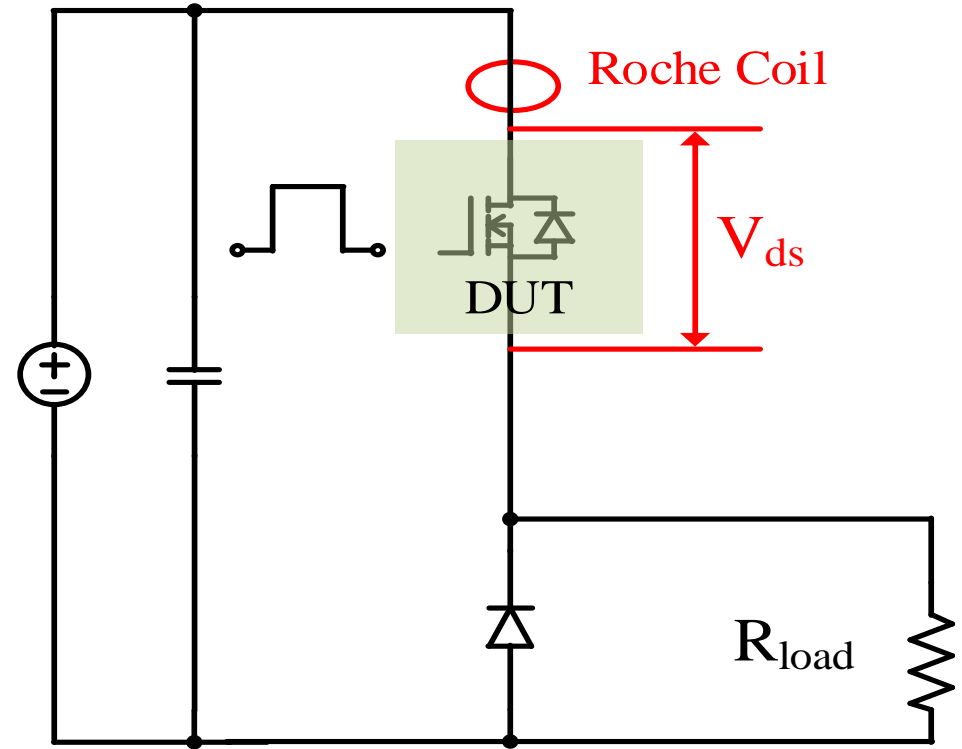
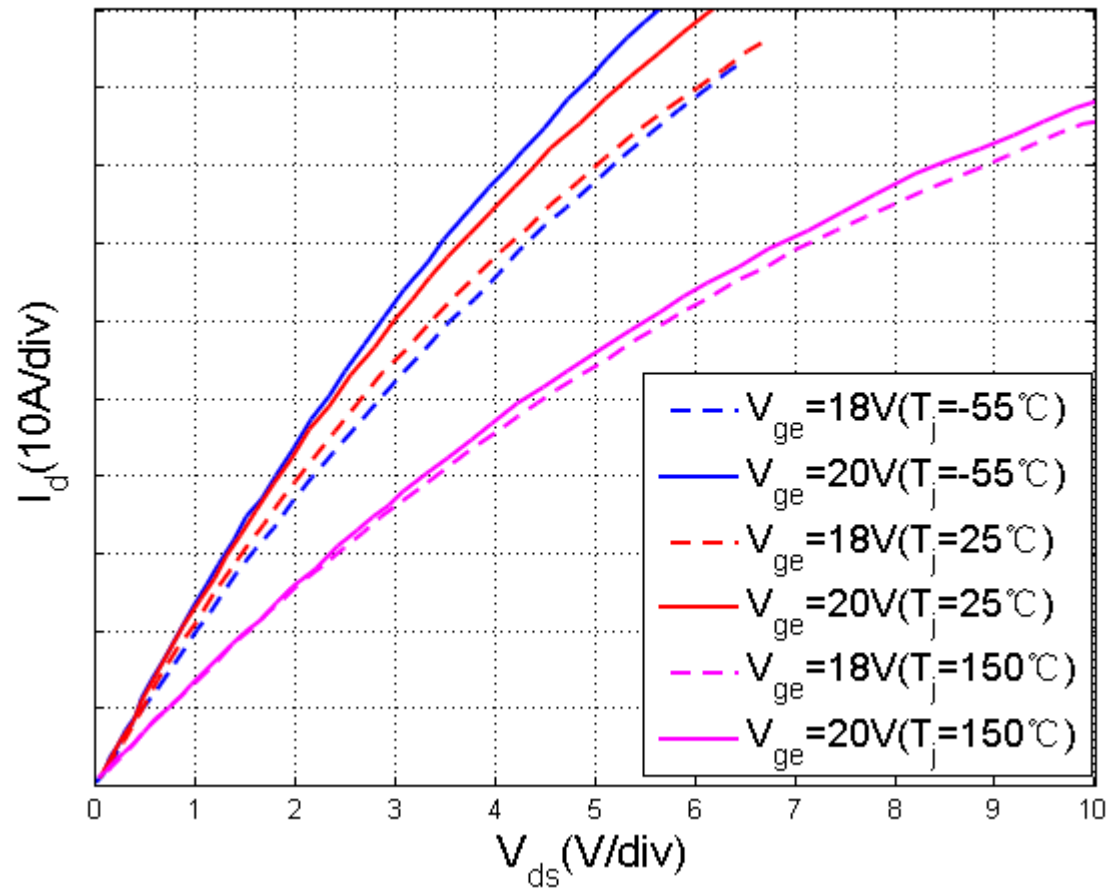
1. Introduction



