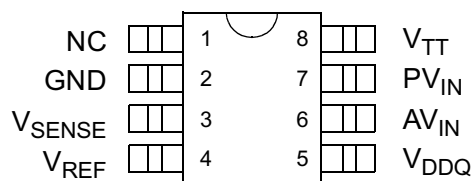




PACKAGE / PINOUT DIAGRAM

TOP VIEW



8-pin Power SOIC

Note: This drawing is not to scale.

PIN DESCRIPTIONS

SOIC-8		
PIN(S)	NAME	DESCRIPTION
1	NC	No Connect
2	GND	Ground
3	V _{SENSE}	Feedback
4	V _{REF}	Reference Output, V _{DDQ} /2
5	V _{DDQ}	V _{DDQ} Input
6	A _V _{IN}	Analog Input
7	P _V _{IN}	Power Input
8	V _{TT}	Output

Ordering Information

PART NUMBERING INFORMATION

Pins	Package	Ordering Part Number ²	Part Marking
8	SOIC-8	CM3106-12SN	CM3106-12SN

Note 1: Parts are shipped in Tape & Reel form unless otherwise specified.



Specifications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNITS
AV_{IN} Operating Supply Voltage	7	V
V_{DDQ} Input Voltage	7	V
Pin Voltages		
V_{TT} Output	7	V
Any other pins	7	V
ESD (HBM)	2	kV
Storage Temperature Range	-40 to +150	°C
Operating Temperature Range		
Ambient	0 to +70 (see note1)	°C
Junction	0 to +150	°C
Power Dissipation	Internally Limited	W

Note 1: These devices must be derated based on thermal resistance at elevated temperatures. The device packaged in a 8-pin SOIC leadframe must be derated at $\theta_{JA} = 151^{\circ}\text{C}$. Please consult with factory for thermal evaluation assistance.

STANDARD OPERATING CONDITIONS

PARAMETER	VALUE	UNITS
V_{DDQ}	2.5	V
AV_{IN}	2.5	V
PV_{IN}	2.5	V
Ambient Operating Temperature	25	°C
C_{OUT}	220 $\pm$ 20%	μF

ELECTRICAL OPERATING CHARACTERISTICS¹

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{IN}	Input Voltage Range		2.2	2.5	AV_{IN}	V
			2.2	2.5	5.5	V
I_{CC}	AV_{IN} Quiescent Current	$I_{VTT} = 0\text{A}$		450		μV
V_{RLOAD}	Load Regulation	$0\text{A} \leq I_{VTT} \leq 1.5\text{A}$ or $-1.5\text{A} \leq I_{VTT} \leq 0\text{A}$		6.25		mV
V_{REF}	Output Reference Voltage	$V_{DDQ}=2.5\text{V}$, $I_{VREF}=0\text{A}$	1.225	1.25	1.275	V
VOS_{VTT}	Output Offset from V_{REF}		-20		20	mV
Z_{VREF}	V_{REF} Output Impedance	$-5\mu\text{A} \leq I_{VREF} \leq 5\mu\text{A}$		5		k Ω
Z_{VDDQ}	V_{VDDQ} Input Impedance			100		k Ω
I_{LIM}	V_{TT} Current Limit			2.5		A
$T_{DISABLE}$	Shutdown Temperature			150		°C
T_{HYST}	Thermal Hysteresis			50		°C

Note 1: Operating Characteristics are over Standard Operating Conditions unless otherwise specified.



Performance Information

Typical DC Characteristics (nominal conditions unless otherwise specified)

Output Voltage with Supply (VDDQ=2.5V)

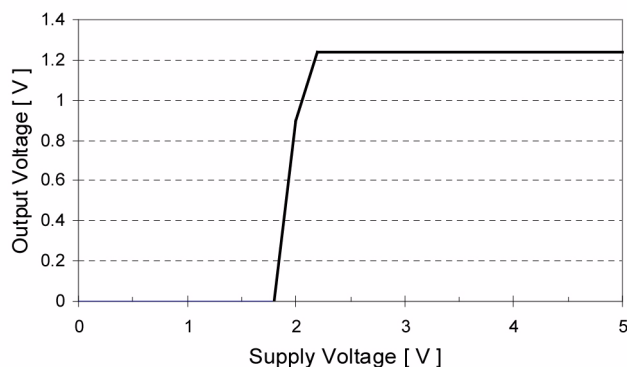


Figure 1. V_{TT} vs. AV_{IN}

Load Regulation (Sink)

