

# BIPOLAR ANALOG INTEGRATED CIRCUIT

# $\mu$ PC1060

## 2.5 V HIGH PRECISION REFERENCE VOLTAGE CIRCUIT

### DESCRIPTION

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

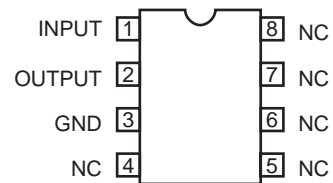
This IC can operate under wide range input voltage, and applied for 8 to 12 bits D/A converters.

### ★ 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  $I_{cc} \leq 1.5 \text{ mA}$
- Wide Supply Voltage Range  $4.5 \text{ V} \leq V_{IN} \leq 40 \text{ V}$
- Low Load Regulation  $REG_L \leq 10 \text{ mV}$

### PIN CONFIGURATION

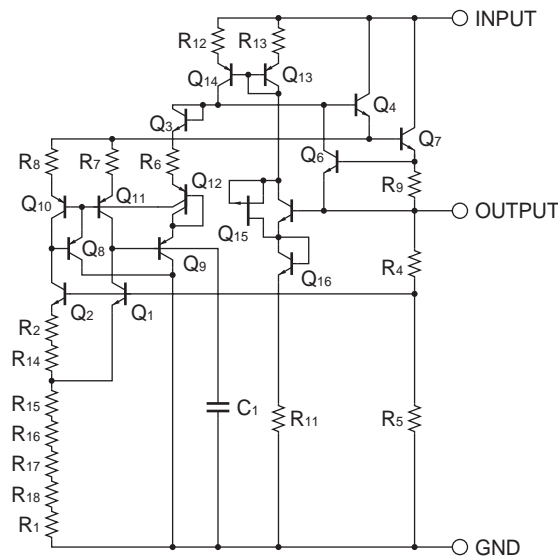
8-pin plastic DIP (7.62 mm (300))  
 $\mu$  PC1060C



### ★ ORDERING INFORMATION

Part Number	Package
$\mu$ PC1060C	8-pin plastic DIP (7.62 mm (300))

### EQUIVALENT CIRCUIT



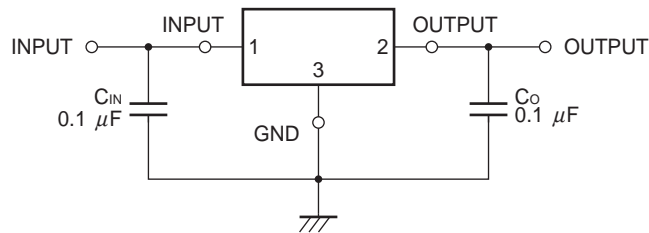
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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25 °C, unless otherwise specified.)**

Parameter	Symbol	Ratings	Unit
Input Voltage	V <sub>IN</sub>	-0.3 to +40	V
Total Power Dissipation	P <sub>T</sub>	350	mW
Operating Ambient Temperature	T <sub>A</sub>	-20 to +70	°C
Storage Temperature	T <sub>stg</sub>	-55 to +125	°C

**Caution** Product quality may suffer if the absolute maximum rating is exceeded even momentarily for any parameter. That is the absolute maximum ratings are rated values at which the product is on the verge of suffering physical damage, and therefore the product must be used under conditions that ensure that the absolute maximum ratings are not exceeded.