Manufacturer	Products	Blocking Voltage (V)	Current Rating
CREE	C2M0040120D SiC MOSFET	1200	60 (@25° C)
	C5D50065D SiC SBD	650	50
ROHM	SCT3040KL SiC MOSFET	1200	55
	SCS240AE2 SiC SBD	650	40
Infineon	IMW120R045M 1 SiC MOSFET	1200	52 (@25° C)
	IDW30G120C5 B SiC SBD	1200	30

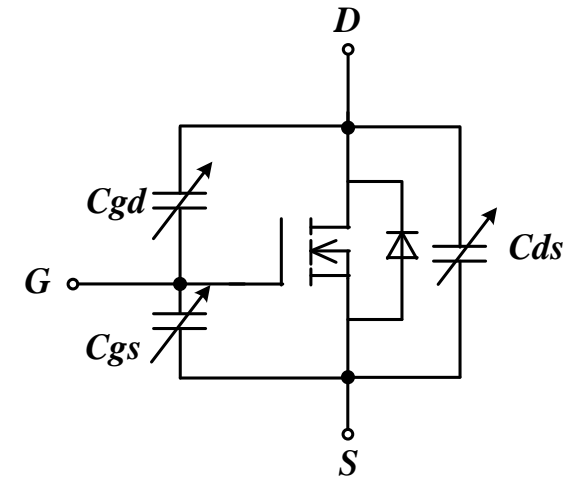
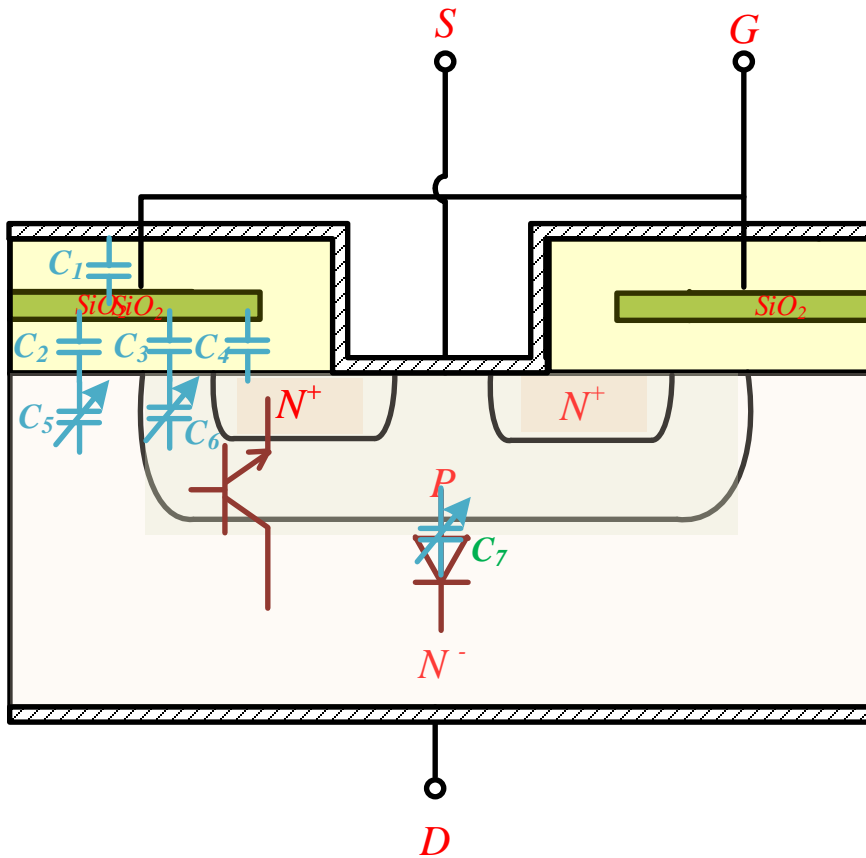


