

# ADVANCE INFORMATION

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

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# MAXIM

## Calibrated, Low-Drift, +4.096V/+5V/+10V Precision Voltage References

### General Description

The MAX676/MAX677/MAX678 precision +4.096V, +5V, and +10V voltage references feature a factory-programmed on-chip ROM that calibrates each reference at specific temperatures, and reduces the temperature drift to less than 1ppm/°C over temperature—the lowest in the industry.

The MAX676/MAX677/MAX678 have excellent line and load regulation: 20ppm/V and 3ppm/mA, respectively. Load regulation specifications are guaranteed for source currents up to 5mA and sink currents up to 500µA. The 4.096V MAX676 operates from a supply voltage as low as 4.75V, making it an ideal reference for single 5V, high resolution ADCs.

### Applications

- High Resolution 16-Bit ADCs and DACs
- Precision Test and Measurement Systems
- Precision, Calibrated Voltage-Reference Standard
- High-Accuracy Transducers

### Features

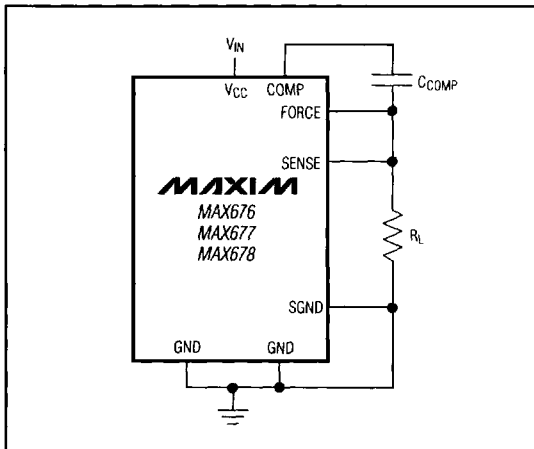
- ◆ **Lowest Temperature Drift:**  
1ppm/°C Max Over -40°C to +85°C  
1.5ppm/°C Max Over -55°C to +125°C
- ◆ **0.02% Initial Accuracy**
- ◆ **3ppm/mA Max Load Regulation**
- ◆ **20ppm/V Max Line Regulation**
- ◆ **4.096V Reference Operates from 5V ±5% Supply**
- ◆ **Available in Surface-Mount Package**

### Ordering Information

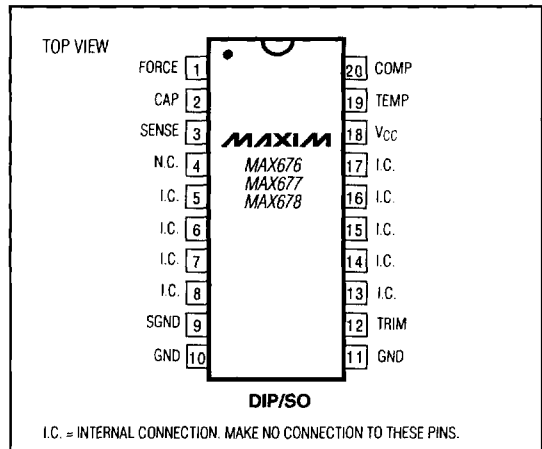
PART	TEMP. RANGE	PIN-PACKAGE	MAX DRIFT (ppm/°C)
MAX676ACPP	0°C to +70°C	20 Plastic DIP	1.0
MAX676BCPP	0°C to +70°C	20 Plastic DIP	2.0
MAX676ACWP	0°C to +70°C	20 Wide SO	1.0
MAX676BCWP	0°C to +70°C	20 Wide SO	2.0
MAX676ACJP	0°C to +70°C	20 CERDIP	1.0
MAX676AEPP	-40°C to +85°C	20 Plastic DIP	1.0
MAX676BEPP	-40°C to +85°C	20 Plastic DIP	2.0
MAX676AEWP	-40°C to +85°C	20 Wide SO	1.0
MAX676BEWP	-40°C to +85°C	20 Wide SO	2.0
MAX676AEJP	-40°C to +85°C	20 CERDIP	1.0
MAX676AMJP	-55°C to +125°C	20 CERDIP	1.5
MAX676BMJP	-55°C to +125°C	20 CERDIP	3.0

Ordering Information continued on next page.

### Typical Operating Circuit



### Pin Configuration



MAX676/MAX677/MAX678

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**MAXIM**

Maxim Integrated Products 6-5

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# Calibrated, Low-Drift, +4.096V/+5V/+10V Precision Voltage References

**MAX676/MAX677/MAX678**

## Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE	MAXDRIFT (ppm/°C)
<b>MAX677</b> ACPP	0°C to +70°C	20 Plastic DIP	1.0
MAX677BCPP	0°C to +70°C	20 Plastic DIP	2.0
MAX677ACWP	0°C to +70°C	20 Wide SO	1.0
MAX677BCWP	0°C to +70°C	20 Wide SO	2.0
MAX677ACJP	0°C to +70°C	20 Cerdip	1.0
MAX677AEPP	-40°C to +85°C	20 Plastic DIP	1.0
MAX677BEPP	-40°C to +85°C	20 Plastic DIP	2.0
MAX677AEWP	-40°C to +85°C	20 Wide SO	1.0
MAX677BEWP	-40°C to +85°C	20 Wide SO	2.0
MAX677AEJP	-40°C to +85°C	20 Cerdip	1.0
MAX677AMJP	-55°C to +125°C	20 Cerdip	1.5
MAX677BMJP	-55°C to +125°C	20 Cerdip	3.0
<b>MAX678</b> ACPP	0°C to +70°C	20 Plastic DIP	1.0
MAX678BCPP	0°C to +70°C	20 Plastic DIP	2.0
MAX678ACWP	0°C to +70°C	20 Wide SO	1.0
MAX678BCWP	0°C to +70°C	20 Wide SO	2.0
MAX678ACJP	0°C to +70°C	20 Cerdip	1.0
MAX678AEPP	-40°C to +85°C	20 Plastic DIP	1.0
MAX678BEPP	-40°C to +85°C	20 Plastic DIP	2.0
MAX678AEWP	-40°C to +85°C	20 Wide SO	1.0
MAX678BEWP	-40°C to +85°C	20 Wide SO	2.0
MAX678AEJP	-40°C to +85°C	20 Cerdip	1.0
MAX678AMJP	-55°C to +125°C	20 Cerdip	1.5
MAX678BMJP	-55°C to +125°C	20 Cerdip	3.0