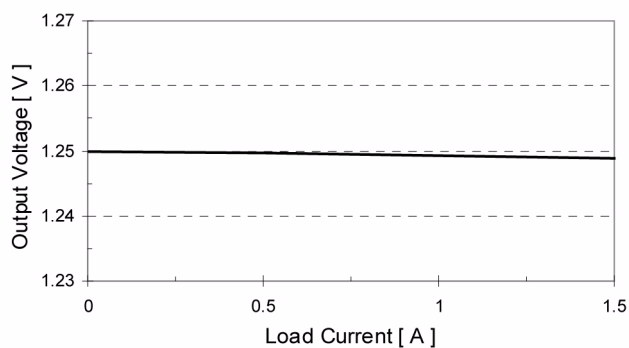


Figure 4. V_{TT} vs. I_{LOAD} (sink)

Reference Voltage with Supply (VDDQ=2.5V)

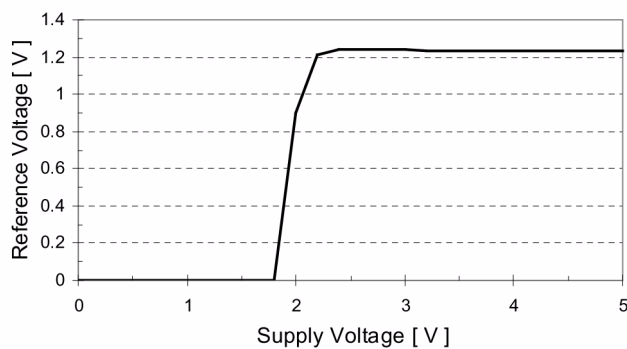


Figure 2. V_{REF} vs. AV_{IN}

Load Regulation (Source)

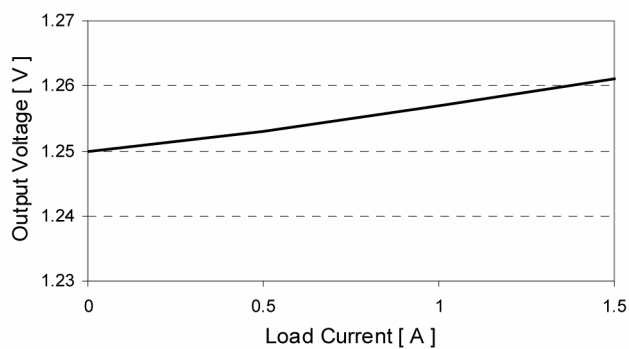


Figure 5. V_{TT} vs. I_{LOAD} (source)

Supply Current with Supply Voltage

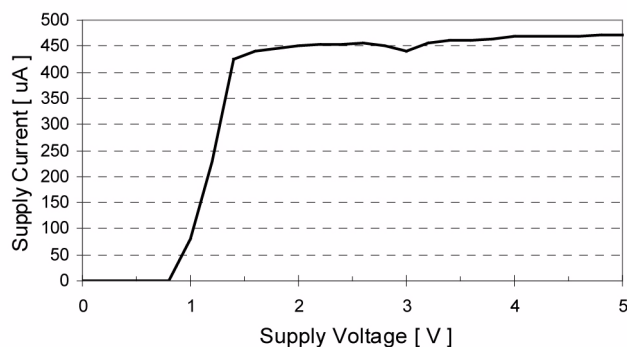


Figure 3. I_{CC} vs. AV_{IN}

Performance Information (cont'd)

Transient Characteristics (nominal conditions unless otherwise specified)