2. On-State Characteristics Measurement



2. On-State Characteristics Measurement

Internal structure of MOSFETs

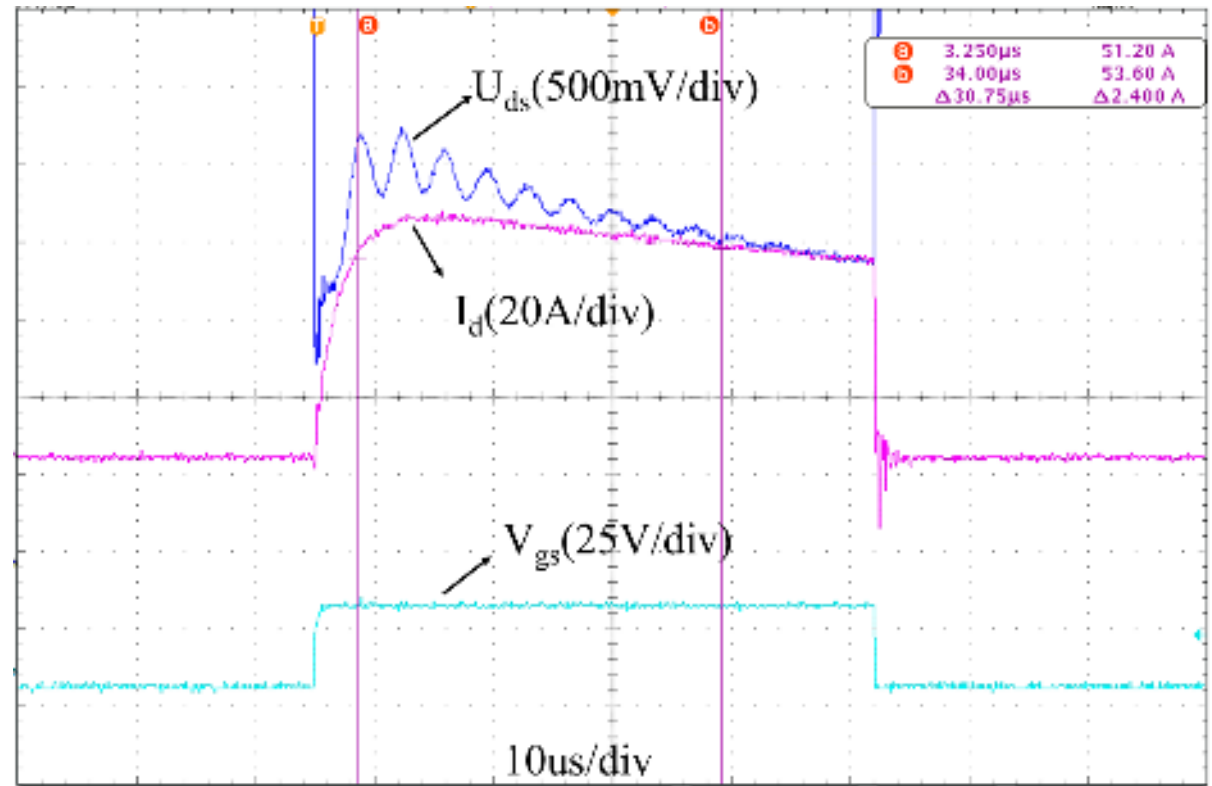
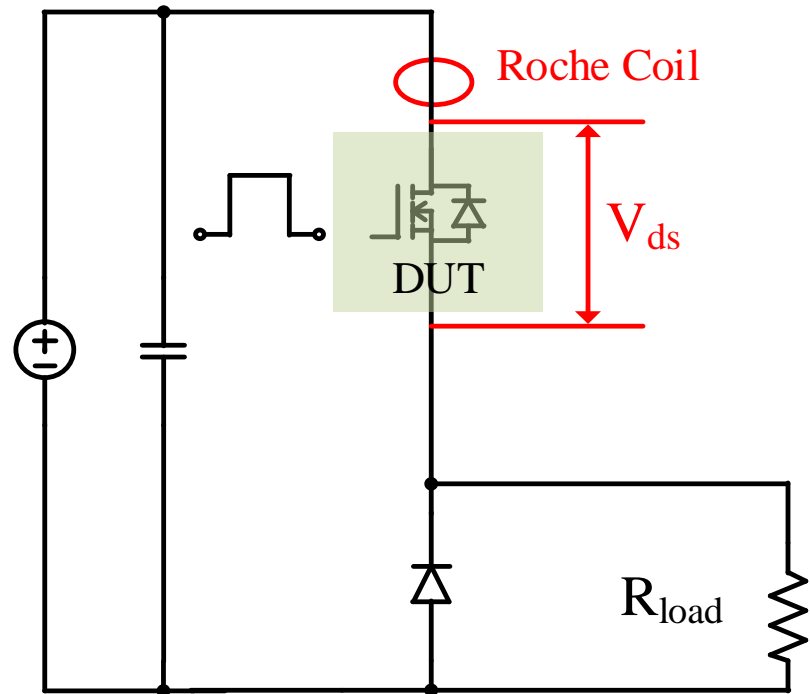


