



HC2700
HC2701
HC2702

+10V, 0V, and $\pm 10V$ Precision Voltage References

FEATURES

- Drop-in Replacements for AD2700 Series
- Initial Accuracy to Better Than 2.5 mV
- Tempcos to Better Than 3 ppm/°C
- Short Circuit Protected
- Standard 14 Pin Dual-in-Line Package
- Fully Compliant MIL-STD-883 Versions Available

APPLICATIONS

- High Accuracy D/A and A/D Converters
- High Resolution Servo Systems
- Precision Test and Measurement Systems
- Calibration Standards

DESCRIPTION

The HC2700 Series are Precision Voltage References that use Thin Film Hybrid technology to achieve extremely accurate, low temperature coefficient, 10 volt reference sources.

Nichrome Thin Film resistors on ceramic provide excellent characteristics: low absolute and tracking temperature coefficients, trimmable to high accuracy and superior long term stability.

Key specifications for the HC2700 Series include: untrimmed initial accuracy to 2.5 mV (0.025%) maximum, drifts over temperature to 3 ppm/°C maximum, and ± 5 mA drive minimum over the full operating temperature range. Line and load regulation are 300 $\mu V/V$ and 50 $\mu V/mA$ maximum and long term stability is also excellent, typically 100 ppm for 1000 hours at 25 °C.

The HC2700 Series includes internal power supply filter capacitors to insure continuous low noise operation.

Three basic versions are available, the HC2700 for +10 volt applications, the HC2701 for -10 volt applications and the HC2702 for applications requiring both +10 volt and -10 volt sources which track over temperature.

The HC2700 Series is packaged in standard 14 pin Dual-in-Line packages and 28 pin LCC. Models are available fully compliant to MIL-STD-883 for military and aerospace applications.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to + 150 C				
Operating Temperature	-55 C to +125 C				
+ Vcc Supply Voltage	0 to +20 Volts				
-Vcc Supply Voltage	0 to -20 Volts				
Reference Outputs	Short Circuit Protected to GND				
HC2700 SERIES — SPECIFICATIONS (Minimum or Maximum @ V _{CC} = ±15V,R _L = 2K, T _A = 25 C unless otherwise noted)					
MODEL	HC270xJD	HC270xLD	HC270xSD	HC270xUD	UNITS
Specification Temperature	-25 to +85	-25 to +85	-55 to +125	-55 to +125	C
OUTPUT VOLTAGE ERROR					
TA = 25 C					
HC2700 (+10.000V)	±0.0050	±0.0025	±0.0050	±0.0025	V
HC2701 (+10.000V)	Ei ±0.0050	±0.0025	±0.0050	±0.0025	V
HC2700 (+10.000V)	±0.0050	±0.0025	±0.0050	±0.0025	V
TMIN to TMAX (NOTE 1)					
HC2700, HC2701	±10.0	±3.0	±3.0	±3.0	ppm/ C
E	(±6.0)	(±1.8)	(±3.0)	(±3.0)	mV
ER _{MAX}	(±11.0)	(±4.3)	(±8.0)	(±5.5)	mV
HC2702,	±10.0	±5.0	±5	±3.0	ppm/ C
E	(±6.0)	(±3.0)	(±5.0)	(±3.0)	mV
ER _{MAX}	(±11.0)	(±5.5)	(±10.0)	(±5.5)	mV
OUTPUT CURRENT (Note 2)					
TA = 25 C					
HC2700,	+10	+10	+10	+10	mA
HC2701,	-10	-10	-10	-10	mA
HC2702,	±10	±10	±10	±10	mA
TMIN to TMAX					
HC2700,	+5	+5	+5	+5	mA
HC2701,	-5	-5	-5	-5	mA
HC2702,	±5	±5	±5	±5	mA
LINE REGULATION					
V _{cc} = ± 13.5V to V _{cc} = ± 16.5V	300	300	300	300	µV/V
LOAD REGULATION					
0 to ± 10 mA	50	50	50	50	µV/mA
OUTPUT RESISTANCE					
All Types	0.05	0.05	0.05	0.05	Ohms
SUPPLY REQUIREMENTS					
Vcc Range					
HC2700	+13 to +18	+13 to +18	+13 to +18	+13 to +18	V
HC2701	-13 to -18	-13 to -18	-13 to -18	-13 to -18	V
HC2702	±13 to ±18	±13 to ±18	±13 to ±18	±13 to ±18	V
ICC Quiescent					
HC2700	+9	+9	+9	+9	mA
HC2701	-9	-9	-9	-9	mA
HC2702	+9,-3	+9,-3	+9,-3	+9,-3	mA