

## Product Change Notice

**Issue Date: 08 Mar 2019**

**Change Type:**

1. IC change
2. Product specifications change

**Parts Affected:**

ACPL-C740
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All associated options and specials will also be affected. See Appendix for full part number list.

**Description and Extent of Change:**

Change in IC.

**Reasons for Change:**

Product Improvement.

**Effect of Change on Fit, Form, Function, Quality, or Reliability:**

Electrical characteristics below are improved with this new IC.

Integral Nonlinearity, INL	Min.	Typ	Max.	Unit	Test Conditions
Current Specification	-32	5	+32	LSB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$
New Specification	<b>-16</b>	<b>±5</b>	<b>+16</b>	LSB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$

Offset Drift vs. Temperature, $TCV_{OS}$	Min.	Typ	Max.	Unit	Test Conditions
Current Specification		0.8	2.0	$\mu\text{V}/^\circ\text{C}$	$V_{DD1} = 5\text{V}, R_{sense} = 0\Omega.$
New Specification		<b>0.3</b>	<b>1.0</b>	$\mu\text{V}/^\circ\text{C}$	$V_{DD1} = 5\text{V}, R_{sense} = 0\Omega.$

Input Bias Current, $R_{IN}$	Min.	Typ	Max.	Unit	Test Conditions
Current Specification		13.5		K $\Omega$	Across $V_{IN+}$ or $V_{IN-}$ to GND1.
New Specification		<b>12.5</b>		K $\Omega$	Across $V_{IN+}$ or $V_{IN-}$ to GND1.

Signal-to-Noise Ratio, SNR	Min.	Typ	Max.	Unit	Test Conditions
Current Specification	65	83		dB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$
New Specification	<b>75</b>	<b>86</b>		dB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$

Signal-to-(Noise + Distortion) Ratio, SNDR	Min.	Typ	Max.	Unit	Test Conditions
Current Specification	62	80		dB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$
New Specification	<b>65</b>	<b>75</b>		dB	$T_A = -40^\circ\text{C to } +110^\circ\text{C}$

Output High Voltage, $V_{OH}$	Min.	Typ	Max.	Unit	Test Conditions
Current Specification	$V_{DD2}$ -0.6	$V_{DD2}$ -0.2		V	$I_{OUT} = -4\text{ mA}.$
New Specification	<b><math>V_{DD2}</math></b> <b>-0.4</b>	$V_{DD2}$ -0.2		V	$I_{OUT} = -4\text{ mA}.$

Output Low Voltage, $V_{OL}$	Min.	Typ	Max.	Unit	Test Conditions
Current Specification		0.2	0.6	V	$I_{OUT} = +4\text{ mA}.$
New Specification		0.2	<b>0.4</b>	V	$I_{OUT} = +4\text{ mA}.$

V <sub>DD2</sub> Supply Current, I <sub>DD2</sub>	Min.	Typ	Max.	Unit	Test Conditions
Current Specification		8	12	mA	V <sub>DD2</sub> = 5V supply.
		6.5	9.5	mA	V <sub>DD2</sub> = 3.3V supply.
New Specification		<b>9</b>	12	mA	V <sub>DD2</sub> = 5V supply.
		<b>7.5</b>	9.5	mA	V <sub>DD2</sub> = 3.3V supply.

Modulator Clock Output Frequency, f <sub>MCLK</sub>	Min.	Typ	Max.	Unit	Test Conditions	Note
Current Specification	18	20	22	MHz	C <sub>L</sub> = 15 pF, Clock duty cycle 40% to 60%	
New Specification	18	20	22	MHz	<b>C<sub>L</sub> = 15 pF</b>	<b>a</b>
	<b>19</b>	<b>20</b>	<b>21</b>	MHz	<b>C<sub>L</sub> = 15 pF, T<sub>A</sub> = 25°C</b>	<b>a</b>

a. f<sub>MCLK</sub> specification is based on average value which is equal to SDM CLK

Data Setup Time after MCLK Rising Edge, t <sub>s</sub>	Min.	Typ	Max.	Unit	Test Conditions/Notes
Current Specification	25	38		ns	C <sub>L</sub> = 15 pF
New Specification	<b>15</b>	<b>32</b>		ns	C <sub>L</sub> = 15 pF

Data Hold Time after MCLK Rising Edge, t <sub>H</sub>	Min.	Typ	Max.	Unit	Test Conditions/Notes
Current Specification	5			ns	C <sub>L</sub> = 15 pF
New Specification	5	<b>13</b>		ns	C <sub>L</sub> = 15 pF

Appropriate electrical characterization and reliability qualification have been performed on representative products to insure normal parametric distribution, consistent electrical performance, and reliability.

No change is required in customer's existing application to use the parts with these changes.

**Effective Date of Change:**

Product shipments using this change will begin with date-code starting from 1915 (yyww).

Timing of shipment of the changed part will vary by part number depending on qualification completion, customer demand, and inventory levels.

**Qualification Data:**

Qualification data has been generated and approved.

**Appendix:**

<b>Affected Part Numbers</b>
ACPL-C740-000E
ACPL-C740-500E
ACPL-C740-000ME
ACPL-C740-500ME

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These changes have been reviewed and approved by Broadcom Limited engineers and managers per Broadcom Limited' procedure: Change Control and Customer Notification, 5962-6052-80.

Please contact your Broadcom Limited field sales for any questions or support requirements. Please return any response as soon as possible, but not to exceed 30 days.