

# Power Management Bias Controller/Sequencer

## Supply :-6V, +5V



**MABC-11040B**  
Rev V3

### Features

- Quad Output I<sup>2</sup>C programmable analogue outputs using 12bit DACs with rail to rail output voltage range
  - High output current capability +100mA / -60mA
  - Programmable gate-current limit
  - I<sup>2</sup>C clock rates up to 400kHz
- Internal and external temperature sensor supporting temperature compensation in application
- Built in sequencing with drain bias control support
- Sequenced auxiliary current source
- Internal EEPROM for autonomous operation
- Two 12bit Telemetry ADC inputs
- General purpose GPIO interface
- Optional internal negative voltage generator, generating -5V from the positive 5V supply
- Supply voltage range -6V, 5V

### Applications

- GaN FET bias Controller
- HEMT bias Controller
- Circuit Temperature Compensation

The MABC-11040 is a flexible bias generation and temperature supervision IC.

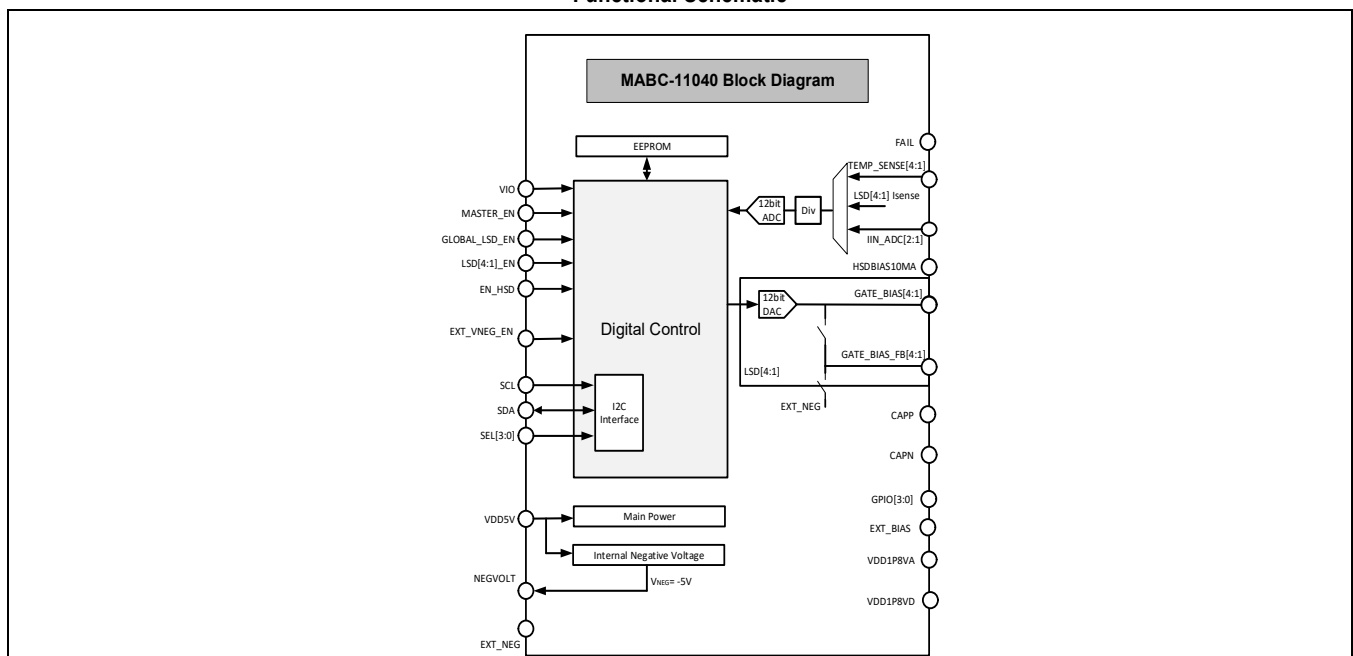
The MABC-11040 contains four highly integrated, temperature-controlled DACs that support a negative output range from -6V to 0V and are capable of handling large output currents. The four DACs can be programmed independently by four separate user-defined temperature-to-voltage functions stored in the internal EEPROM, allowing any temperature effects to be corrected without additional external circuitry. Each output can be switched to the load individually through the use of dedicated control pins.

The MABC-11040 provides bias sequencing for safe power up and power down. The drain voltage may be applied with a control signal via the internal drain bias control once the IC has powered up and correct biasing has been asserted.

Once powered up, the device operates autonomously, without intervention from the system controller, providing a complete solution for setting and compensating bias voltages and currents in control applications. Additionally, the device supports up to four thermistors placed closely to the PAs for more accurate temperature reading.

The digital interface allows control and monitoring of all four Low side drivers, gate current, and temperature of the PA. In addition, the drain current of the PA can be monitored via an external high-side current sense amplifier and an internal ADC.

### Functional Schematic



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**Ordering Information**

Part Number	Package	Operating Temperature
MABC-11040B	6 x 6 mm PQFN48	-40°C to +125°C
MABC-11040B-SB1PPR	EVM Kit	-40°C to +125°C

**Figure 1-1. MABC-11040 Marking Diagram**