$$\begin{cases} C_{ds} = C_7 \\ C_{gd} = C_2 + C_5 \\ C_{gs} = C_1 + C_3 + C_4 + C_6 \end{cases}$$



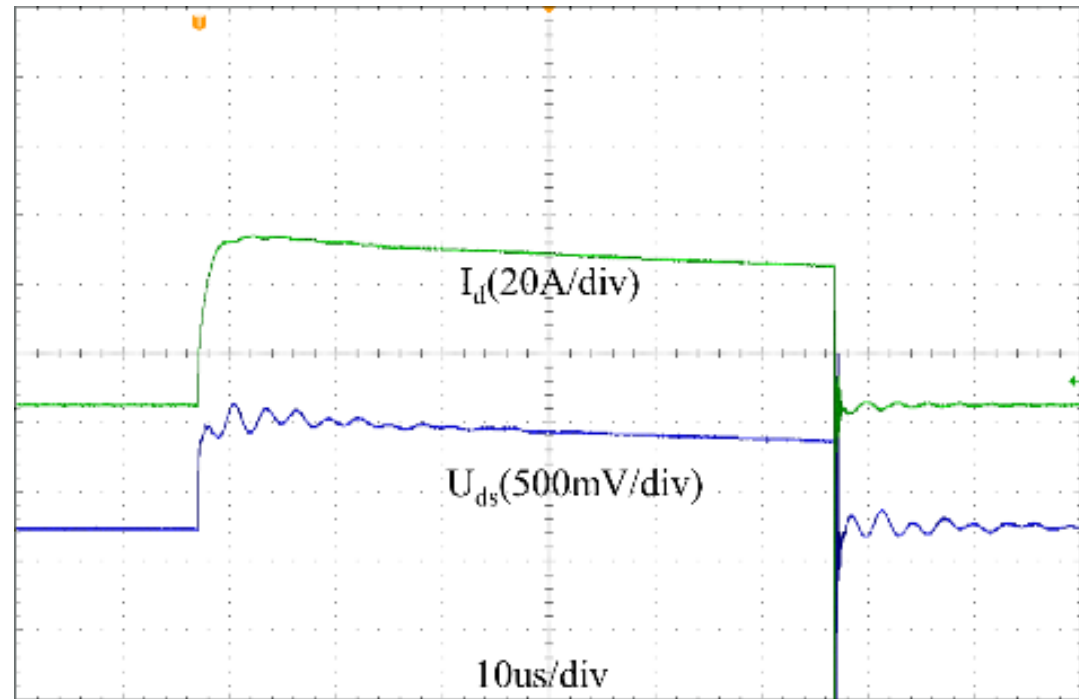
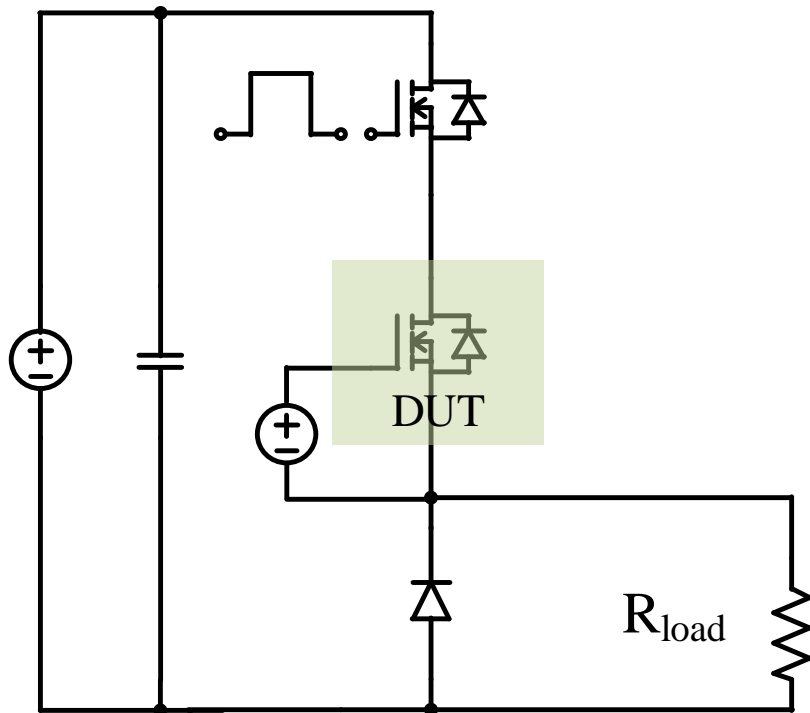
2. On-State Characteristics Measurement

