

THT LED-Anzeigesysteme

THT LED Display Systems

In die Entwicklung dieser Bauteile ist das über Jahrzehnte erworbene Know-how der Firma MENTOR als Entwickler und Lieferant von Bauelementen für die Industrielektronik geflossen. Der Einsatz ist überall dort zu suchen, wo Lichtsignale auf Funktionen oder Betriebszustände aufmerksam machen sollen und müssen. Die Vielfalt der Bauelemente erstreckt sich von Einzel- und Mehrfachanzeigen sowie Leisten in unterschiedlichsten Ausführungen bis hin zu Lampenfassungen.

Bei den mit FEL gekennzeichneten LED-Bausteinen handelt es sich um Frontplatten-Einbauelemente, die als Anzeigeelemente für das 19"-Aufbausystem entwickelt wurden. Das System baut auf einem Grundrastermaß von 2,54 mm auf. Die Gehäuse sind mit seitlichen Stegen und Nuten versehen, die beim Anreihen ineinandergreifen. Bei Bedarf sind Möglichkeiten zur Stapelung gegeben. Zum 19"-Aufbausystem passende Schalter, Schalt- und Prüfbuchsen, Potentiometer sowie Sicherungshalter für G-Sicherungseinsätze finden Sie in unserem THT-Katalog.

The development of these components has benefited from MENTOR's expertise, acquired over decades as a developer and supplier of components for industrial electronics. These components can be used wherever light signals should and must alert functions or operating states. The variety of components ranges from individual and multi-displays and slats in a wide range of designs right up to light sockets.

The LED modules described as FEL are front panel assembly elements that have been developed as display elements for the 19-inch structure system. The system is based on a basic grid size of 2.54 mm. The casings are provided with guide rails and grooves that intersect with each other when connecting. Opportunities for stacking exist if required. Switches, switch sockets, and test sockets, potentiometers, and fuse holders for miniature fuse links can also be found in our THT catalog.

| Allgemeine technische Daten (Auswahl bzw. Abweichungen zu den folgenden allgem. Daten: siehe Beschreibung des jeweiligen Artikels) | |
|--|---|
| Lötbarkeit | DIN EN 60068-2-20 (260 °C ≤ 5s) |
| Anschlüsse | verzinkt |
| Betriebstemperatur | -40 °C ... +85 °C |
| Klima | GPF DIN 40040 |
| Beschriftung | auf Sonderwunsch bedruckt oder gelasert |
| LEDs | Technische Daten: siehe Seite 78/79 |
| Sonderwünsche | Sonderbestückung, Verwendung von zusätzlichen Fixierpins sowie vertauschte Polarität auf Anfrage möglich. |
| Mindestbestimmungen für Sonderausführungen auf Anfrage. | |

| General Technical Data (Selection and deviations from the following general data: see description of the respective item) | |
|---|---|
| Solderability | DIN EN 60068-2-20 (260 °C ≤ 5s) |
| Terminals | tinned |
| Operating temperature | -40 °C ... +85 °C |
| Climate | GPF DIN 40040 |
| Marking | On special request printed or laser printed |
| LEDs | Technical data: see page 78/79 |
| Special requirements | Special components, use of additional fixing pins and reverse polarity on request |
| Minimum quantity for special design on request. | |



4-fach-LED ø 3 mm liegend

4-way-LED ø 3 mm horizontal

Allgemeine Hinweise und Technische Daten

Allgemeine Hinweise und Technische Daten: siehe Seite 28
Technische Daten LEDs: siehe Seite 78/79

General Remarks and Technical Data

General remarks and technical data: see page 28
Technical data LEDs: see page 78/79

