

# BIPOLAR ANALOG INTEGRATED CIRCUITS

## $\mu$ PC1060C, $\mu$ PC1060D

### PRECISION VOLTAGE REFERENCES

#### GENERAL DESCRIPTION

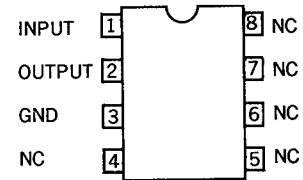
The  $\mu$ PC1060 are high accuracy and low drift voltage references of 2.5 V output voltage.

These ICs can operate under wide range input voltage, and applied for 8 to 12 bits D/A converters and A/D systems.

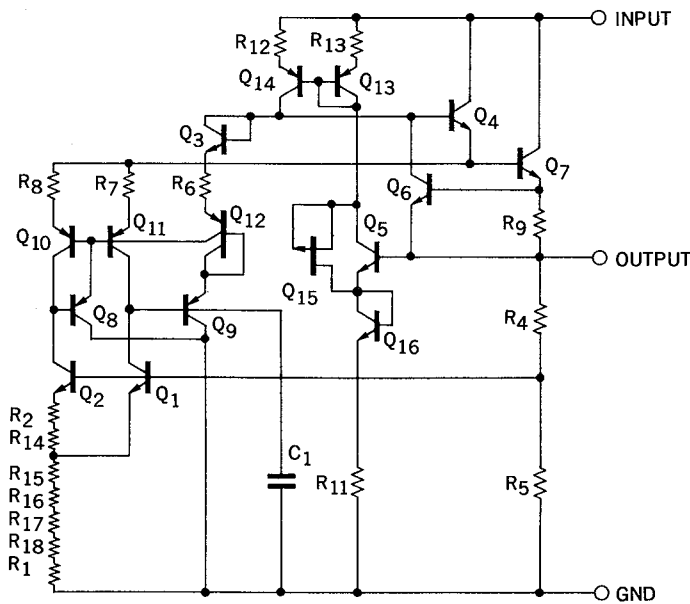
#### FEATURES

- High Accuracy  $V_O = 2.5 \text{ V} \pm 1 \%$
- Low Temperature Coefficient  $\Delta V_O / \Delta T \leq 40 \text{ ppm}/^\circ\text{C}$
- Low Supply Current  $I_{CC} \leq 1.5 \text{ mA}$

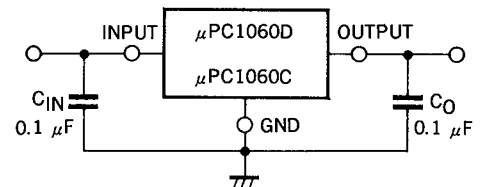
#### CONNECTION DIAGRAM (Top View)



#### EQUIVALENT CIRCUIT



#### TYPICAL CONNECTION FOR TESTING



**ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )**

		$\mu$ PC1060C	$\mu$ PC1060D	
Input Voltage	$V_{IN}$	40	40	V
Power Dissipation	$P_T$	350	500	mW
Operating Temperature Range	$T_{opt}$	-20 to +70	-20 to +80	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +125	-55 to +150	$^\circ\text{C}$

