HEWLETT PACKARD
COMPONENTS

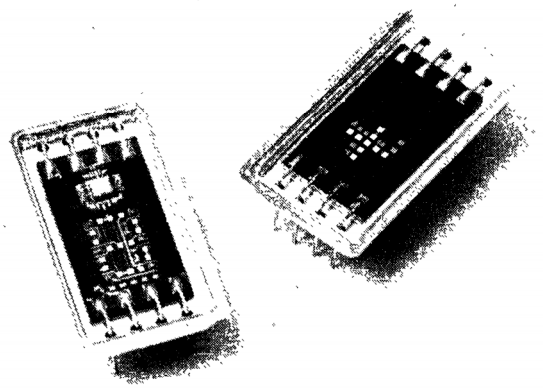
SOLID STATE NUMERIC INDICATOR

5082-7010
5082-7011

TECHNICAL DATA APRIL 1977

Features

- **RUGGED, SHOCK RESISTANT, HERMETIC**
- **DESIGNED TO MEET MIL STANDARDS**
- **INCLUDES DECODER/DRIVER**
  BCD Inputs
- **TTL/DTL COMPATIBLE**
- **CONTROLLABLE LIGHT OUTPUT**
- **5 x 7 LED MATRIX CHARACTER**



Description

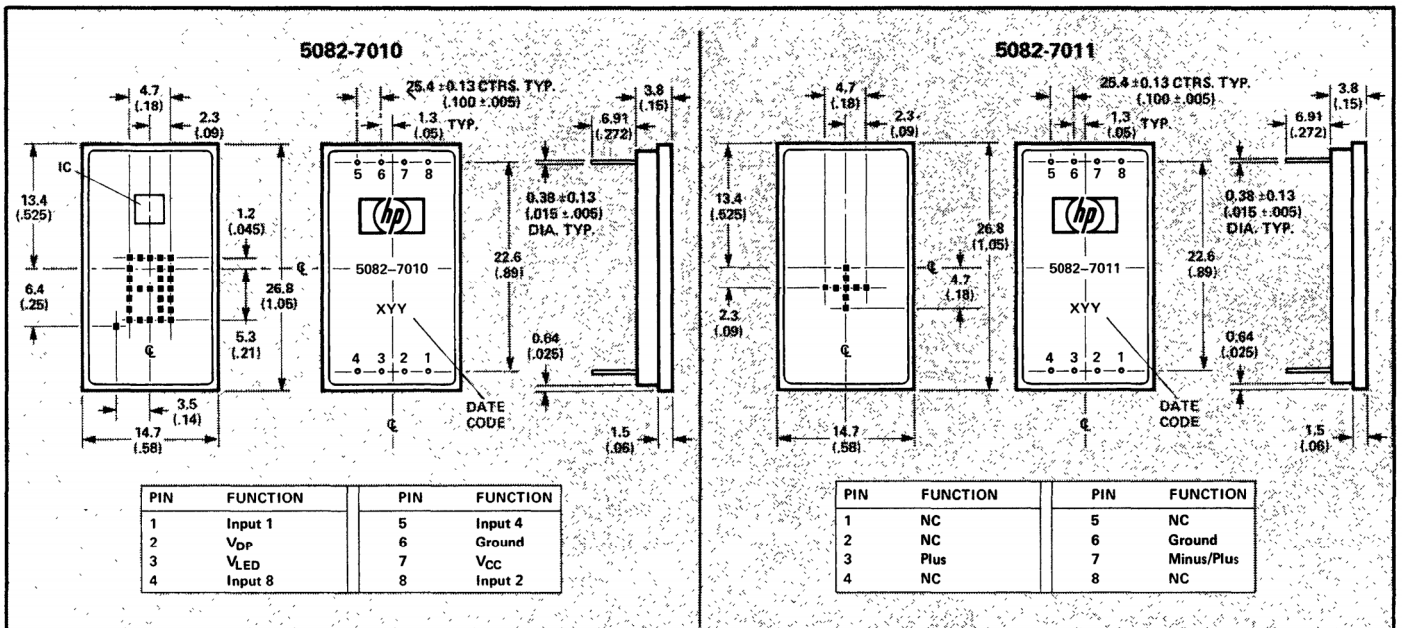
The HP 5082-7010 solid state numeric indicator with built-in decoder/driver provides a hermetically tested 6.8mm (0.27 in.) display for use in military or adverse industrial environments. Typical applications include ground, airborne and shipboard equipment, fire control systems, medical instruments, and space flight systems.

