

ANALOG PRODUCTS

MC33794 FACT SHEET



33794 ELECTRIC FIELD IMAGING DEVICE

The 33794 is intended for applications where non-contact sensing of objects is desired. It contains circuitry necessary to generate a low-level electric field and measure the field loading caused by objects moving into the field.

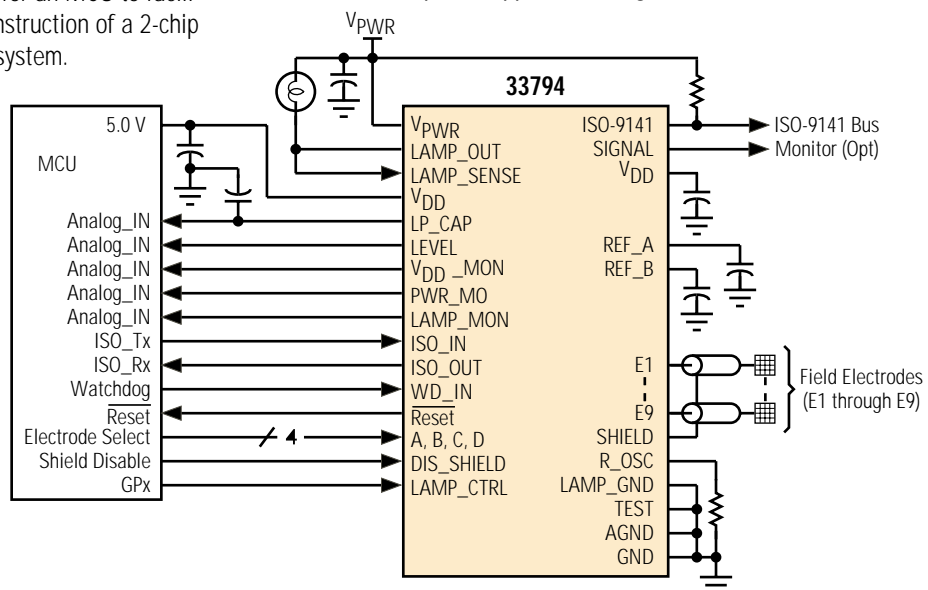
The 33794 is intended for use in detecting objects in an electric field associated with electrodes. A low-frequency sine wave, generated by the IC, is used to drive the electrodes. The frequency is adjustable via an external resistor and is optimized for 125 kHz. The sine wave has very low harmonic content to reduce interference. The internal generator produces a nominal 5.0 V peak-to-peak output that is passed through an internal 22 kΩ resistor.

The 33794 contains support circuits for an MCU to facilitate construction of a 2-chip E-field system.

APPLICATIONS

- Object Detection and Measurement Using a Non-Contact Electric Field
- Automotive, Aircraft, Marine and Industrial Control and Safety Systems
- Proximity Detection
- Size Detection

Simplified Application Diagram



CUSTOMER BENEFITS

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


Performance

Performance	Typical Values
Outputs	5.0 – 8.5 V
Operating Voltage	$7.0\text{ V} \leq V_{PWR} \leq 18\text{ V}$
Frequency	125 kHz
ESD	$\pm 2000\text{ V}$
Operating Temp	$-40^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$

FEATURES

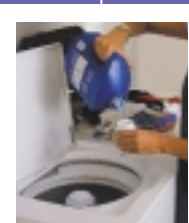
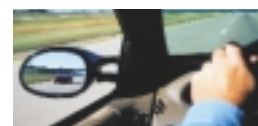
- 9 electrode and 2 reference outputs
- Shield driver to reduced cable loading
- + 5.0 V regulator to power external circuit
- ISO-9141 physical layer interface
- Lamp driver output
- Watchdog and Power-ON Reset timer
- Critical internal nodes scaled and selectable for measurement
- High-purity sine wave generator tuneable with external resistor
- Additional devices available for comparison in Analog Selector Guide SG1002/D

Protection	Detect	Limiting	Shut Down	Status Reporting
Over Voltage	•			•
Under Voltage	•			•
Over Current/SC	•		•	
Lamp	•	•		•

Ordering Information	Package	Ship Method	Motorola Part Number
	44HSOP	Rail T/R	**33794DH **33794DHR2
Data Sheet Order Number			MC33794/D
Contact Sales for Evaluation Kit Availability			
**Prefix Index: PC = Eng Samples; XC = In Qual; MC = Production			

QUESTIONS

- Are you working with vehicular safety or sensing systems?
- Are you measuring the non-contact level or presence of liquids?
- Do you need to sense object size?
- Do you need to detect object proximity?



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Rev. 1