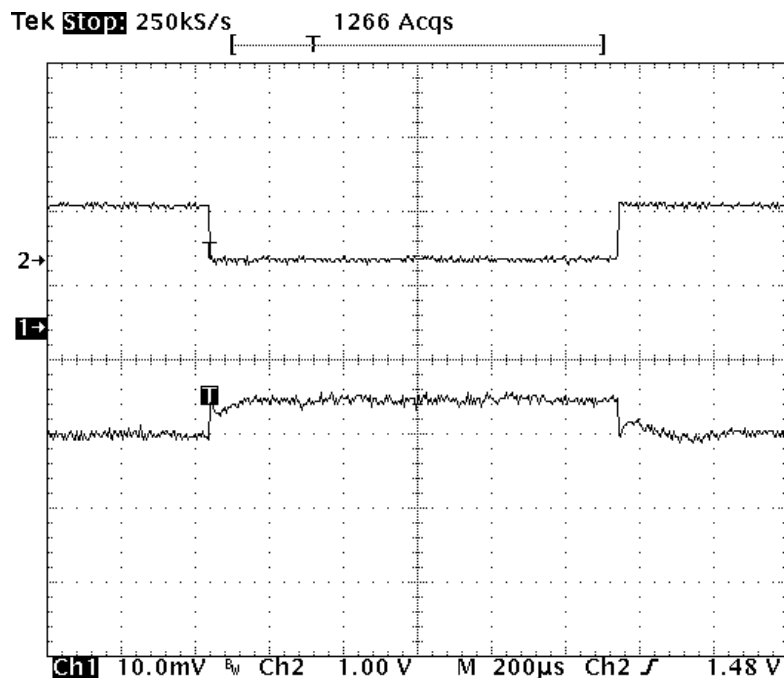


Figure 6. Load Transient Response (0 to 150mA Sink)

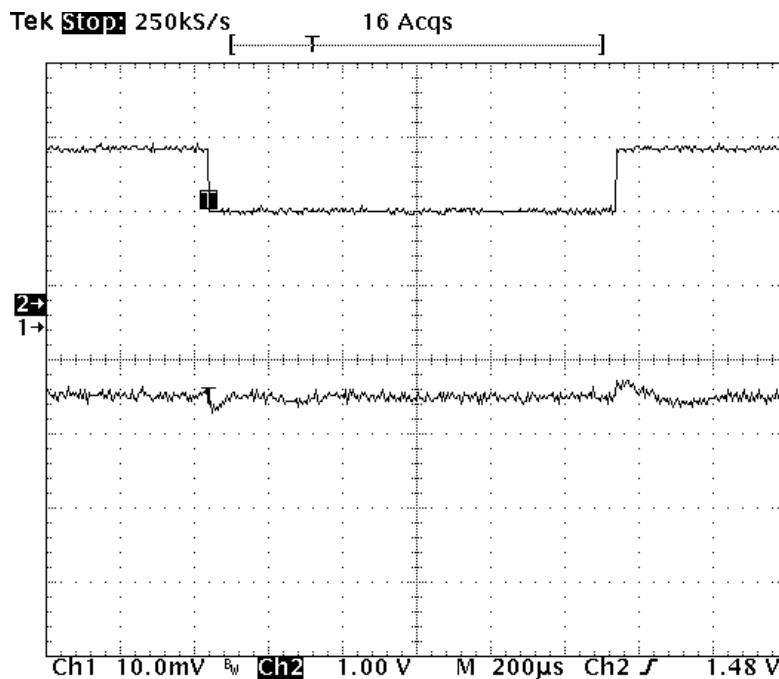


Figure 7. Load Transient Response (0 to 150mA Source)



Performance Information (cont'd)

Transient Characteristics (nominal conditions unless otherwise specified)