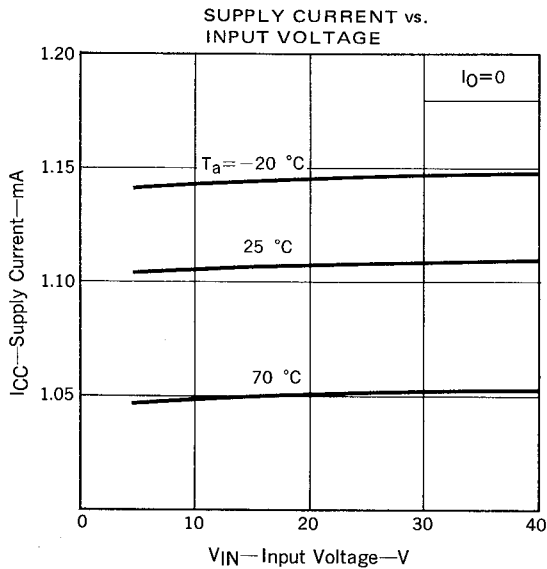
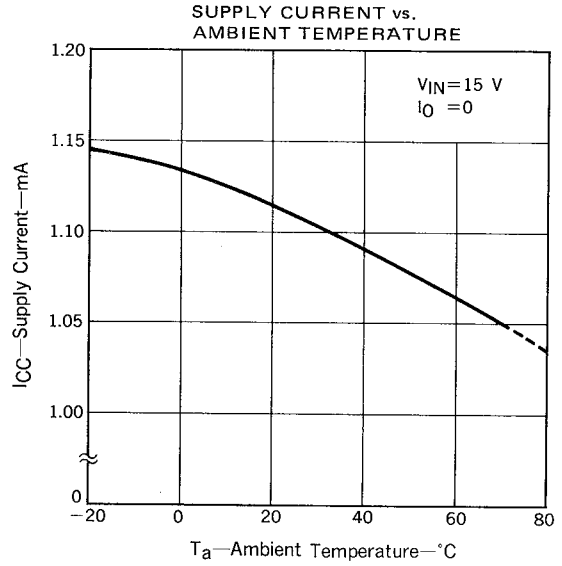
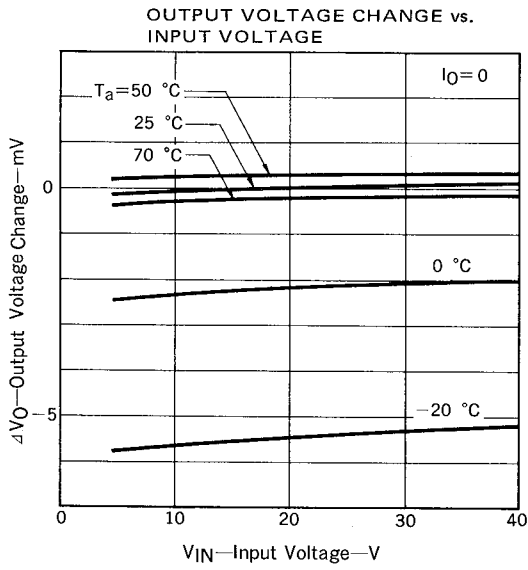
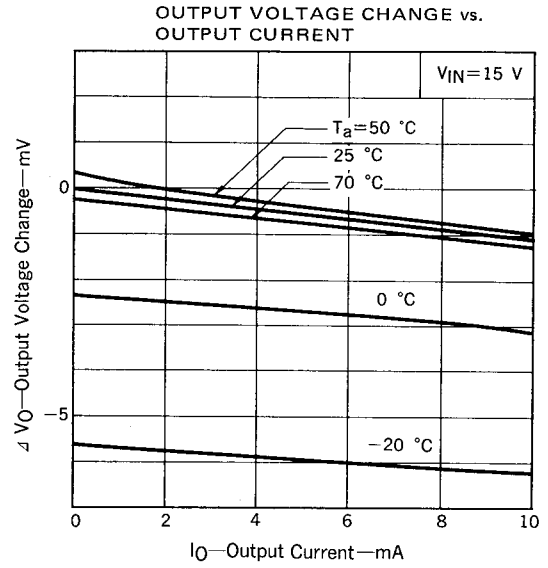
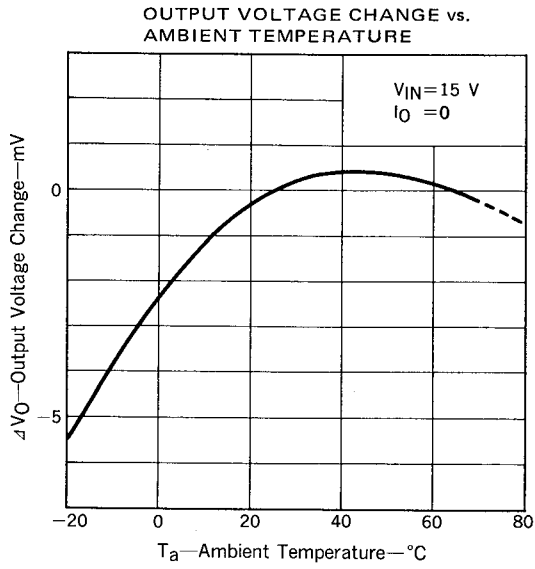
**RECOMMENDED OPERATING CONDITIONS**

