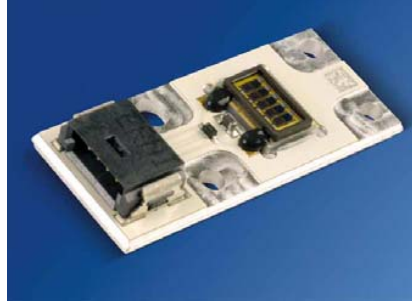
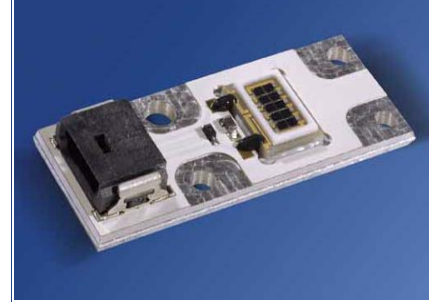


OSRAM OSTAR Observation (850nm)
Lead (Pb) Free Product - RoHS Compliant

SFH 4730, SFH 4740



SFH 4730



SFH 4740

SFH 4730

- Schwarzer Rahmen zur Streulichtminimierung
- 3.6 W optische Leistung bei IF=1A

SFH 4740

- Weißer Rahmen für hohe Lichtleistung
- 4.3 W optische Leistung bei IF=1A

Wesentliche Merkmale

- Aktive Chipfläche 2.1 x 5.4 mm²
- max. Gleichstrom 1 A
- niedriger Wärmewiderstand (2.8 K/W)
- Emissionswellenlänge 850 nm
- ESD-sicher bis 2 kV nach JESD22-A114-E
- Augensicherheitsrichtlinien der IEC-Normen 60825-1 und 62471 müssen beachtet werden.

Anwendungen

- Infrarotbeleuchtung für Kameras
- Überwachungssysteme
- IR-Datenübertragung
- Fahrer-Assistenz Systeme

SFH 4730

- Black frame to minimize scattered light
- 3.6 W optical power at IF=1A

SFH 4740

- White frame to achieve high optical power
- 4.3 W optical power at IF=1A

Features

- Active chip area 2.1 x 5.4 mm²
- max. DC-current 1 A
- Low thermal resistance (2.8 K/W)
- Spectral emission at 850 nm
- ESD safe up to 2 kV acc. to JESD22-A114-E
- Eye safety precautions given in IEC 60825-1 and IEC 62471 have to be followed.

Applications

- Infrared Illumination for cameras
- Surveillance systems
- IR Data Transmission
- Driver assistance systems

| Typ Type | Bestellnummer Ordering Code | Strahlstärke ¹⁾ ($I_F = 1A, t_p = 20 ms$) Radiant intensity ¹⁾ I_e (mW/sr) |
|-------------|--------------------------------|---|
| SFH 4730 | Q65110A5452 | ≥ 800 (typ.1200) |
| SFH 4740 | Q65110A6190 | ≥ 1000 (typ.1400) |

¹⁾ gemessen bei einem Raumwinkel $\Omega = 0.01 sr$ / measured at a solid angle of $\Omega = 0.01 sr$.

Grenzwerte
Maximum Ratings

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|-------------------------|----------------|-----------------|
| Betriebs- und Lagertemperatur Operating and storage temperature range | $T_{B, op}, T_{B, stg}$ | - 40 ... + 125 | °C |
| Sperrschichttemperatur Junction temperature | T_J | + 145 | °C |
| Sperrspannung Reverse voltage | V_R | 0.5 | V |
| Vorwärtsgleichstrom, $T_B^{1)} \leq 90$ °C Forward current | I_F | 1 | A |
| Stoßstrom, $t_p < 3$ ms, $D = 0$ Surge current | I_{FSM} | 5 | A |
| Leistungsaufnahme, $T_B \leq 90$ °C Power consumption | P_{tot} | 19 | W |
| Thermische Verlustleistung, $T_B \leq 90$ °C Thermal power-dissipation | P_{th} | 15.4 | W |
| Wärmewiderstand Sperrschicht / Bodenplatte Thermal resistance Junction / Base plate | R_{thJB} | 2.8 | K/W |

¹⁾ T_B = Temperatur auf der Rückseite der Metallkernplatte / Temperature at the backside of the base plate.

