

Device	Short	Open	Effect
Q1	X		Short will result in Vin applied to anode of Q2 body diode. Vout will rise immediately with Vin, no softstart, no current protection, no Vout control. Body diode Q2 conducts and will result in very high Pwr Dissipation and very hot device depending on load.
Q1		X	No operation - Vout will not function
Q2	X		G-D-S short will result in Q1 having 0v Vgs and non-operation, no Vout. No Vout. D-S short - no reverse polarity blocking capability
Q2		X	No operation - Vout will not function
D4	X		Loss of gate protection to <24mA current during reverse polarity, no issue for normal polarity input. Gate can be damaged in reverse polarity. Possible FET off or partial on if gate is damaged.
D4		X	D4 provides bypass current to allow fast turn off of the FET in fault condition. Open D4 results in FET very slow turn off due to R1 without D4 with likely FET failure depending on current level.
D5	X		Q1 and Q2 will not operational, no Vout
D5		X	Lose protection for high capacitive load reverse polarity case that will then allow higher power dissipation than the internal zener between OUT and Gate can handle, resulting in device failure. Q1 and Q2 will not turn on.
D1	X		Reverse protection on Vin will be lost. Vin damage, potentially elsewhere in IC.
D1		X	No operation - Vout will not function
D3, D2	X		Vin shorted, input will short, depending on input power source fault capability, D1/D2 will be extremely hot.
D3,D2		X	No transient protection due to fast shut off of gate in CB event, Vin will be damaged if CB occurs.