Spezifische Technische Daten

Gehäusewerkstoff: PC UL94 schwarz

Specific Technical Data

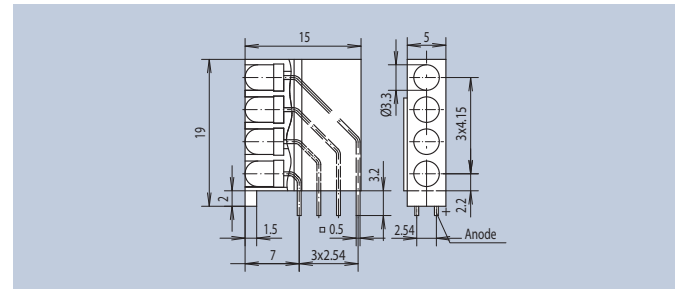
Gehäusewerkstoff: PC UL94 schwarz

Dieser Baustein mit vier übereinander angeordneten LEDs ist anreihbar. Die LEDs sind versenkt angeordnet. Überstrahlung findet nicht statt.

This component with four LEDs positioned on top of each other can be installed in series. The LEDs are arranged in a countersunk position. There is no irradiation.



| Farbe · Color | LED-Type | Art.-Nr. |
|---------------|----------|-----------|
| bright red | A1 | 2040.2031 |



LED-Leisten ø 3 mm liegend

LED Arrays ø 3 mm horizontal

Spezifische Technische Daten

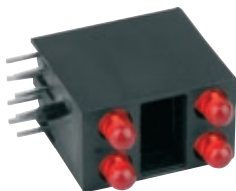
Gehäusewerkstoff: PA6 UL94 schwarz

Specific Technical Data

Housing Material: PA6 UL94 black

Diese LED-Leiste mit einem LED-Abstand von 5,08 mm kann aneinandergereiht werden.

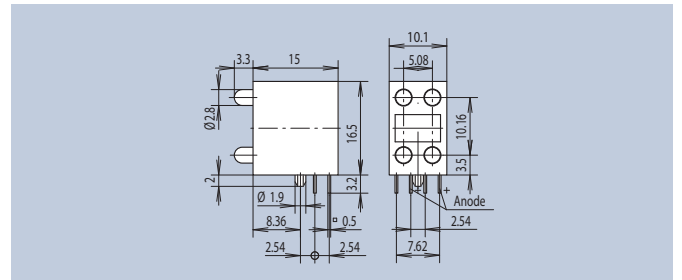
This LED array with an LED distance of 5.08 mm can be installed in series.



MOQ 300

2-fach · 2 way

| Farbe · Color | LED-Type | Art.-Nr. |
|---------------|----------|-----------|
| bright red | A1 | 2028.2031 |



Spezifische Technische Daten

Gehäusewerkstoff: PA6 UL94 schwarz

Specific Technical Data

Housing Material: PA6 UL94 black

Die LEDs schließen bündig mit dem Gehäuse ab und sind im Abstand 5,5 mm angeordnet.

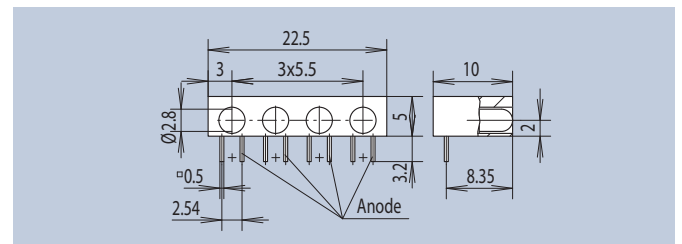
The LEDs are flush with the housing and are positioned at a distance of 5.5 mm.



MOQ 200

4-fach · 4 way

| Farbe · Color | LED-Type | Art.-Nr. |
|---------------|----------|-----------|
| bright red | A1 | 2696.8121 |
| green | A4 | 2696.8181 |