Kennwerte ($T_B = 25\text{ °C}$)

Characteristics

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|---------------------------------|--------------------|-----------------|
| Wellenlänge der Strahlung Wavelength at peak emission $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | λ_{peak} | 860 | nm |
| Schwerpunkts-Wellenlänge der Strahlung Centroid wavelength $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | $\lambda_{\text{centroid}}$ | 850 | nm |
| Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | $\Delta\lambda$ | 30 | nm |
| Abstrahlwinkel Half angle | φ | ± 60 | Grad deg. |
| Abmessungen der aktiven Chipfläche ¹⁾ Dimension of the active chip area | $L \times B$ $L \times W$ | 2.1×5.4 | mm ² |
| Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, $I_F = 5\text{ A}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 5\text{ A}$, $R_L = 50\ \Omega$ | t_r , t_f | 10, 10 | ns |
| Durchlassspannung Forward voltage $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$ | V_F | 15.5 (≤ 19) | V |
| Gesamtstrahlungsfluss Total radiant flux $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$ SFH 4730 SFH 4740 | Φ_e Φ_e | 3.6 4.3 | W W |
| Temperaturkoeffizient von I_e bzw. Φ_e Temperature coefficient of I_e or Φ_e $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | TC_I | - 0.3 | %/K |
| Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | TC_V | - 10 | mV/K |
| Temperaturkoeffizient von λ Temperature coefficient of λ $I_F = 1\text{ A}$, $t_p = 10\text{ ms}$ | $TC_{\lambda, \text{centroid}}$ | + 0.3 | nm/K |

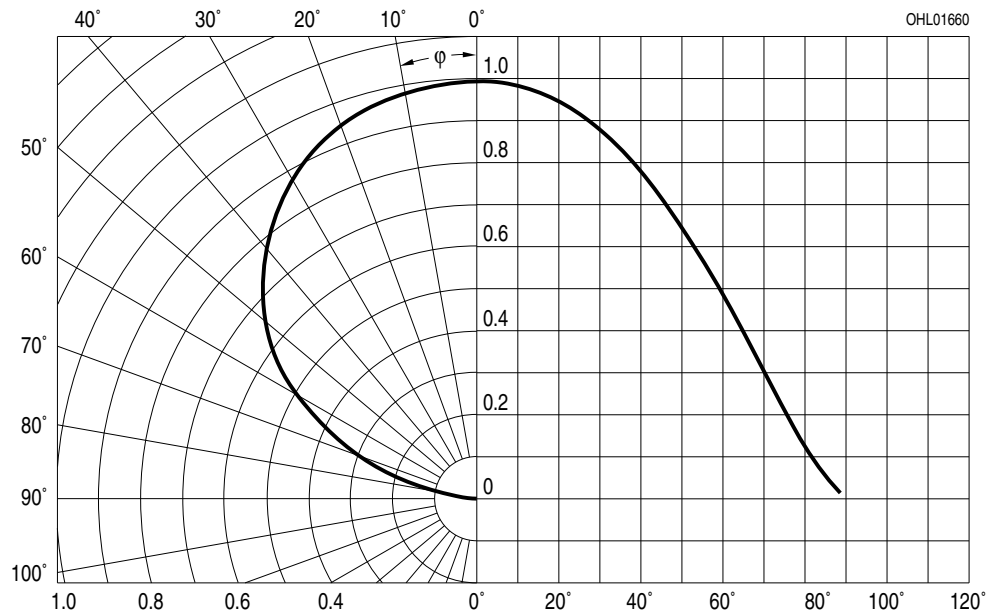
¹⁾ Die aktive Chipfläche besteht aus 10 einzelnen Chips mit je $1 \times 1\text{ mm}^2$.
The active chip area consists of 10 single chips with $1 \times 1\text{ mm}^2$ each.

Strahlstärke¹⁾ I_e
 Radiant Intensity¹⁾ I_e

| Bezeichnung Parameter | Symbol | Werte Values | | | | Einheit Unit |
|---|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | SFH 4730 -EB | SFH 4730 -FA | SFH 4740 -FA | SFH 4740 -FB | |
| Strahlstärke Radiant Intensity $I_F = 1 \text{ A}, t_p = 20 \text{ ms}$ | $I_{e \text{ min}}$ $I_{e \text{ max}}$ | 800 1250 | 1000 1600 | 1000 1600 | 1250 2000 | mW/sr mW/sr |

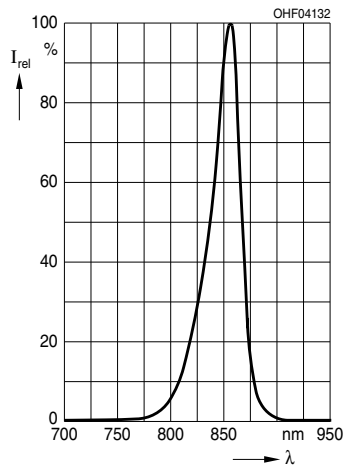
¹⁾ Nur eine Gruppe in einer Verpackungseinheit (Streuung kleiner 1.6:1)
 Only one group in one packing unit (variation lower 1.6:1)

