

$$V_{PGFB} = V_{OUT} \times R_{PG1} / (R_{PG1} + R_{PG2})$$

When $V_{PGFB} < 0.3V$ FAST STARTUP ENGAGES
 When $V_{PGFB} > 0.3V$ FAST STARTUP DISENGAGES
 $V_{OUT(threshold)} = 0.3V \times (R_{PG1} + R_{PG2}) / R_{PG1}$
 $V_{OUT(threshold)} = 0.3V \times (1 + R_{PG2}/R_{PG1})$

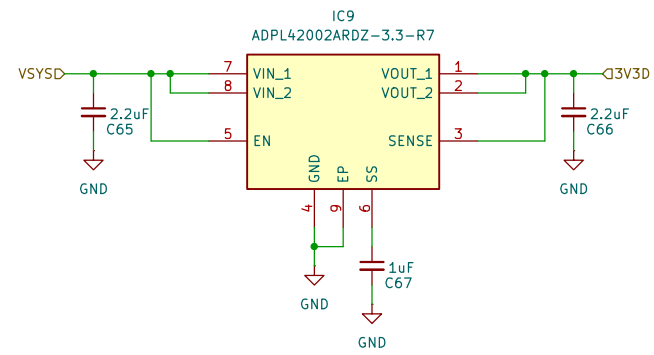
$$5V = 0.8V \times (1 + R_{SET}/10k\Omega)$$

$$5/0.8 = 1 + R_{SET}/10k\Omega$$

$$6.25 = 1 + R_{SET}/10k\Omega$$

$$R_{SET} = 52.5k\Omega$$

During power-up, VOUT gradually ramps from 0V to 5V over 10–50ms, not instantly. The LT3045 uses the PGFB pin to detect whether it's starting up or already running. When VOUT is low (making PGFB < 300mV), the IC recognizes it's in start-up mode and pumps 2mA into the SET pin to quickly charge the large 22uF capacitor. Once VOUT rises above ~0.42V (PGFB > 300mV), the IC knows the output is stabilizing and switches to normal operation with only 80uA SET current for ultra-low noise performance. This automatic switching reduces start-up time from 275ms down to ~11ms while still maintaining excellent low-frequency noise performance during normal operation.



SWDIO HEADER OUPUT FOR PROGRAMMING AND DEBUGGING

