

True table

	Binary 4-Bit					Segment 1									Segment 2							
	3A	2B	1C	0D		a ₁	b ₁	c ₁	d ₁	e ₁	f ₁	g ₁		a ₂	b ₂	c ₂	d ₂	e ₂	f ₂	g ₂		
0	0	0	0	0		1	1	1	1	1	1	0		1	1	1	1	1	1	0		
1	0	0	0	1		1	1	1	1	1	1	0		0	1	1	0	0	0	0		
2	0	0	1	0		1	1	1	1	1	1	0		1	1	0	1	1	0	1		
3	0	0	1	1		1	1	1	1	1	1	0		1	1	1	1	0	0	1		
4	0	1	0	0		1	1	1	1	1	1	0		0	1	1	0	0	1	1		
5	0	1	0	1		1	1	1	1	1	1	0		1	0	1	1	0	1	1		
6	0	1	1	0		1	1	1	1	1	1	0		0	0	1	1	1	1	1		
7	0	1	1	1		1	1	1	1	1	1	0		1	1	1	0	0	0	0		
8	1	0	0	0		1	1	1	1	1	1	0		1	1	1	1	1	1	1		
9	1	0	0	1		1	1	1	1	1	1	0		1	1	1	0	0	1	1		
10	1	0	1	0		0	1	1	0	0	0	0		1	1	1	1	1	1	0		
11	1	0	1	1		0	1	1	0	0	0	0		0	1	1	0	0	0	0		
12	1	1	0	0		0	1	1	0	0	0	0		1	1	0	1	1	0	1		
13	1	1	0	1		0	1	1	0	0	0	0		1	1	1	1	0	0	1		
14	1	1	1	0		0	1	1	0	0	0	0		0	1	1	0	0	1	1		
15	1	1	1	1		0	1	1	0	0	0	0		1	0	1	1	0	1	1		

KV-Diagrams

a ₁ / d ₁	A		\bar{A}		e ₁ / f ₁
B	0	0	1	1	\bar{D}
	0	0	1	1	D
\bar{B}	1	0	1	1	
	1	0	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$a_1 = d_1 = e_1 = f_1 = \bar{A} + \bar{B}\bar{C}$$

b ₁ / c ₁	A		\bar{A}		
B	1	1	1	1	\bar{D}
	1	1	1	1	D
\bar{B}	1	1	1	1	
	1	1	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$b_1 = c_1 = A + \bar{A}$$

a ₂	A		\bar{A}		
B	1	0	0	0	\bar{D}
	1	1	1	1	D
\bar{B}	1	0	1	0	
	1	1	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$a_2 = A\bar{C} + BD + \bar{B}\bar{D} + \bar{A}\bar{B}C$$

c ₂	A		\bar{A}		
B	0	1	1	1	\bar{D}
	1	1	1	1	D
\bar{B}	1	1	1	1	
	1	1	0	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$c_2 = D + \bar{A}\bar{C} + BC + A\bar{B}$$

e ₂	A		\bar{A}		
B	1	0	1	0	\bar{D}
	0	0	0	0	D
\bar{B}	0	0	0	0	
	1	1	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$e_2 = \bar{B}\bar{D} + \bar{A}\bar{D}C + \bar{C}\bar{D}A$$

b ₂	A		\bar{A}		
B	1	1	0	1	\bar{D}
	1	0	1	0	D
\bar{B}	1	1	1	1	
	1	1	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$b_2 = \bar{B} + A\bar{C} + CD\bar{A} + \bar{C}\bar{D} + ABD$$

d ₂	A		\bar{A}		
B	1	0	1	0	\bar{D}
	1	1	0	1	D
\bar{B}	0	0	1	0	
	1	1	1	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$d_2 = \bar{D}\bar{B} + \bar{A}\bar{B}C + ABD + ABC + B\bar{D}C + \bar{A}\bar{D}C$$

f ₂	A		\bar{A}		
B	0	1	1	1	\bar{D}
	0	1	0	1	D
\bar{B}	1	0	0	0	
	1	1	0	1	\bar{D}
	\bar{C}	C		\bar{C}	

$$f_2 = \bar{A}\bar{D}B + ABC + \bar{A}\bar{C}B + \bar{C}\bar{B}A + \bar{B}\bar{D}A + \bar{B}\bar{C}\bar{D}$$

g_2	A		\bar{A}		
B	1	1	1	1	\bar{D}
	1	1	0	1	D
\bar{B}	1	0	1	0	
	1	0	1	0	\bar{D}
	\bar{C}	C		\bar{C}	

$$g_2 = AB + B\bar{D} + B\bar{C} + C\bar{A}\bar{B} + A\bar{C}$$