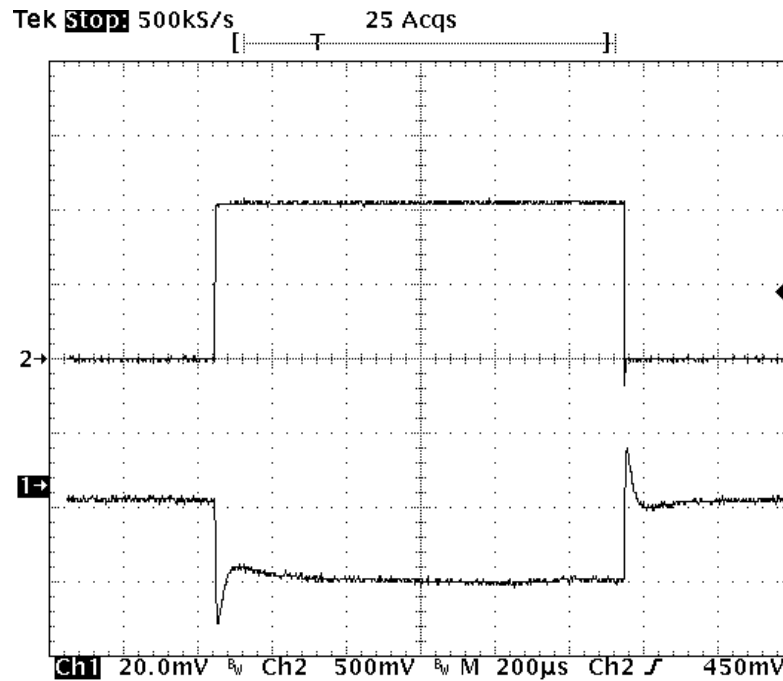


Figure 8. Load Transient Response (0 to 1.5A Sink)

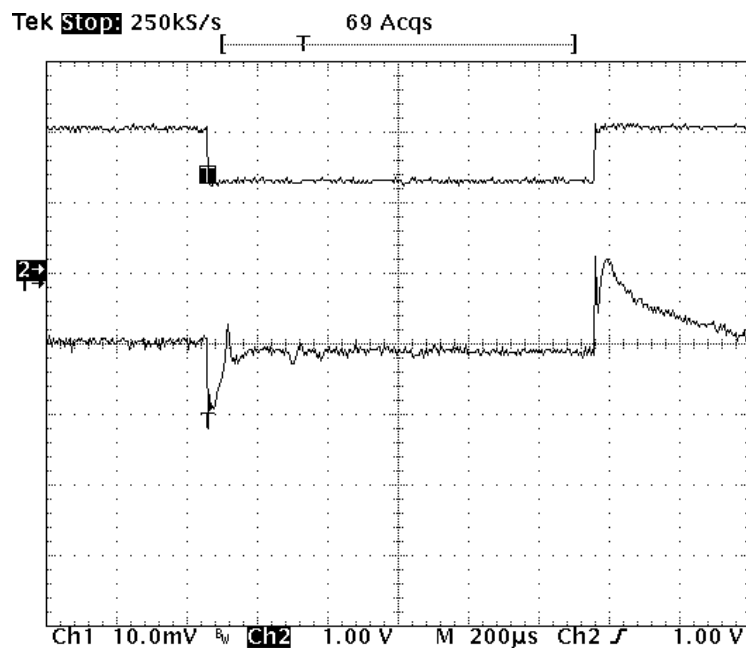


Figure 9. Load Transient Response (0 to 1.5A Source)



Performance Information (cont'd)

Thermal Characteristics (nominal conditions unless otherwise specified)

Reference Voltage over Temperature

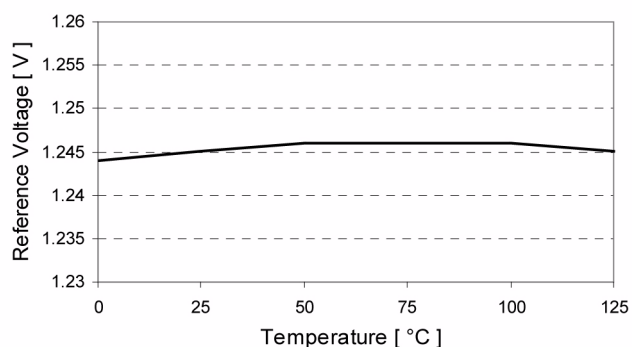


Figure 10. V_{REF} vs. Temperature

Supply Current over Temperature

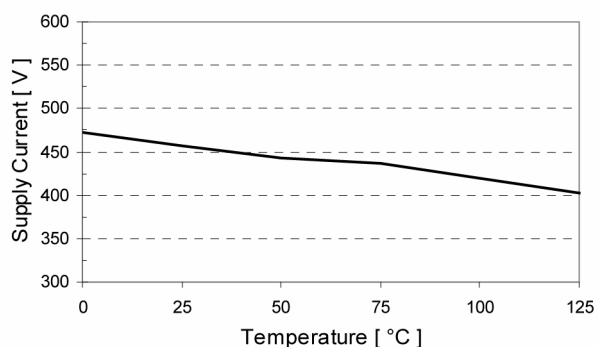


Figure 12. I_{CC} vs. Temperature

Output Voltage over Temperature (5mA Load)

