

# Hewlett-Packard Components

Solid State  
Displays and  
Optoelectronics



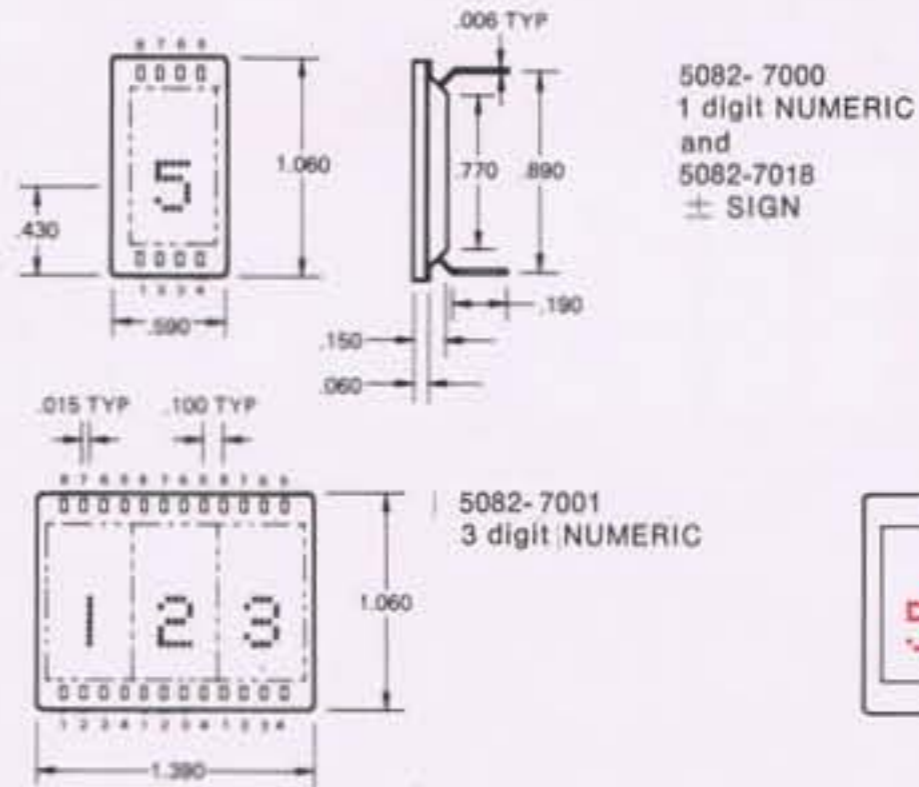
## SOLID STATE DISPLAYS

### NUMERIC 5082-7000 SERIES

5x7 Dot Matrix Character  
Includes Decoder/Driver — 8421 BCD Input  
Designed to Meet MIL Standards  
IC Compatible — 5 V DC  
± Sign Available

#### TYPICAL CHARACTERISTICS AT 25°C

Luminance at 4.2 V $V_{LED}$	200 fL
LED Supply Current at 4.2 V $V_{LED}$	225 mA
IC Supply Current at 5 V	55 mA
Logic Input — 4 Line BCD Negative Logic	
"1" State at 0.8 V	— 2.0 mA
"0" State at 5.0 V	— 0.2 mA
Peak Emission Wavelength	655 nm

