



Sensors

MC33794

Electric-Field Imaging Device

Overview

Freescale Semiconductor's MC33794 is intended for applications where non contact sensing of objects is desired. When connected to external electrodes, an electric field is created.

The MC33794 is intended for use in detecting objects in this electric field. The IC generates a low-frequency sine wave. The frequency is adjustable by using an external resistor and is optimized for 120 kHz. The sine wave has very low harmonic content to reduce harmonic interference.

The MC33794 also contains support circuits for a microcontroller unit (MCU) to allow the construction of a two-chip electric-field system.

Features

- Supports up to nine electrodes and two references
- Shield driver for driving remote electrodes through coaxial cables
- ISO-9141 physical layer interface
- Lamp driver output
- Watchdog and power-on reset timer
- Critical internal nodes scaled and selectable for measurement
- High-purity sine wave generator tunable with external resistor
- Additional devices available for comparison in analog product selector
- Guide (SG1002) and Automotive Selector Guide (SG187)

Benefits

- Simple, low-cost, complete electric-field generation and detection system
- Support of an MCU for a two-chip solution
- Compact system size

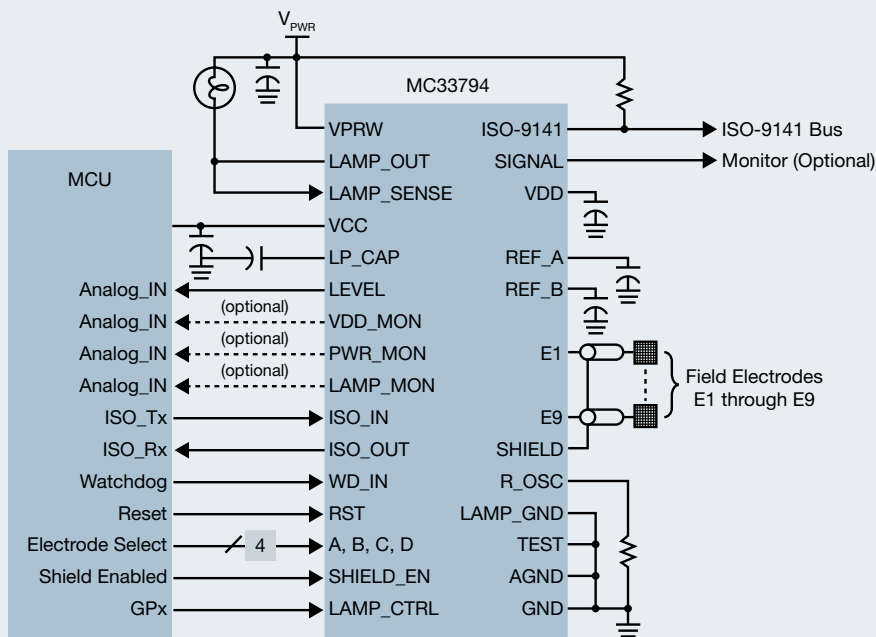
Typical Applications

- Object detection and measurement using a non-contact electric-field
- Automotive, aircraft, marine, and industrial
- Control and safety systems
- Proximity detection
- Size detection

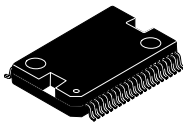
| Performance | Typical Values |
|-----------------------|---|
| Outputs (Regulator) | 5.0V and 8.5V |
| Operating Voltage | $9.0V \leq V_{PWR} \leq 18V$ |
| Frequency | 120 kHz |
| ESD (HBM) | $\pm 2000V$ |
| Operating Temperature | $-40^{\circ}C \leq T_A \leq +85^{\circ}C$ |

| Ordering Information | | |
|--|---|----------------------------------|
| Device | **33794DH **3794DHR2 | **33794DWB **33794DWBR2 |
| Temperature Range | $-40^{\circ}C$ to $+85^{\circ}C$ | $-40^{\circ}C$ to $+85^{\circ}C$ |
| Package | 4 HSOP | 54 SOICW-EP |
| Data Sheet Order Number | MC33794 | |
| Prefix Index | PC = Engineering Samples; MC = Production | |
| Contact Sales for Evaluation Kit Availability | | |
| Devices Available for Sensor Reference in the Product Selector Guide | SG1010 | |

MC33794 Block Diagram



Package Options



44 HSOP
0.65 mm Pitch
16.0 mm x 11.0 mm Body
12.2 mm x 6.9 mm Exposed Pad



54 SOICW-EP
0.65 mm Pitch
17.9 mm x 7.5 mm Body
4.6 mm x 4.6 mm Exposed Pad



Learn More:

For current information about Freescale products and documentation, please visit www.freescale.com/sensors.