Technische Daten LEDs

Technical Data LEDs

| LED-Type | Emission Color | Wavelength λ (nm) dominant | Lense Color | Forward Voltage V_f (V) | | Luminous Intensity I_v (mcd) | | | at mA | Fwd. Current I_f max (mA) | Rev. Voltage V_R (V) | 2 ϕ (50% I_v) deg. |
|------------|---------------------------|--|------------------|------------------------------|------------|-----------------------------------|-------|----------|----------|---|---------------------------------|----------------------------------|
| | | | | typ | max | min | typ | max | | | | |
| THT | | | | | | | | | | | | |
| A1 | bright red | 660 | red diffused | 2.25 | 2.5 | 1.2 | - | 4 | 10 20 | 25 | 5 | 60 |
| A2 | high efficiency red | 625 | red diffused | 2 | 2.5 | 15 | - | 30 | 10 20 | 30 | 5 | 60 |
| A3 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 10 | - | 20 | 10 20 | 30 | 5 | 60 |
| A4 | green | 568 | green diffused | 2.2 | 2.5 | 10 | - | 20 | 10 20 | 25 | 5 | 40 |
| A5 | bright red | 660 | red diffused | 2.25 | 2.5 | 4 | - | 10 | 10 20 | 25 | 5 | 60 |
| A6 | high efficiency red | 625 | red diffused | 2 | 2.5 | 30 | - | 80 | 10 20 | 30 | 5 | 60 |
| A7 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 15 | - | 30 | 10 20 | 30 | 5 | 60 |
| A8 | green | 568 | green diffused | 2.2 | 2.5 | 15 | - | 30 | 10 20 | 25 | 5 | 60 |
| A9 | high efficiency red | 625 | red diffused | 1.7 | 2.5 | 1.2 | - | 4 | 2 | 30 | 5 | 60 |
| A10 | yellow | 588 | yellow diffused | 1.85 | 2.5 | 1.2 | - | 4 | 2 | 30 | 5 | 60 |
| A11 | green | 568 | green diffused | 1.9 | 2.5 | 1 | - | 5 | 2 | 25 | 5 | 60 |
| A12 | high efficiency red | 625 | red diffused | 2 | 2.5 | 4 | - | 10 | 2 20 | 30 | 5 | 60 |
| A13 | yellow | 588 | yellow diffused | 1.85 | 2.5 | 1 | - | 5 | 2 | 30 | 5 | 60 |
| A14 | green | 568 | green diffused | 2.2 | 2.5 | 1 | - | 5 | 2 20 | 25 | 5 | 60 |
| A22 | bright red | 660 | red diffused | 2.25 | 2.5 | 1 | - | 5 | 10 20 | 25 | 5 | 70 |
| A23 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 5 | - | 17 | 10 20 | 30 | 5 | 70 |
| A24 | green | 568 | green diffused | 2.2 | 2.5 | 5 | - | 17 | 10 20 | 25 | 5 | 70 |
| A25 | bright red | 660 | red diffused | 2.25 | 2.5 | 1.2 | - | 6 | 10 20 | 25 | 5 | 60 |