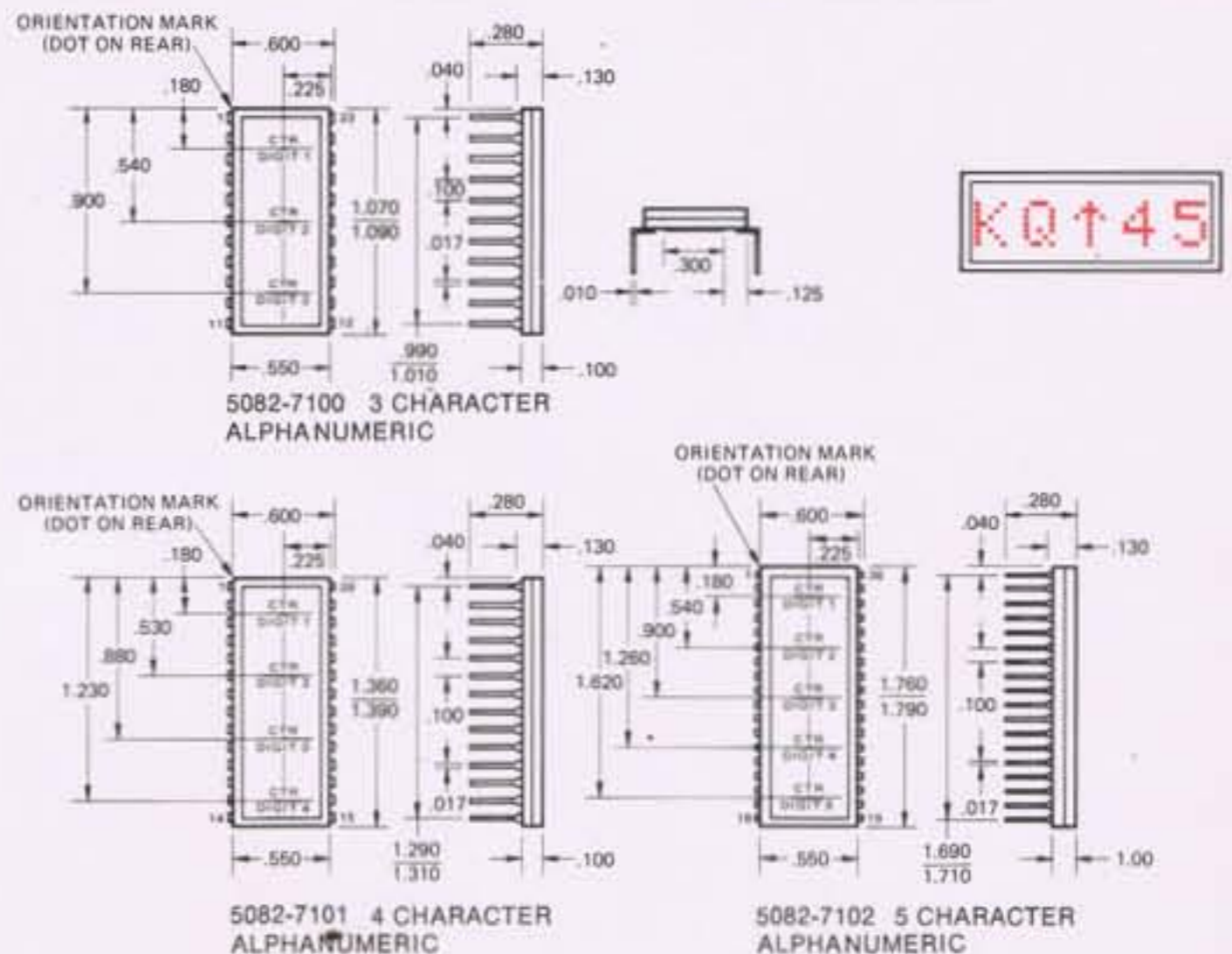


### ALPHANUMERIC 5082-7100 SERIES

Complete Alphanumeric Capability  
5x7 Dot Matrix Character  
X-Y Addressable (strobed)  
Designed to Meet MIL Standards  
IC Compatible — 1.65 V DC

#### TYPICAL CHARACTERISTICS AT 25°C

Luminance at 10 mA per LED	150 fL
Forward Voltage Drop at 10 mA	1.65 V
Reverse Voltage Breakdown at 10 $\mu$ A	4.0 V
Peak Current Per Diode (Duration < 1.0 ms)	100 mA
Average Current Per Diode (max)	10 mA
Peak Emission Wavelength	655 nm