**TYPICAL CONNECTION**



**RECOMMENDED OPERATING CONDITIONS**

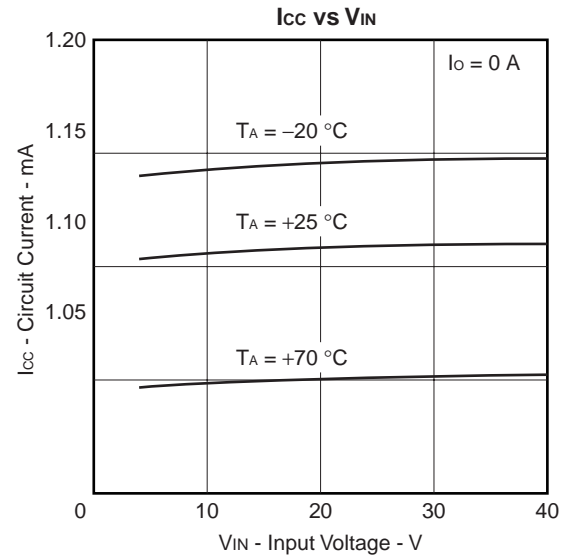
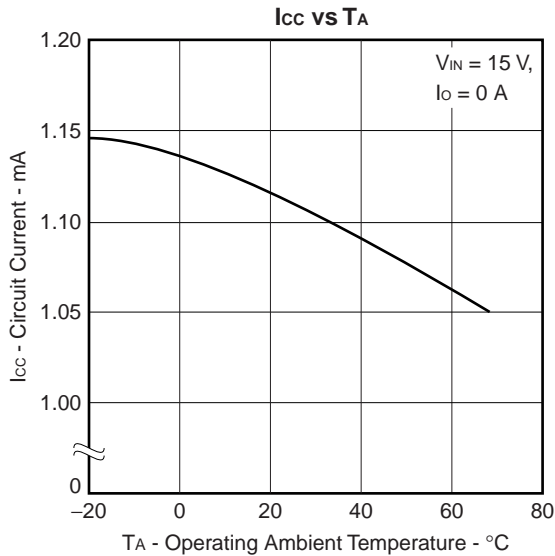
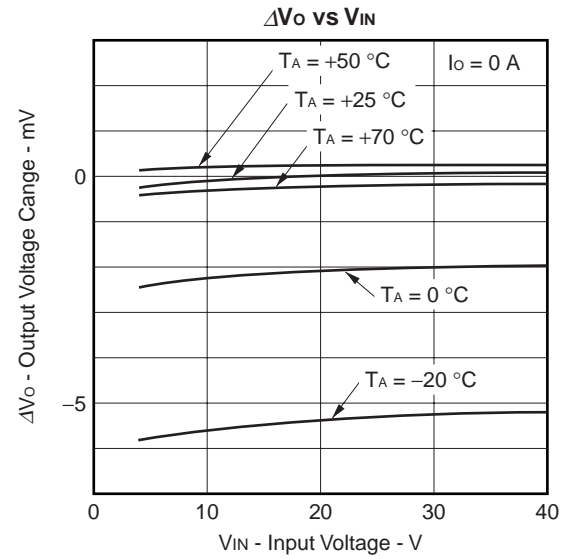
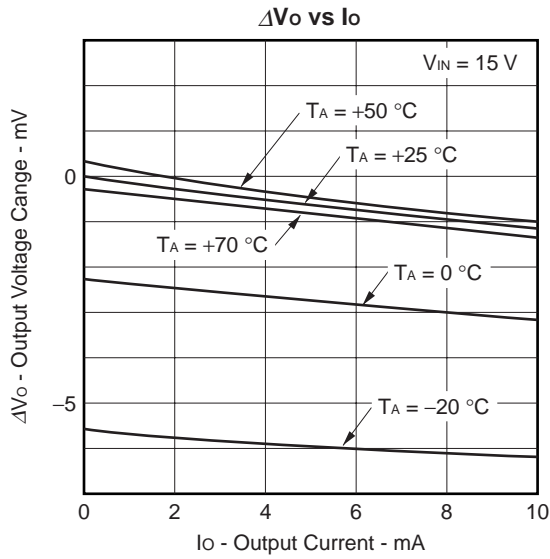
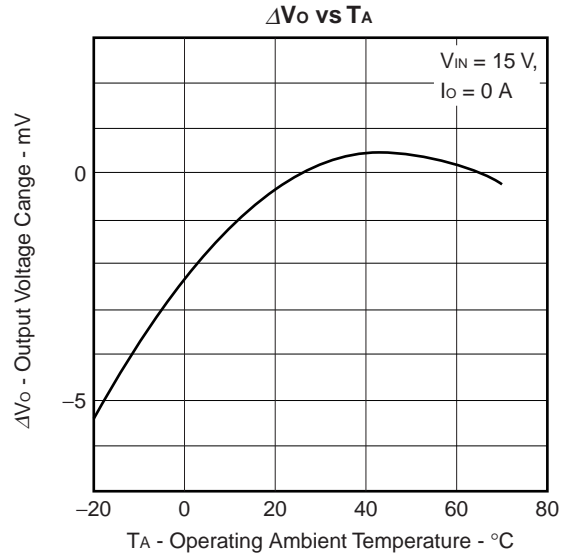
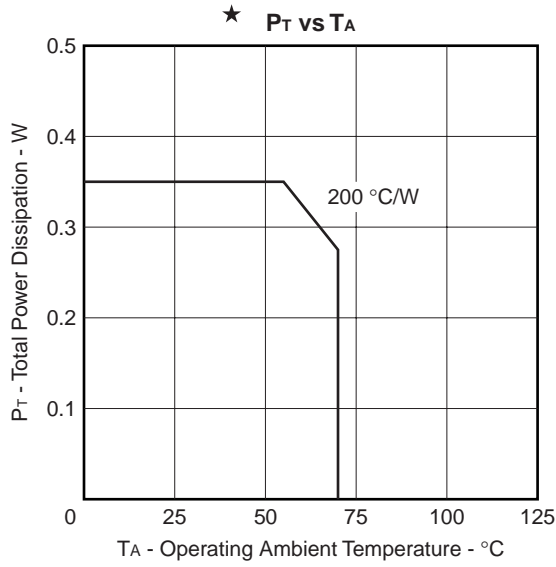
Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Input Voltage	V <sub>IN</sub>	4.5		40	V
Output Current	I <sub>O</sub>	0		10	mA
Internal Power Dissipation	P <sub>D</sub>			270	mW
Operating Ambient Temperature	T <sub>A</sub>	-20		+70	°C