Switching the DUT



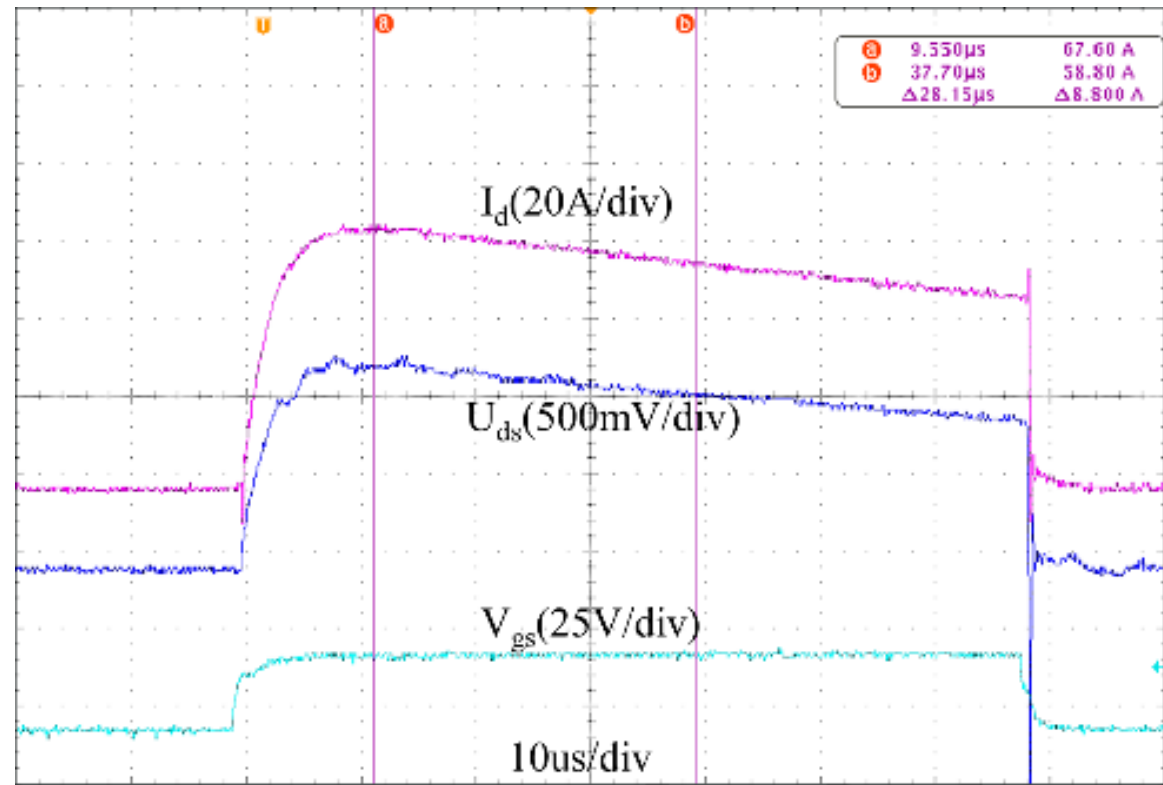
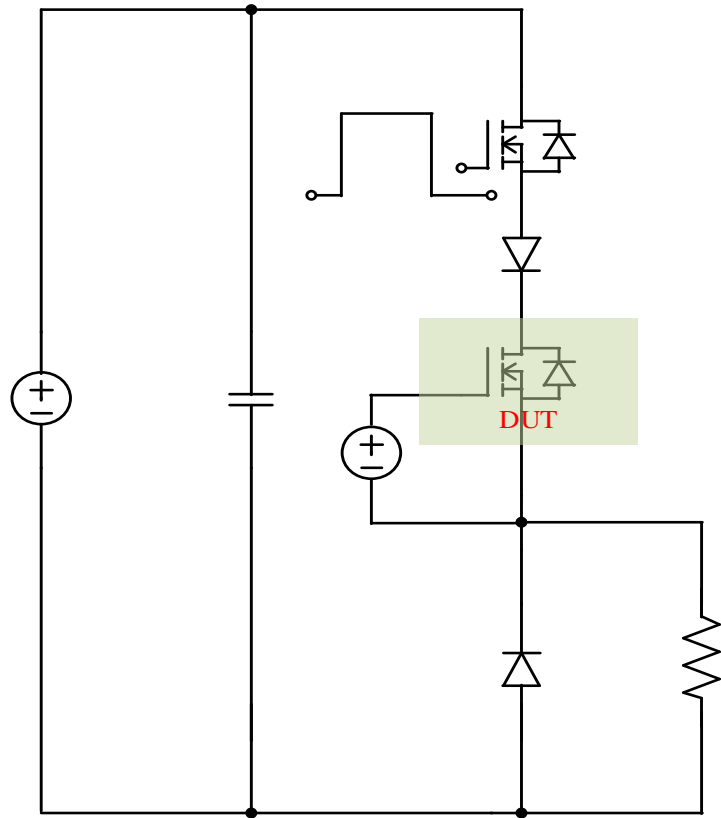
2. On-State Characteristics Measurement