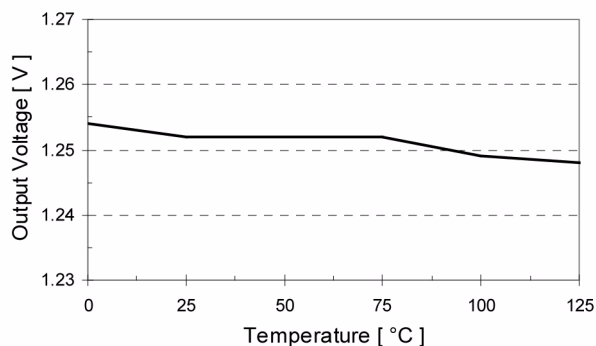


Figure 11. V_{TT} vs. Temperature



Application Information

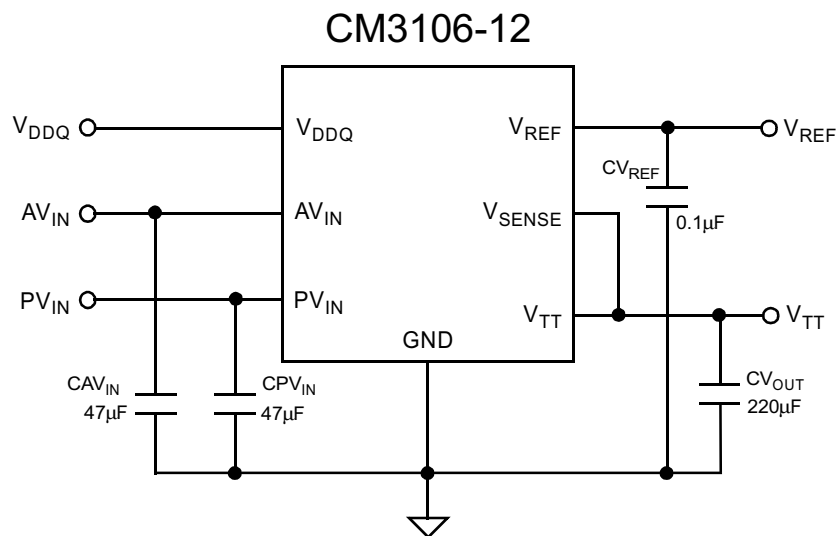


Figure 13. Typical Application Circuit



Mechanical Details

The CM3106 is available in an 8-pin SOIC package.

SOIC-8 Mechanical Specifications

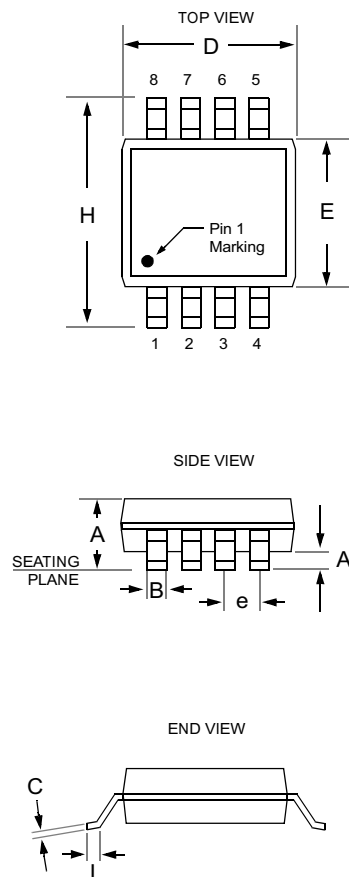
Dimensions for CM3106 devices packaged in 8-pin SOIC packages are presented below.

For complete information on the SOIC-8 package, see the California Micro Devices SOIC Package Information document.

PACKAGE DIMENSIONS				
Package	SOIC			
Pins	8			
Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A ₁	0.10	0.25	0.004	0.010
B	0.33	0.51	0.013	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	3.80	4.19	0.150	0.165
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
L	0.40	1.27	0.016	0.050
# per tube	100 pieces*			
# per tape and reel	2500 pieces			
Controlling dimension: inches				

* This is an approximate number which may vary.

Mechanical Package Diagrams



Package Dimensions for SOIC-8