| A27 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 6 | - | 20 | 10 20 | 30 | 5 | 60 |
| A28 | green | 568 | green diffused | 2.2 | 2.5 | 6 | - | 20 | 10 20 | 25 | 5 | 60 |
| A29 | high efficiency red | 625 | red diffused | 2 | 2.5 | 70 | - | 220 | 20 | 30 | 5 | 60 |
| A30 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 36 | - | 90 | 20 | 30 | 5 | 60 |
| A31 | green | 568 | green diffused | 2.2 | 2.5 | 36 | - | 90 | 20 | 25 | 5 | 60 |
| A32 | high efficiency red | 625 | red diffused | 2 | 2.5 | 36 | 100 | - | 20 | 30 | 5 | 60 |
| A33 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 20 | - | 50 | 20 | 30 | 5 | 60 |
| A34 | green | 568 | green diffused | 2.2 | 2.5 | 40 | - | 60 | 20 | 25 | 5 | 60 |
| A38 | bright red | 660 | red diffused | 2.25 | 2.5 | 0.5 | - | 1.2 | 10 20 | 25 | 5 | 100 |
| A40 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 3 | - | 12 | 10 20 | 30 | 5 | 100 |
| A41 | green | 568 | green diffused | 2.2 | 2.5 | 3 | - | 12 | 10 20 | 25 | 5 | 100 |
| A42 | bright red | 660 | red diffused | 2.25 | 2.5 | 1 | - | 5 | 10 20 | 25 | 5 | 100 |
| A44 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 3 | - | 12 | 10 20 | 30 | 5 | 100 |
| A45 | green | 568 | green diffused | 2.2 | 2.5 | 1 | - | 5 | 10 20 | 25 | 5 | 100 |
| A46 | high efficiency red | 625 | red diffused | 2 | 2.5 | 3 | - | 7 | 10 20 | 30 | 5 | 110 |
| A47 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 1.8 | - | 7 | 10 20 | 30 | 5 | 110 |
| A48 | green | 568 | green diffused | 2.2 | 2.5 | 2 | - | 10 | 10 20 | 25 | 5 | 110 |
| A49 | high efficiency red/green | 617 568 | white diffused | 2 2.2 | 2.5 2.5 | 8 8 | - | 20 40 | 20 20 | 30 25 | - | 60 60 |
| A51 | blue | 466 | blue transparent | 3.8 | 4.5 | 18 | 100 | - | 20 | 30 | 5 | 50 |
| A52 | blue | 466 | blue transparent | 3.8 | 4.5 | 70 | 200 | - | 20 | 30 | 5 | 30 |
| A60 | high efficiency red | 625 | red diffused | 5.7 | 7.5 | 18 | 61.56 | - | 10 | 60 | 15 | 120 |
| A61 | yellow | 588 | yellow diffused | 5.85 | 7.5 | 7 | 37.18 | - | 10 | 60 | 15 | 120 |
| A62 | green | 568 | green diffused | 6 | 7.5 | 18 | 53.3 | - | 10 | 50 | 15 | 120 |
| A69 | super red | 622-634 | red diffused | 2 | 2.5 | 6.3 | - | 20 | 10 | 40 | 12 | 50 |

