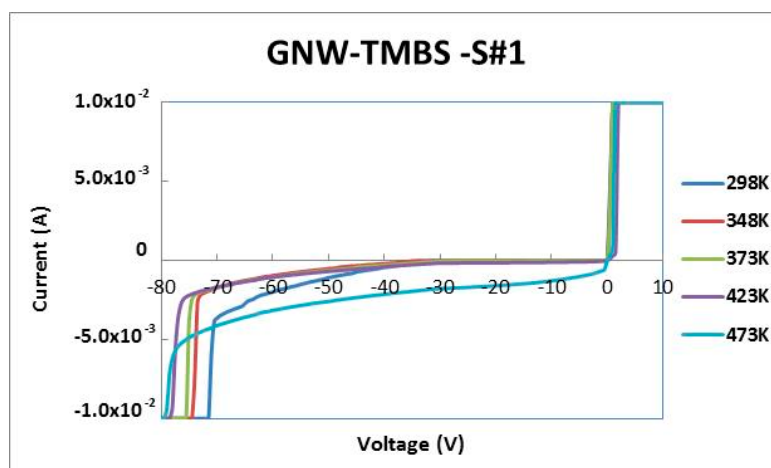


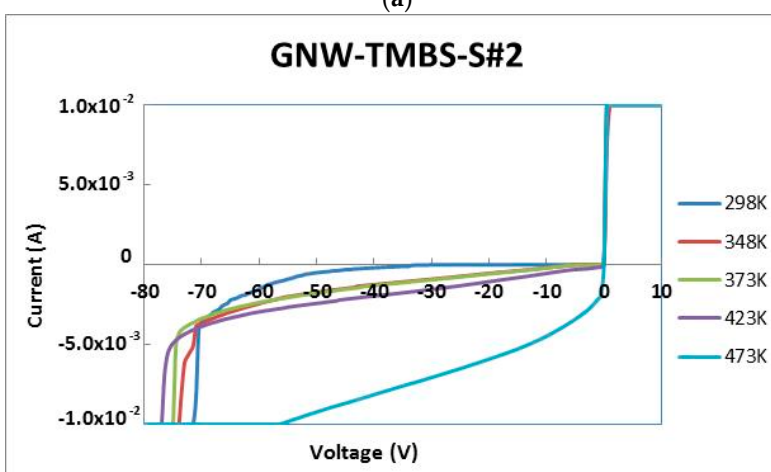
Supplementary Materials: High Voltage Graphene Nanowall Trench MOS Barrier Schottky Diode Characterization for High Temperature Applications

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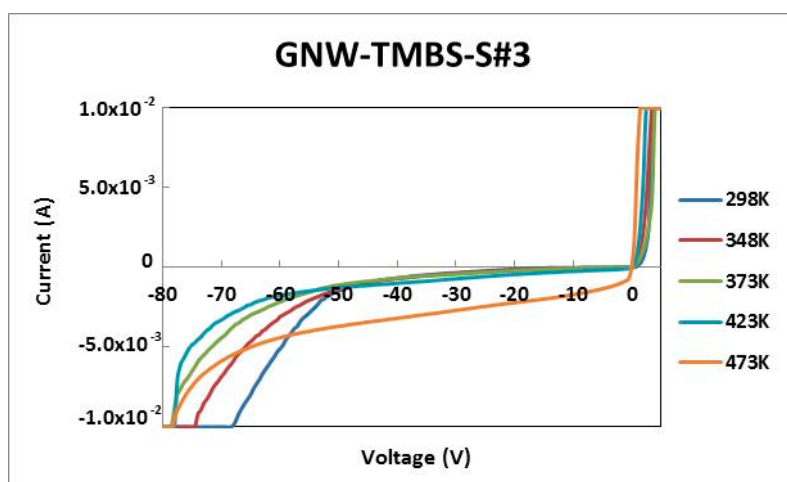
The IV chart shows the characteristic of 5 samples of GNW-TMBS diodes with different initial leakage current under high temperature testing.



