

ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change.

8/97



Force-Sense Switches

General Description

The MAX4554/MAX4555/MAX4556 are CMOS analog ICs configured as force-sense switches. Each part contains several low-resistance switches for forcing current, and higher-resistance switches for sensing voltage. The MAX4554 contains two force switches, two sense switches, and two guard switches configured as two three-pole/single throw switches. The MAX4555 contains four independent single-pole/single-throw switches, two force switches, and two sense switches. The MAX4556 contains three independent single-pole/double-throw switches; one is a force switch, and two are sense switches.

The MAX4554/MAX4555/MAX4556 operate from a single 4.5V to 30V supply or from dual $\pm 4.5V$ to $\pm 18V$ supplies. On-resistance (6Ω max) is matched between switches to 1Ω (max). Each switch can handle Rail-to-Rail[®] analog signals. Off-leakage current is only 1nA at $+25^{\circ}C$ and 5nA at $+85^{\circ}C$.

The MAX4554 is also fully specified for +20V and -10V operation.

All digital inputs have +0.8V and +2.4V logic thresholds, ensuring TTL/CMOS-logic compatibility.

Applications

Automated Test Equipment (ATE)
Calibrators
Precision Power Supplies
Automatic Calibration Circuits
Audio-Signal Routing

Features

- ◆ 6 Ω Force-Signal Paths with $\pm 15V$ Supplies
- ◆ 1 Ω Force-Signal Matching with $\pm 15V$ Supplies
- ◆ 30 Ω Sense/Guard-Signal Paths with $\pm 15V$ Supplies
- ◆ 4.5 Ω Sense/Guard-Signal Matching with $\pm 15V$ Supplies
- ◆ Fully Specified at +20V/-10V for ATE (MAX4554)
- ◆ Pin Compatible with DG412 (MAX4555)
- ◆ Rail-to-Rail Signal Handling
- ◆ Break-Before-Make Switching
- ◆ $t_{ON}/t_{OFF} = 225ns/185ns$ at a $\pm 15V$ Supply
- ◆ 5 μA Power Consumption
- ◆ >2kV ESD Protection per Method 3015.7
- ◆ TTL/CMOS-Compatible Inputs

Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX4554 CPE	0°C to +70°C	16 Plastic DIP
MAX4554CSE	0°C to +70°C	16 SO
MAX4554CAE	0°C to +70°C	16 SSOP
MAX4554C/D	0°C to +70°C	Dice
MAX4554EPE	-40°C to +85°C	16 Plastic DIP
MAX4554ESE	-40°C to +85°C	16 SO
MAX4554EAE	-40°C to +85°C	16 SSOP
MAX4555 CPE	0°C to +70°C	16 Plastic DIP
MAX4555CSE	0°C to +70°C	16 SO
MAX4555CAE	0°C to +70°C	16 SSOP
MAX4555C/D	0°C to +70°C	Dice
MAX4555EPE	-40°C to +85°C	16 Plastic DIP
MAX4555ESE	-40°C to +85°C	16 SO
MAX4555EAE	-40°C to +85°C	16 SSOP
MAX4556 CPE	0°C to +70°C	16 Plastic DIP
MAX4556CSE	0°C to +70°C	16 SO
MAX4556CAE	0°C to +70°C	16 SSOP
MAX4556C/D	0°C to +70°C	Dice
MAX4556EPE	-40°C to +85°C	16 Plastic DIP
MAX4556ESE	-40°C to +85°C	16 SO
MAX4556EAE	-40°C to +85°C	16 SSOP

Rail-to-Rail is a registered trademark of Nippon Motorola Ltd.



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MAX4554/MAX4555/MAX4556

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Pin Configurations/Functional Diagram/Truth Tables