The 5082-7010 is a modified 5x7 matrix display that indicates the numerals 0-9 when presented with a BCD code. The BCD code is negative logic with blanks displayed for invalid codes. A left-hand decimal point is included which must be externally current limited.

The 5082-7011 is a companion plus/minus sign in the same hermetically tested package. Plus/minus indications require only that voltage be applied to two input pins.

Both displays allow luminous intensity to be varied by changing the DC drive voltage or by pulse duration modulation of the LED voltage.

Package Dimensions



PIN	FUNCTION	PIN	FUNCTION
1	Input 1	5	Input 4
2	V_{DP}	6	Ground
3	V_{LED}	7	V_{CC}
4	Input 8	8	Input 2

PIN	FUNCTION	PIN	FUNCTION
1	NC	5	NC
2	NC	6	Ground
3	Plus	7	Minus/Plus
4	NC	8	NC

Notes:
1. Unless otherwise specified, the tolerance on all dimensions is ±0.38 mm. (±0.015 inches).
2. All dimensions in millimetres and (inches).
3. The package and mounting pins are tin plated Kovar.

Absolute Maximum Ratings

Description	Symbol	Min.	Max.	Unit
Storage Temperature, Ambient	T_S	–65	+100	°C
Operating Temperature, Case	T_C	–55	+95	°C
Logic Supply Voltage to Ground	V_{CC}	–0.5	+7.0	V
Logic Input Voltage	V_I	–0.5	+5.5	V
LED Supply Voltage to Ground	V_{LED} [1]	–0.5	+5.5	V
Decimal Point Current	I_{DP}		–10	mA

Note: 1. Above T_C = 65°C derate V_{LED} per derating curve in Figure 10.

Recommended Operating Conditions

Description	Symbol	Min.	Nom.	Max.	Unit
Logic Supply Voltage	V_{CC}	4.5	5.0	5.5	V
LED Supply Voltage, Display Off	V_{LED}	–0.5	0	+1.0	V
LED Supply Voltage, Display On	V_{LED}	3.0	4.2	5.5	V
Decimal Point Current	I_{DP}[2]	0	–5.0	–10.0	mA
Logic Input Voltage, "H" State	V_{IH}	2.0		5.5	V
Logic Input Voltage, "L" State	V_{IL}	0		0.8	V

Note: 2. Decimal point current must be externally current limited. See application information.

Electrical/Optical Characteristics

Case Temperature, T_C = 0°C to 70°C, unless otherwise specified

Description	Symbol	Test Conditions		Min.	Typ. [4]	Max.	Unit
Logic Supply Current	I_{CC}	V_{CC} = 5.5V			45	75	mA
LED Supply Current	I_{LED}	V_{CC}	V_{LED}				mA
	[3]	5.5V	5.5V		255	350	
	[5]	5.5V	4.2V		170	235	
		5.5V	3.5V		125		
Logic Input Current, "H" State (ea. input)	I_{IH}	V_{CC} = 5.5V, V_{IH} = 2.4V				100	µA
Logic Input Current, "L" State (ea. input)	I_{IL}	V_{CC} = 5.5V, V_{IL} = 0.4V				–1.6	mA
Decimal Point Voltage Drop	$V_{LED} - V_{DP}$	I_{DP} = –10mA			1.6	2.0	V
Power Dissipation	P_T	V_{CC}	V_{LED}				W
	[3]	5.5V	5.5V		1.7	2.3	
	[5]	5.5V	4.2V		1.0	1.4	
		5.5V	3.5V		0.7		
Luminous Intensity per LED (digit avg.)	I_V	V_{LED}	T_C				µcd
		5.5V	25°C	60	115		
		4.2V	25°C	40	80		
		3.5V	25°C		50		
Peak Wavelength	λ_{peak}				655		nm
Spectral Halfwidth	$\Delta\lambda_{1/2}$				30		nm
Weight					4.9		gram

Notes:
3. With numeral 8 displayed.
4. All typical values at T_C = 25°C.
5. T_C = 0°C to 65°C for V_{LED} = 5.5V.

Truth Table

Character	Logic X8	X4	X2	X1	
0	H	H	H	H	
1	H	H	H	L	
2	H	H	L	H	
3	H	H	L	L	
4	H	L	H	H	
5	H	L	H	L	
6	H	L	L	H	
7	H	L	L	L	
8	L	H	H	H	
9	L	H	H	L	
Blank	L	H	L	H	
Blank	L	H	L	L	
Blank	L	L	H	H	
Blank	L	L	H	L	
Blank	L	L	L	H	
Blank	L	L	L	L	

V_{IL} = 0.0 to 0.8V
V_{IH} = 2.0 to 5.5V