**Caution** The recommended operating range may be exceeded without causing any problems provided that the absolute maximum ratings are not exceeded. However, if the device is operated in a way that exceeds the recommended operating conditions, the margin between the actual conditions of use and the absolute maximum ratings is small, and therefore thorough evaluation is necessary. The recommended operating conditions do not imply that the device can be used with all values at their maximum values.

**ELECTRICAL CHARACTERISTICS ( $V_{IN} = 15\text{ V}$ ,  $I_o = 0\text{ A}$ ,  $T_A = +25\text{ °C}$ , unless otherwise specified.)**

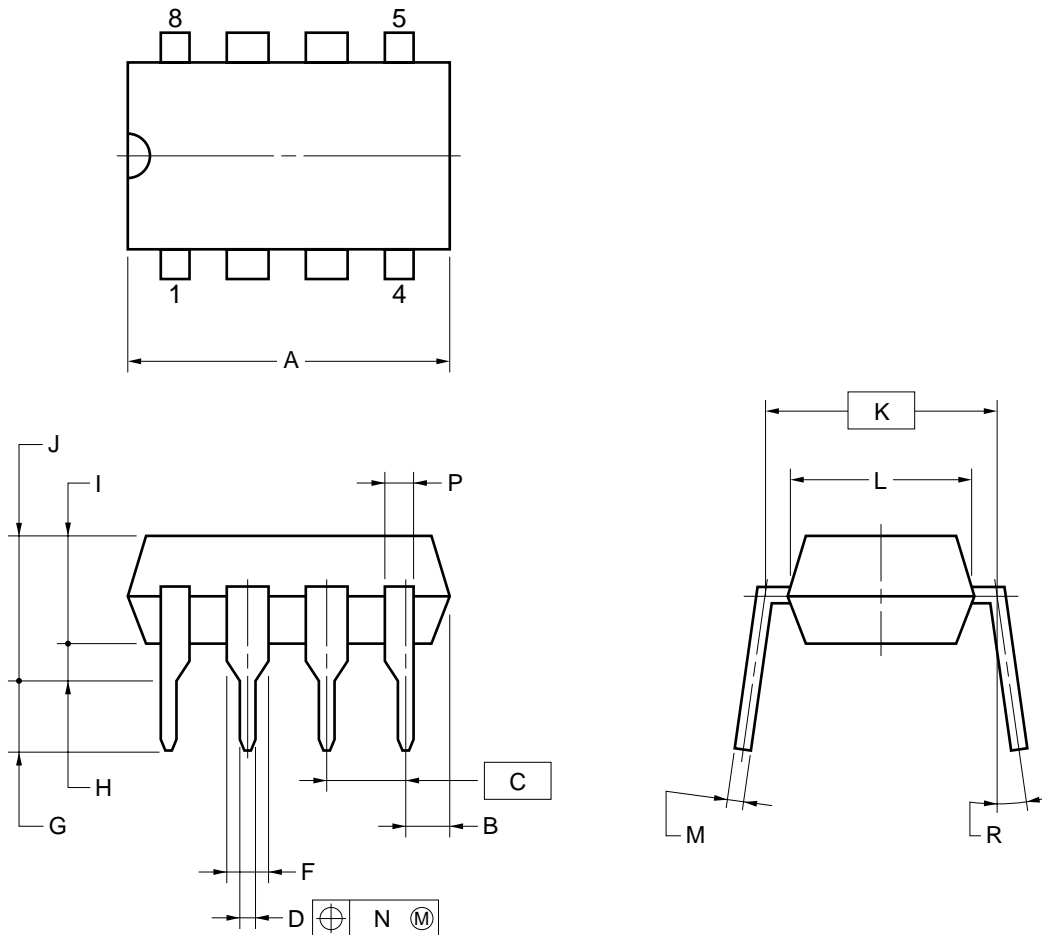
Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Output Voltage	$V_o$		2.475	2.5	2.525	V
Output Voltage Change	$\Delta V_o$	$0\text{ °C} \leq T_A \leq 70\text{ °C}$			7.0	mV
Temperature Coefficient of Output Voltage	$\Delta V_o/\Delta T$	$0\text{ °C} \leq T_A \leq 70\text{ °C}$			40	ppm/°C
Line Regulation	REG <sub>IN</sub>	$15\text{ V} \leq V_{IN} \leq 40\text{ V}$			4.5	mV
		$4.5\text{ V} \leq V_{IN} \leq 15\text{ V}$			3.0	mV
Load Regulation	REG <sub>L</sub>	$0\text{ A} \leq I_o \leq 10\text{ mA}$			10	mV
Ripple Rejection	R•R	$5\text{ V} \leq V_{IN} \leq 40\text{ V}$ , $f = 120\text{ Hz}$		90		dB
Output Noise Voltage	$V_n$	$4.5\text{ V} \leq V_{IN} \leq 40\text{ V}$ , $0\text{ A} \leq I_o \leq 10\text{ mA}$ , $P_T \leq 350\text{ mW}$		80		$\mu\text{ V}_{p-p}$
Short Circuit Current	$I_{o\text{short}}$	$V_o = 0\text{ V}$		17		mA