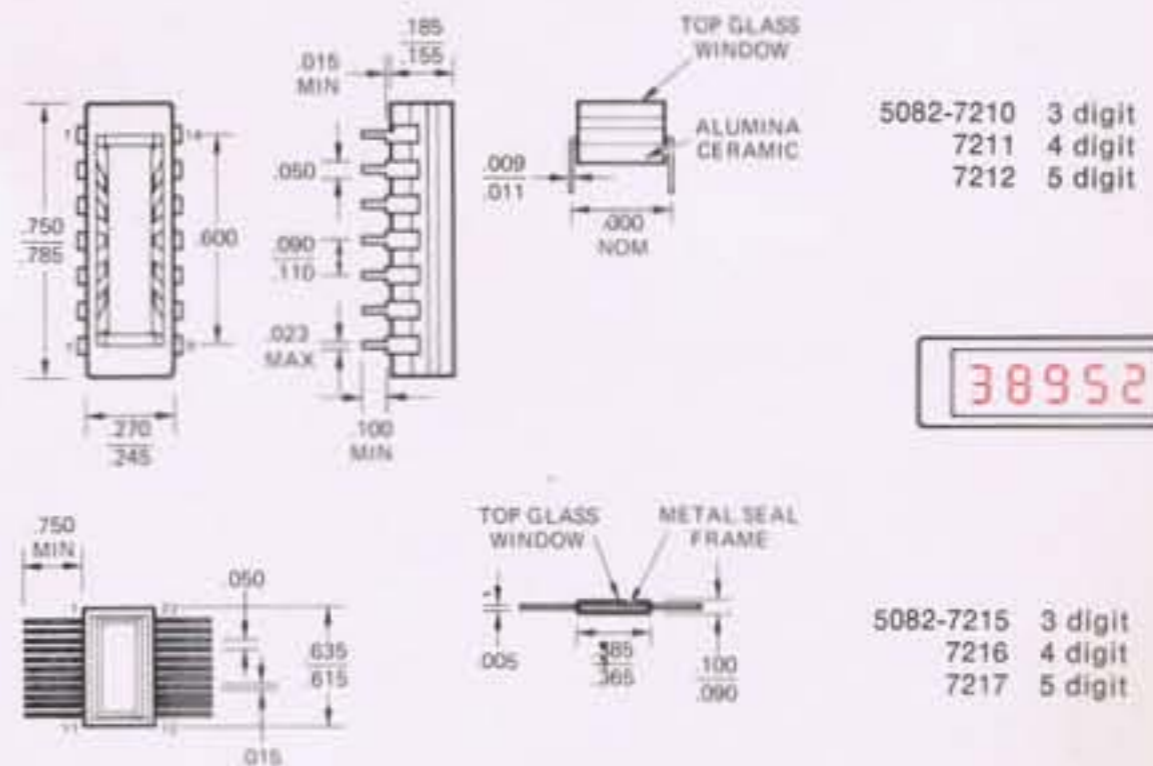


### SMALL CHARACTER NUMERIC 5082-7200 SERIES

7 Segment, Monolithic, 1/10" Character  
Character Strobed  
Lead Connections Minimized  
Designed to Meet MIL Standards  
IC Compatible  
DIP and Flat Pack

#### TYPICAL CHARACTERISTICS AT 25°C

Luminance at $I_F = 5$ mA Per Segment	200 fL
Forward Voltage Drop at 5 mA	
Per Segment	1.65 V
Average Current Per Segment (max)	10 mA
Peak Current Per Segment (duration < 1.0 ms)	150 mA
Reverse Voltage Breakdown at 10 $\mu$ A	4 V
Peak Emission Wavelength	655 nm



Ask for data sheets and application notes  
931 and 933 on solid state display products.

## OPTOELECTRONICS

### VISIBLE EMITTERS, 5082-4400 SERIES

Gallium Arsenide Phosphide Light Emitting Diodes, 655 nm Typical Peak Wavelength

Package	Typical Luminance B	Typical Luminous Intensity I	Typical Forward Voltage V <sub>F</sub>	Minimum Reverse Breakdown V <sub>BR</sub>	Typical Thermal Resistance $\theta_{JC}$	Forward Current I <sub>F</sub>	Continuous Power Dissipation P <sub>D</sub>	T <sub>STG</sub> & T <sub>OPR</sub>	Leads to Case Voltage	Type Number 5082-
See Back Page	@ I <sub>F</sub> = 20 mA	@ I <sub>F</sub> = 20 mA	@ I <sub>F</sub> = 20 mA	@ I <sub>R</sub> = 10 $\mu$ A	—	Peak Average	Free Air		@ T <sub>A</sub> = 100°C	
QE	250 fL	—	1.6 V	4 V	—	50 mA 1.0 A	85 mW	-55°C to +100°C	500 V	-4400
QF	250 fL	—	1.6 V	4 V	—	50 mA 1.0 A	85 mW	-55°C to +100°C	500 V	-4405
QL	—	2.0 mcd	1.6 V	3 V	270°C/W	100 mA 1.0 A	200 mW	-55°C to +100°C	300 V	-4403
QM	—	2.0 mcd	1.6 V	3 V	270°C/W	100 mA 1.0 A	200 mW	-55°C to +100°C	300 V	-4410

ALL UNITS HAVE: ZERO BIAS JUNCTION CAPACITANCE, C<sub>JO</sub> TYPICALLY 200pF, SPEED OF RESPONSE TYPICALLY < 10ns.