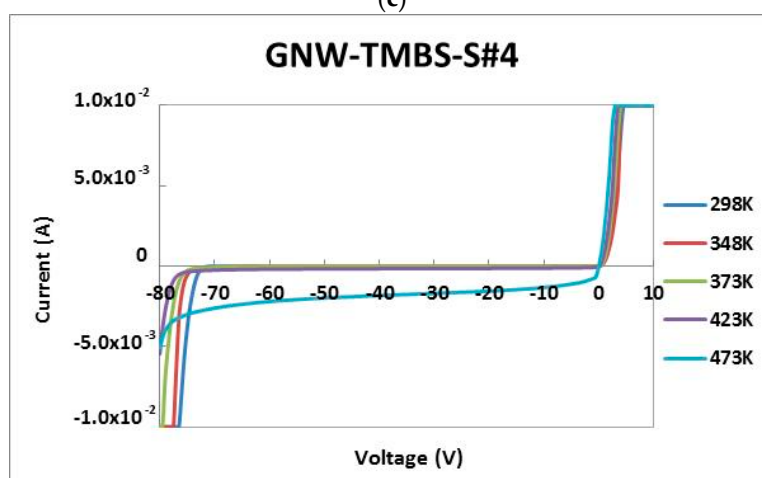
(a)



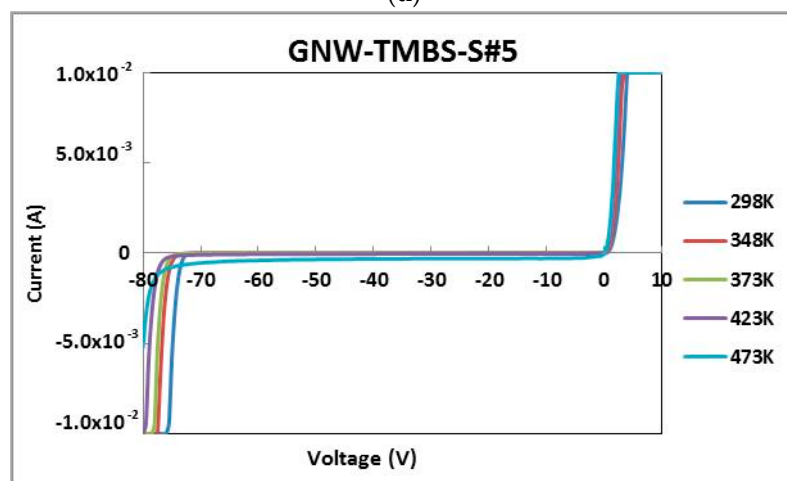
(b)



(c)



(d)



(e)

Figure S1. (a, b, c, d, e) 5 samples of GNW-TMBS diodes tested at different temperatures.

The table below showed the leakage current data for GNW-TMBS and TiSi₂-TMBS diodes at different test temperatures. All TiSi₂-TMBS diodes reached 10 mA compliance limit at 150 °C while GNW-TMBS except S#2 can withstand temperature up to 473 K. GNW-TMBS diodes with higher leakage current at room temperature still did not experience thermal runaway at 423 K.

Table S1. Leakage current at different temperatures measured at 60 V for GNW-TMBS and TiSi₂-TMBS.

Sample	Temperature			
	298 K	373 K	423 K	473 K
GNW-S#1	2.01 mA	1.06 mA	1.06 mA	3.16 mA
GNW-S#2	1.51 mA	2.37 mA	2.95 mA	10 mA
GNW-S#3	5.31 mA	2.15 mA	1.76 mA	4.4 mA
GNW-S#4	1.39 uA	17.5 uA	192 uA	2.21 mA
GNW-S#5	4.3 uA	12.7 uA	68 uA	406 uA
TiSi-S#1	1.39 mA	5.82 mA	10 mA	10 mA
TiSi-S#2	219 uA	10 mA	10 mA	10 mA
TiSi-S#3	5.54 uA	1.08 mA	10 mA	10 mA
TiSi-S#4	76 uA	10 mA	10 mA	10 mA
TiSi-S#5	27 uA	774 uA	10 mA	10 mA

10 mA refers to the compliance limit achieved during testing.