Abstrahlcharakteristik
 Radiation Characteristics $I_{\text{rel}} = f(\varphi)$



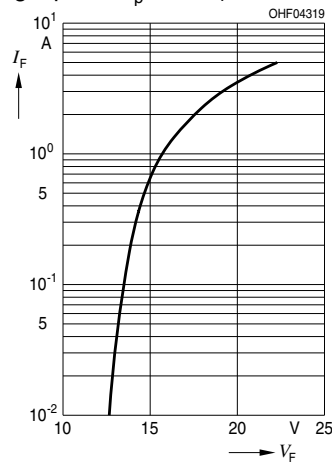
Relative spektrale Emission
Relative Spectral Emission

$I_{rel} = f(\lambda), T_B = 25\text{ °C}$



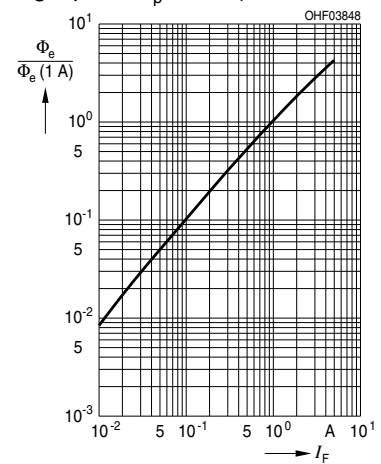
Durchlassstrom
Forward Current

$I_F = f(V_F), T_B = 25\text{ °C},$
Single pulse, $t_p = 100\text{ }\mu\text{s}$



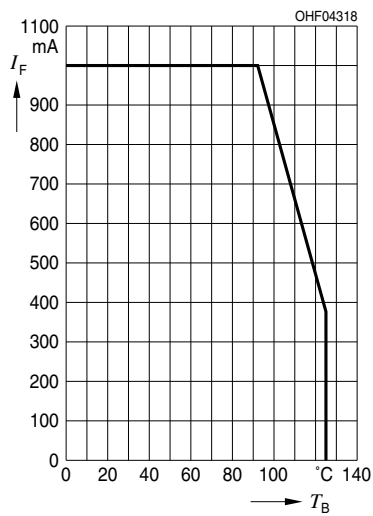
Relativer Gesamtstrahlungsfluss
Relative Total Radiant Flux

$\Phi_e / \Phi_e(1A) = f(I_F), T_B = 25\text{ °C},$
Single pulse, $t_p = 100\text{ }\mu\text{s}$

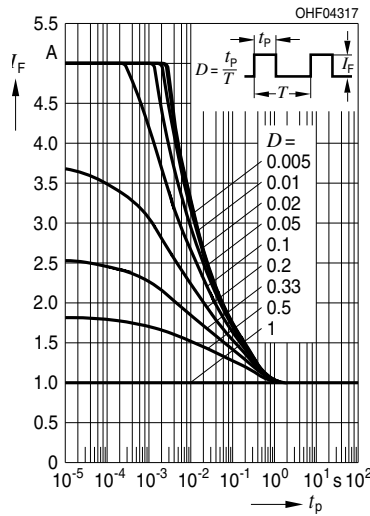


Max. zulässiger Durchlassstrom
Max. Permissible Forward Current

$I_F = f(T_B), R_{thJB} = 2.8\text{ K/W}$



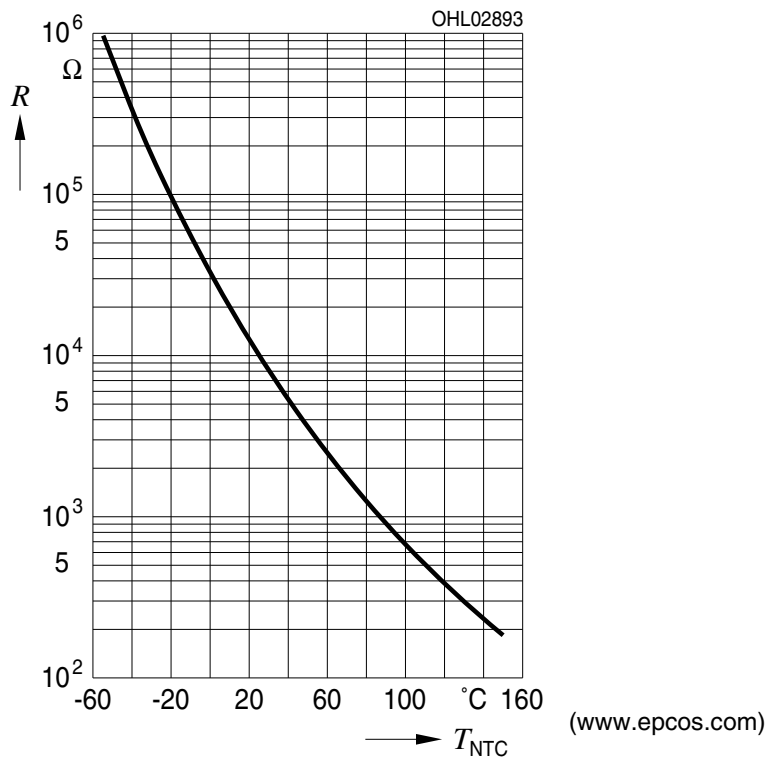
Zulässige Impulsbelastbarkeit
Permissible Pulse Handling
Capability $I_F = f(t_p), T_B = 85\text{ °C},$
Duty cycle $D =$ parameter