### PHOTON COUPLED ISOLATORS, 5082-4300 SERIES

Gallium Arsenide IR Emitters Optically Coupled to Silicon PIN Photodiode Detectors

Package	Minimum Breakdown Voltage	Typical DC Current Transfer Ratio	Typical Cut-Off Frequency of Current Transfer Ratio	Typical Capacitance Coupling	Typical Detector Dark Current	T <sub>STG</sub> & T <sub>OPR</sub>	Detector PIV	Emitter Forward Current	Type Number 5082-
See Back Page	Emitter to Detector	Detector V <sub>R</sub> = 25 V			V <sub>R</sub> = 25 V				
QD	200 V	@ I <sub>in</sub> = 100 mA 0.2%	3.5 MHz	2 pF	50 nA	125°C	100 V	100 mA	-4320
QD	200 V	@ I <sub>in</sub> = 100 mA 0.2%	3.5 MHz	2 pF	10 nA	125°C	100 V	100 mA	-4310
QH	20,000 V	@ I <sub>in</sub> = 30 mA 0.04%	7 MHz	0.01 pF	2 nA	50°C	200 V	70 mA	-4303
QJ	50,000 V	@ I <sub>in</sub> = 30 mA 0.04%	7 MHz	0.01 pF	2 nA	50°C	200 V	70 mA	-4309

### PIN PHOTODETECTORS, 5082-4200 SERIES

Silicon, Planar, Passivated, PIN Photodiodes

Package	Typical Response @ 770 nm $\beta_H$ ( $\mu$ A/mW/cm <sup>2</sup> )	Typical Sensitive Area A (cm <sup>2</sup> )	Typical Junction Capacitance C <sub>J</sub> (pF)	Maximum Dark Current I <sub>R</sub> (pA)	Peak Inverse Voltage PIV (Volts)	Power Dissipation P <sub>D</sub> (mW)	Type Number 5082-
See Back Page	V <sub>R</sub> = 20 R <sub>L</sub> = 1 M $\Omega$						
QB	1.0	2 x 10 <sup>-3</sup>	1.5 @ 25 V	2000 @ V <sub>R</sub> = 25 V	200	100	-4201
QA	1.0	2 x 10 <sup>-3</sup>	1.5 @ 25 V	2000 @ V <sub>R</sub> = 25 V	200	100	-4203
QA	1.0	2 x 10 <sup>-3</sup>	2.0 @ 10 V	600 @ V <sub>R</sub> = 10 V	200	100	-4204
QG	*1.5	*3 x 10 <sup>-3</sup>	0.7 @ 10 V	150 @ V <sub>R</sub> = 10 V	200	50	-4205
QA	4.0	8 x 10 <sup>-3</sup>	5.5 @ 10 V	2500 @ V <sub>R</sub> = 10 V	200	100	-4207
QC	1.0	2 x 10 <sup>-3</sup>	2.0 @ 10 V	5000 @ V <sub>R</sub> = 25 V	200	100	-4220

ALL UNITS HAVE: TYPICALLY < 1ns SPEED OF RESPONSE, R<sub>s</sub> TYPICALLY 50 $\Omega$ .

\*Includes Lens Effects.