Keeping the DUT on



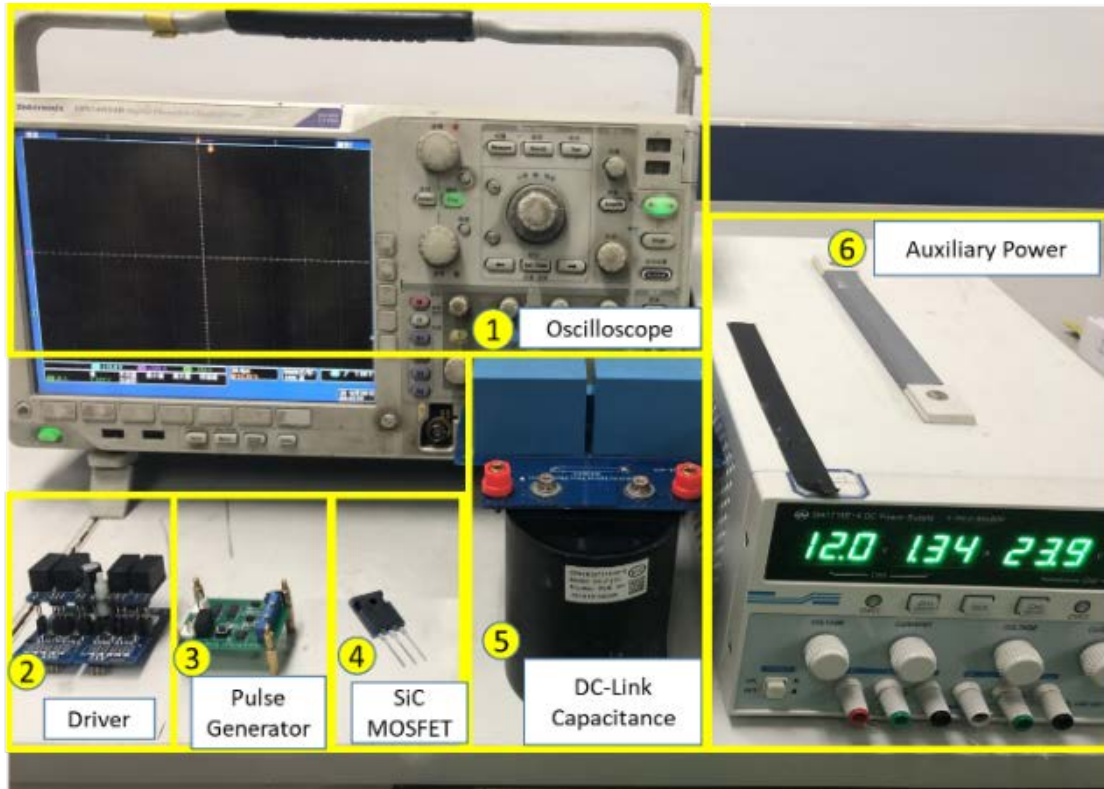
2. On-State Characteristics Measurement

Connecting a Diode



3. Experimental result

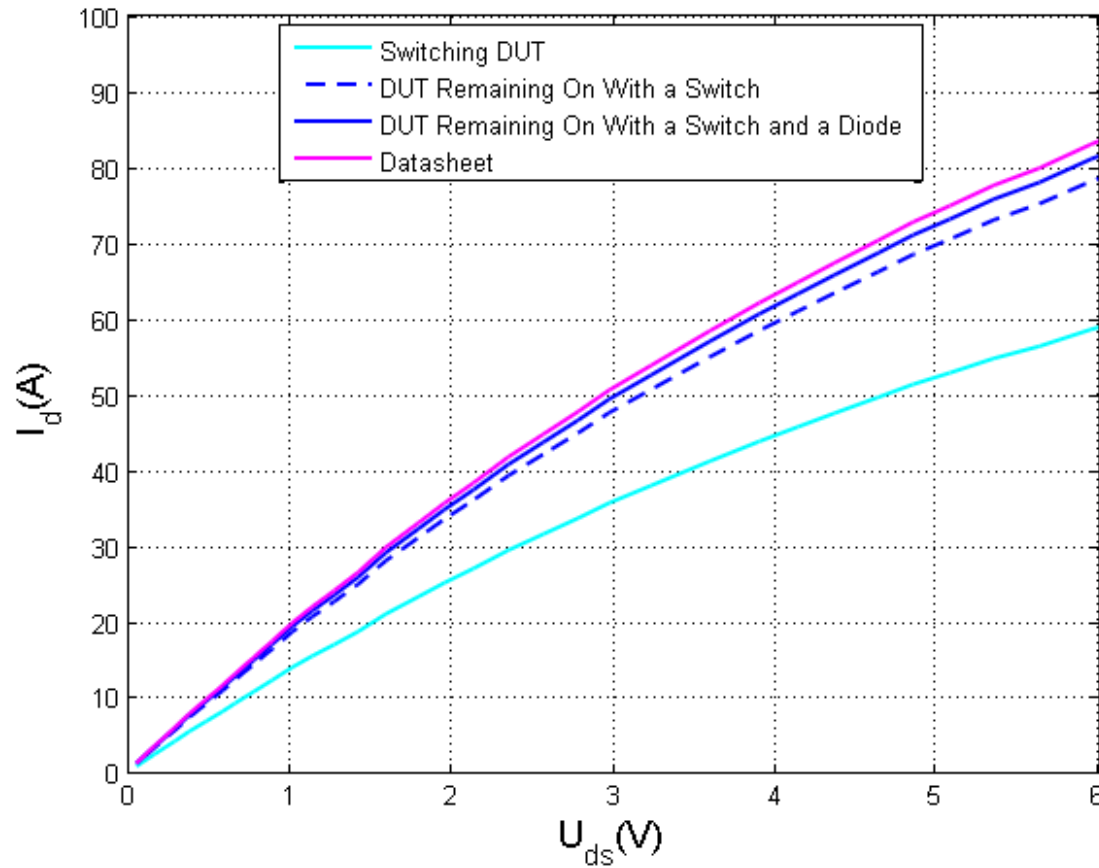
Experimental platform



DUT	C2M0040120D (SiC MOSFET)
V_{gs}	20V
R_{load}	0.3Ω
Free-wheeling Diode	MUR60120



3. Experimental result



By keeping the DUT on and connecting a diode to measure the on-state characteristics, the measurement results are closer to the datasheet