Circuit Current	$I_{cc}$				1.5	mA

TYPICAL CHARACTERISTIC ( $T_A = +25\text{ }^\circ\text{C}$ , unless otherwise specified. Nominal)



PACKAGE DRAWING

8-PIN PLASTIC DIP (7.62mm(300))



NOTES

1. Each lead centerline is located within 0.25 mm of its true position (T.P.) at maximum material condition.
2. Item "K" to center of leads when formed parallel.

ITEM	MILLIMETERS
A	10.16 MAX.
B	1.27 MAX.
C	2.54 (T.P.)
D	0.50±0.10
F	1.4 MIN.
G	3.2±0.3
H	0.51 MIN.
I	4.31 MAX.
J	5.08 MAX.
K	7.62 (T.P.)
L	6.4
M	0.25 <sup>+0.10</sup> <sub>-0.05</sub>
N	0.25
P	0.9 MIN.
R	0~15°

P8C-100-300B,C-2

★ **RECOMMENDED SOLDERING CONDITIONS**

When soldering this product, it is highly recommended to observe the conditions as shown below.

If other soldering processes are used, or if the soldering is performed under different conditions, please make sure to consult with our sales offices.

For more details, refer to our document “**Semiconductor Device Mounting Technology Manual**” (C10535E).

**Type of Through-hole Device**

**μ PC1060C : 8-pin plastic DIP (7.62 mm (300))**

Process	Conditions
Wave soldering (only to leads)	Solder temperature: 260°C or below, Flow time: 10 seconds or less.

**Caution** For through-hole device, the wave soldering process must be applied only to leads, and make sure that the package body does not get jet soldered.

**REFERENCE DOCUMENTS**

Semiconductor Device Mounting Technology Manual	C10535E
Semiconductor Selection Guide -Products and Packages-	X13769X

[MEMO]

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