### INFRARED EMITTERS, 5082-4100 SERIES

Gallium Arsenide Infrared Emitting Diodes, 900 nm Typical Peak Wavelength

Package	Typical Total Power Output P	Typical Axial Radiation Intensity J <sub>O</sub>	Maximum Forward Voltage V <sub>F</sub>	Minimum Breakdown Voltage V <sub>BR</sub>	Typical Zero Bias Capacitance C <sub>O</sub>	Typical Risettime t <sub>r</sub>	Forward Current I <sub>F</sub>	T <sub>STG</sub> & T <sub>OPR</sub>	Type Number 5082-
See Back Page		@ I = 50 mA		@ I <sub>R</sub> = 100 $\mu$ A	@ f = 1 MHz	I <sub>F</sub> = 30 mA			
QB	@ I <sub>F</sub> = 70 mA 120 $\mu$ W	50 $\mu$ W/sr	@ I <sub>F</sub> = 70 mA 1.3 V	5 V	120 pF	70 ns	70 mA	125°C	-4104
QC	@ I <sub>F</sub> = 100 mA 200 $\mu$ W	100 $\mu$ W/sr	@ I <sub>F</sub> = 100 mA 1.4 V	3 V	250 pF	100 ns	100 mA	125°C	-4120
QG	@ I <sub>F</sub> = 100 mA 150 $\mu$ W	200 $\mu$ W/sr	@ I <sub>F</sub> = 100 mA 1.3 V	5 V	250 pF	100 ns	100 mA	125°C	-4107

ALL UNITS HAVE: MAXIMUM STORAGE AND OPERATING TEMPERATURE OF 125°C.

ALL PARAMETERS MEASURED @ 25°C UNLESS OTHERWISE NOTED.

### KEY FEATURE TYPE SELECTOR: PIN PHOTODIODES

Subminiature Pill Package with Lens, Small Sensitive Area, Low Dark Current  
 Fiber Optic Coupling to Moderate Size Sensitive Area  
 Large Sensitive Area, Plane Glass Window  
 Ultra Low Noise, Low Dark Current, Plane Glass Window  
 Low Noise, Moderate Sensitive Area, Plane Glass Window  
 Low Cost, General Purpose, Plane Glass Window

### PRODUCT NUMBER

5082-4205  
 5082-4201  
 5082-4207  
 5082-4204  
 5082-4203  
 5082-4220

### KEY FEATURE TYPE SELECTOR: VISIBLE EMITTERS

Hermetically Sealed, TO-18 Size Case, Red Filter Lens  
 Hermetically Sealed, TO-18 Size Case, Plane, Clear Glass Cover  
 Low Cost, Red Epoxy Hemispherical Dome, High Visibility Solid State Lamp, Includes Clip for Panel Mounting  
 Low Cost, Red Epoxy Hemispherical Dome, High Visibility SSL for Circuit Board Mounting

5082-4400  
 5082-4405  
 5082-4403  
 5082-4410

### KEY FEATURE TYPE SELECTOR: IR EMITTERS

Fiber Optic Coupling to Low Capacitance Chip, Fast Risetime  
 Subminiature Pill Package with Lens, High Axial Intensity  
 TO-46 Header with Plane Glass Windows

5082-4104  
 5082-4107  
 5082-4120

### KEY FEATURE TYPE SELECTOR: ISOLATORS

High Speed TO-18 Size Can, Low Cost, for Moderate Voltage (200 v) Isolation, High Transfer Ratio  
 High Speed, TO-18 Size Can, Low "OFF" Current for Moderate Voltage (200 V) Isolation, High Transfer Ratio  
 High Voltage (20 kV) Fiber Optic Coupled  
 Extra High Voltage (50 kV) Fiber Optic Coupled

5082-4320  
 5082-4310  
 5082-4303  
 5082-4309

## OPTOELECTRONICS PACKAGING

### PHYSICAL DIMENSIONS

<p><b>QA HERMETIC</b></p>	<p><b>QB</b></p>	<p><b>QC HERMETIC</b></p>
<p><b>QD HERMETIC</b></p>	<p><b>QE HERMETIC</b></p> <p>Package QF same as QE, but with clear glass window only.</p>	<p><b>QG HERMETIC</b></p>
<p><b>QH</b></p> <p>Leads typically 0.5 long.</p>	<p><b>QJ</b></p> <p>Leads typically 0.5 long.</p>	<p><b>QL</b></p> <p>Package QM same as QL except A is .16.</p>

For more information, call your local HP Sales Office or East (201) 265-5000 • Midwest (312) 677-0400 • South (404) 436-6181  
 West (213) 877-1282. Or, write: Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California 94304. In Europe, 1217 Meyrin-Geneva

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