Technische Daten LEDs

Technical Data LEDs

| LED-Type | Emission Color | Wavelength λ (nm) dominant | Lense Color | Forward Voltage V_f (V) | | Luminous Intensity I_v (mcd) | | | at mA | Fwd. Current I_f max (mA) | Rev. Voltage V_R (V) | 2 ϕ (50% I_v) deg. |
|--------------|---------------------------|--|--------------------|------------------------------|------------|-----------------------------------|------------|----------|----------------------|--------------------------------------|---------------------------------|----------------------------------|
| | | | | typ | max | min | typ | max | | | | |
| THT | | | | | | | | | | | | |
| A70 | yellow | 580-595 | yellow diffused | 2 | 2.5 | 7.1 | - | 18 | 10 | 40 | 12 | 50 |
| A71 | green | 564-576 | green diffused | 2 | 2.5 | 7.1 | - | 18 | 10 | 40 | 12 | 50 |
| A72 | super red | 622-634 | red diffused | 2 | 2.5 | 7.1 | - | 18 | 10 | 40 | 12 | 70 |
| A76 | high efficiency red/green | 625 568 | white diffused | 2 2.2 | 2.5 2.5 | 5 5 | - | 20 20 | 20 20 | 30 25 | - | 70 70 |
| A77 | super bright red | 640 | red diffused | 1.85 | 2.5 | 280 | 400 | - | 20 | 30 | 5 | 60 |
| A78 | yellow | 588 | yellow transparent | 2.1 | 2.5 | 50 | - | 120 | 10 20 | 30 | 5 | 30 |
| A79 | green | 568 | green transparent | 2.2 | 2.5 | 50 | - | 120 | 10 20 | 25 | 5 | 30 |
| A83 | high efficiency red | 625 | red transparent | 2 | 2.5 | 30 | - | 80 | 10 20 | 30 | 5 | 50 |
| A84 | yellow | 588 | yellow transparent | 2.1 | 2.5 | 20 | - | 50 | 10 20 | 30 | 5 | 50 |
| A85 | green | 568 | green transparent | 2.1 | 2.5 | 30 | - | 50 | 10 20 | 25 | 5 | 50 |
| C5 | orange red/ green | 612-625 552-575 | white diffused | 2 2.4 | 3 3 | 1 1 | 2.5 2.5 | - | 10 20 10 20 | 30 | 6 | 60 |
| C12 | red | 630 | red diffused | 2 | 3 | 4 | - | 32 | 10 20 | 20 | 6 | 40 |
| C13 | yellow | 581-594 | yellow diffused | 2.4 | 3 | 2.5 | - | 12.5 | 10 20 | 30 | 6 | 40 |
| C14 | green | 562-575 | green diffused | 2.4 | 3 | 4 | - | 20 | 10 20 | 30 | 6 | 40 |
| C15 | red | 612-625 | red diffused | 2 | 3 | 6.3 | - | 20 | 10 20 | 30 | 6 | 60 |
| C16 | yellow | 581-594 | yellow diffused | 2.4 | 3 | 6.3 | - | 20 | 10 20 | 30 | 6 | 60 |
| C17 | green | 562-575 | green diffused | 2.4 | 3 | 10 | - | 32 | 10 20 | 30 | 6 | 60 |
| E3 | high efficiency red/green | 625 568 | white diffused | 2 2.2 | 2.5 2.5 | 10 10 | 50 30 | - | 20 20 | 30 25 | 5 5 | 60 60 |
| G1 | bright red | 660 | red diffused | 2.25 | 2.5 | 0.4 | - | 3 | 20 | 25 | 5 | 40 |
| G2 | yellow | 588 | yellow diffused | 2.1 | 2.5 | 2.6 | 10 | - | 20 | 30 | 5 | 40 |
| G3 | super bright green | 568 | green diffused | 2.2 | 2.5 | 2.6 | 10 | - | 20 | 25 | 5 | 40 |
| H1 | super deep red | 639 | red diffused | 2 | 2.4 | 40 | 80 | - | 20 | 25 | 5 | 100 |
| H2 | super yellow | 589 | yellow diffused | 2 | 2.4 | 25 | 50 | - | 20 | 25 | 5 | 100 |
| H3 | super yellow green | 573 | green diffused | 2 | 2.4 | 6.3 | 12.5 | - | 20 | 25 | 5 | 60 |
| H4 | hyper red | 624 | red diffused | 2 | 2.4 | 10 | 20 | - | 20 | 25 | 5 | 100 |
| M2 | white | - | colorless clear | 3.6 | 4 | 3900 | - | 11000 | 20 | 30 | 5 | 20 |
| W1 | white | - | colorless clear | 3.2 | 3.8 | 1400 | - | 3550 | 5 | 25 | 5 | 45 |
| Argus | | | | | | | | | | | | |
| A15 | super red | 628 | red clear | 2.1 | 2.5 | 35.5 | - | 71 | 15 | 40 | 12 | |

Symbole

Symbols

Besonderheiten · Specifics

NEW Produktneuheit
New product

ESD Sehr hoher ESD-Schutz zur Frontplatte bzw. Gehäusefront.
Very high level of ESD protection for the front panel.

FEL Frontplatten-Einbauelemente zur Nutzung als Anzeigeelemente für das 19"-Aufbausystem.
Front panel assembly elements for use as display elements for the 19-inch structure system.

Kundenspezifisch · Customised

C Kundenspezifische Ausführung möglich. Zu Details siehe Seite 4/6.
Customised solutions available. For details see page 4/6.

LowMOQs Lagermäßig geführte Artikel (Art.-Nr. in **Fett**druck) liefern wir mit geringen Mindestbestellmengen und kurzen Lieferzeiten.
Parts, that are available ex-stock (Part No. in **bold**) are delivered with small MOQs and short delivery times.

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Minimum quantity for manufacture of non-stocked part nos. (in normal font): delivery time on request.

MOQ2 Mindestbestellmenge für Sonderlängen (Länge A). Lieferzeiten und andere Sonderversionen auf Anfrage.
Minimum quantity for customer defined "Length A": delivery times and other customisation on request.

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