PARAMETER	SYMBOL	APPLIED DEVICE	MIN.	TYP.	MAX.	UNIT
Input Voltage Range	$V_{IN}$	ALL	4.5		40	V
Output Current	$I_O$	ALL	0		10	mA
Power Dissipation	$P_d$	$\mu$ PC1060C			270	mW
		$\mu$ PC1060D			350	mW
Operating Temperature	$T_{opt}$	$\mu$ PC1060C	-20		+70	$^\circ\text{C}$
		$\mu$ PC1060D	-20		+80	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ ,  $V_{IN} = +15\text{V}$ ,  $I_o = 0$ )**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITION
Output Voltage	$V_O$	2.475	2.500	2.525	V	
Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$			40	ppm/ $^\circ\text{C}$	$0^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$
Output Voltage Change	$\Delta V_O$			7.0	mV	$0^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$
Line Regulation	$REG_{IN}$			4.5	mV	$15\text{V} \leq V_{IN} \leq 40\text{V}$
				3.0		$4.5\text{V} \leq V_{IN} \leq 15\text{V}$
Load Regulation	$REG_L$			10	mV	$0 \leq I_o \leq 10\text{mA}$
Supply Current	$I_{CC}$			1.5	mA	
Ripple Rejection Ratio	RR		90		dB	$5\text{V} \leq V_{IN} \leq 15\text{V}$ , $I_o = 0$ , $f = 120\text{Hz}$
Output Noise Voltage	$V_n$		80		$\mu\text{V}_{p-p}$	$4.5\text{V} \leq V_{IN} \leq 40\text{V}$ , $0 \leq I_o \leq 10\text{mA}$
Output Short Circuit Current	$I_{O\text{ short}}$		17		mA	$V_O = 0$

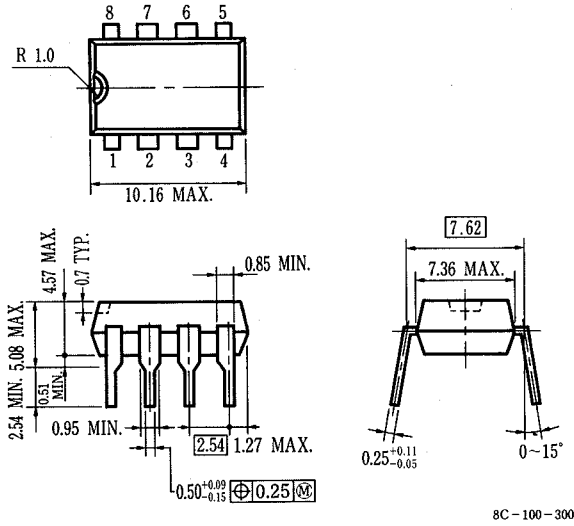
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



PACKAGE DIMENSIONS (Unit : mm)

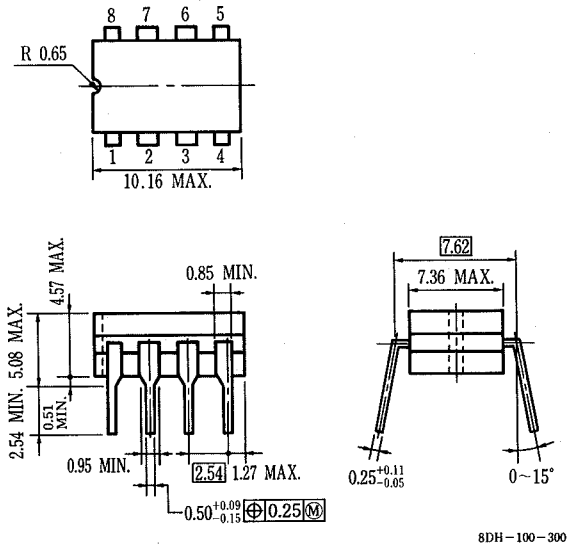
$\mu$ PC 1060C

8 PIN PLASTIC DIP (C Package)



$\mu$ PC 1060D

8 PIN CERAMIC DIP (D Package)



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