

LMR360xx RNX Package Pin FMEA

Short From Designated Pin to AGND or PGND			
Pin Number	Pin Name	Risk of Device Damage	Comments
1,11	PGND	No risk	This is the ground pin.
2,10	VIN	Medium risk	No output voltage will be generated. Possible damage to customer input supply and/or PCB may occur unless customer provides protection. Reverse current from SW pin to VIN pin, due to discharge of output capacitors, may damage regulator.
3	N/C	No risk	No connection, when NOT used for SW to BOOT connection.
		High risk	When used for SW to BOOT connection, as recommended, the effect is the same as for pin SW (12).
4	BOOT	Medium risk	Driver supply to high side MOSFET will be lost. Output voltage will not be regulated. Possible damage to internal regulator and Cboot charging circuit.
5	VCC	Medium risk	Internal circuits will be disabled. No output voltage will be generated. Possible increase in input current and possible damage to internal LDO.
6	AGND	No risk	This is the ground pin.
7	FB	No risk	The regulator will operate at maximum duty cycle. Output voltage will rise to nearly the input voltage level. Possible damage to customer load and/or output stage components may occur.
8	PG	No risk	This is a valid connection for the PG output. PG functionality will be lost. Damage to customer components connected to PG input may occur.
9	EN	No risk	This is a valid connection for the EN input. Enable functionality will be lost; the device will remain off with no output voltage generated. Damage to customer components connected to EN input may occur.
12	SW	High risk	Shorting the SW pin to ground will result in large currents through the device and subsequent damage. No output voltage will be produced.

Open On Designated Pin			
Pin Number	Pin Name	Risk of Device Damage	Comments
1,11	PGND	No risk	Erratic operation; probable loss of regulation. Possible output voltage increase and damage to customer load.
2,10	VIN	No risk	Loss of output voltage.
3	N/C	No risk	No connection, when NOT used for SW to BOOT connection.
		No risk	When used for SW to BOOT connection, as recommended, the effect is the same as for pin BOOT (4).
4	BOOT	No risk	Driver supply to high side MOSFET will be lost. Output voltage will not be regulated. Low or no output voltage; erratic switching behavior.
5	VCC	Med risk	Internal LDO may oscillate. VCC voltage will not be stable. Internal circuits will not function correctly. Output voltage may not be regulated.
6	AGND	No risk	Erratic operation; probable loss of regulation. Possible output voltage increase and damage to customer load.
7	FB	No risk	Device will not regulate. Output voltage may rise or fall. Damage to customer load and/or output stage components is probable.
8	PG	No risk	This is a valid connection for the PG output. PG functionality will be lost.
9	EN	No risk	Loss of enable functionality. Erratic operation; probable loss of regulation.
12	SW	No risk	Loss of output voltage.

Short from Designated pin to Adjacent Pin			
Designated Pin	Adjacent Pin	Risk of Device Damage	Comments
PGND (1)	VIN (2)	Medium risk	No output voltage will be generated. Possible damage to customer input supply and/or PCB may occur unless customer provides protection. Reverse current from SW pin to VIN pin, due to discharge of output capacitors, may damage regulator.
VIN (2)	N/C (3)	No risk	No connection, when NOT used for SW to BOOT connection.
		No risk	When used for SW to BOOT connection, as recommended, the output voltage will rise to the level of VIN. Customer load will be damaged.
N/C (3)	BOOT (4)	No risk	No connection, when NOT used for SW to BOOT connection.
		High risk	When used for SW to BOOT connection, as recommended, large currents will flow through internal circuits. Possible damage to internal regulator and C _{BOOT} charging circuits. No output voltage will be produced.
BOOT (4)	VCC (5)	High risk	Damage to VCC regulator and/or other internal circuits. Output voltage may be affected.
VCC (5)	AGND (6)	Medium risk	Internal circuits will be disabled. No output voltage will be generated. Possible increase in input current and possible damage to internal LDO.
AGND (6)	FB (7)	No risk	The regulator will operate at maximum duty cycle. Output voltage will rise to nearly the input voltage level. Possible damage to customer load and/or output stage components may occur.
FB (7)	PG (8)	No risk	Erratic operation; probable loss of regulation. Possible output voltage increase and damage to customer load.
PG (8)	EN (9)	No risk	Erratic operation; probable loss of regulation. Possible damage to customer circuits connected to these pins.

EN (9)	VIN (10)	No risk	This is a valid connection for the EN input. Enable functionality will be lost; the device will remain on. Damage to customer components connected to EN input may occur.
VIN (10)	PGND (11)	Medium risk	No output voltage will be generated. Possible damage to customer input supply and/or PCB may occur unless customer provides protection. Reverse current from SW pin to VIN pin, due to discharge of output capacitors, may damage regulator.
PGND (11)	SW (12)	High risk	Shorting the SW pin to ground will result in large currents through the device and subsequent damage. No output voltage will be produced.