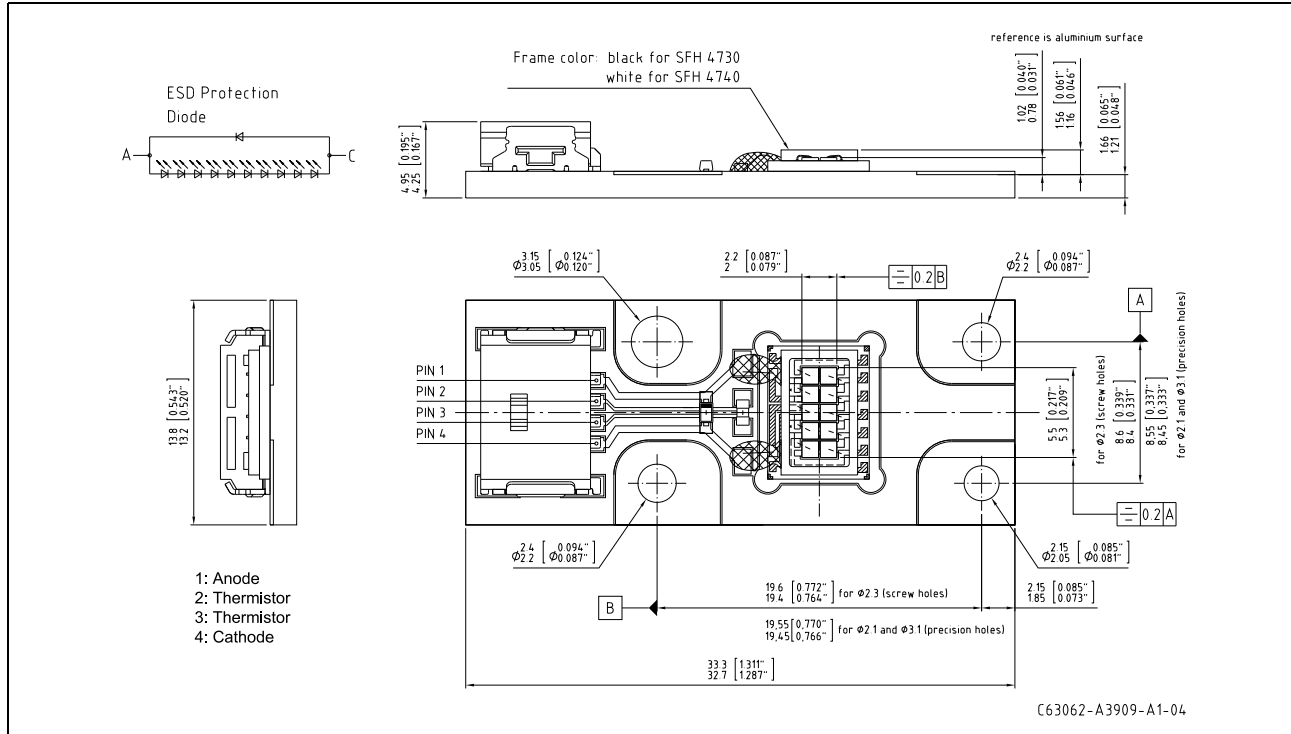
SMD NTC Thermistor mit Nickel Barrier Termination, Typ 0603
SMD NTC Thermistor with Nickel Barrier Termination, Type 0603

| No. of R/T characteristics | R_{25} [Ω] | $B_{25/50}$ [K] | $B_{25/85}$ [K] | $B_{25/100}$ [K] |
|----------------------------|--------------------------|--------------------|--------------------|---------------------|
| EPCOS 8502 / A01 | 10k \pm 5% | 3940 | 3980 | 4000 |

Typische Thermistor Kennlinie
Typical Thermistor Graph



Maßzeichnung und Ersatzschaltbild
Package Outlines and equivalent circuit diagram



Maße in mm (inch) / Dimensions in mm (inch).

Verwendeter Stecker / Used male connector on board:
 ERNI male connector SMD 214012, 4-pins (www.erni.com)

Empfohlene Gegenstecker / Recommended female connector for power supply:
 ERNI female connector SMD 214025, 4-pins (www.erni.com)

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 Leibnizstraße 4, D-93055 Regensburg
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² Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.

Mouser Electronics

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