IR-Lumineszenzdiode (850 nm) mit hoher Ausgangsleistung
High Power Infrared Emitter (850 nm)
Lead (Pb) Free Product - RoHS Compliant
IRL 81 A

gemäß OS-PCN-2011-003-A

acc. to OS-PCN-2011-003-A

Wesentliche Merkmale

- Infrarot LED mit hoher Ausgangsleistung
- Rosa Kunststoff-Miniaturgehäuse, seitliche Abstrahlung
- Kurze Schaltzeiten
- Passend zu Fototransistor LPT 80 A

Anwendungen

- Fertigungs- und Kontrollanwendungen der Industrie, die eine Unterbrechung des Lichtstrahls erfordern
- Lichtschranken

Sicherheitshinweise

Je nach Betriebsart emittieren diese Bauteile hochkonzentrierte, nicht sichtbare Infrarot-Strahlung, die gefährlich für das menschliche Auge sein kann. Produkte, die diese Bauteile enthalten, müssen gemäß den Sicherheits-richtlinien der IEC-Normen 60825-1 und 62471 behandelt werden.

Features

- High Power Infrared LED
- Pink plastic package with lateral emission
- Short switching times
- Matches phototransistor LPT 80 A

Applications

- For a variety of manufacturing and monitoring applications which require beam interruption
- Interrupters

Safety Advices

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung**[1] (I_F = 20 mA, t_p = 20 ms) **Radiant Intensity Grouping**[1] I_e (mW/sr)
IRL 81 A	Q68000A8000	>6.3 (typ.25)

[1] gemessen bei einem Raumwinkel Ω = 0.01 sr / measured at a solid angle of Ω = 0.01 sr

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Grenzwerte (T_A = 25 °C)
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op} , T_{stg}	– 40 … + 100	°C
Sperrspannung Reverse voltage	V_R	5	V
Vorwärtsgleichstrom Forward current	I_F	100	mA
Stoßstrom, t_p = 200 µs, D = 0 Surge current	I_{FSM}	1	A
Verlustleistung Power dissipation	P_{tot}	180	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm^2 Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 16 mm^2 each	R_{thJA}	375	K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission I_F = 100 mA	λ_{peak}	860	nm
Schwerpunkts-Wellenlänge der Strahlung Centroid wavelength I_F = 100 mA	$\lambda_{centroid}$	850	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA	$\Delta\lambda$	30	nm
Abstrahlwinkel Half angle	φ	± 12	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm^2
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	0.3 × 0.3	mm²

Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

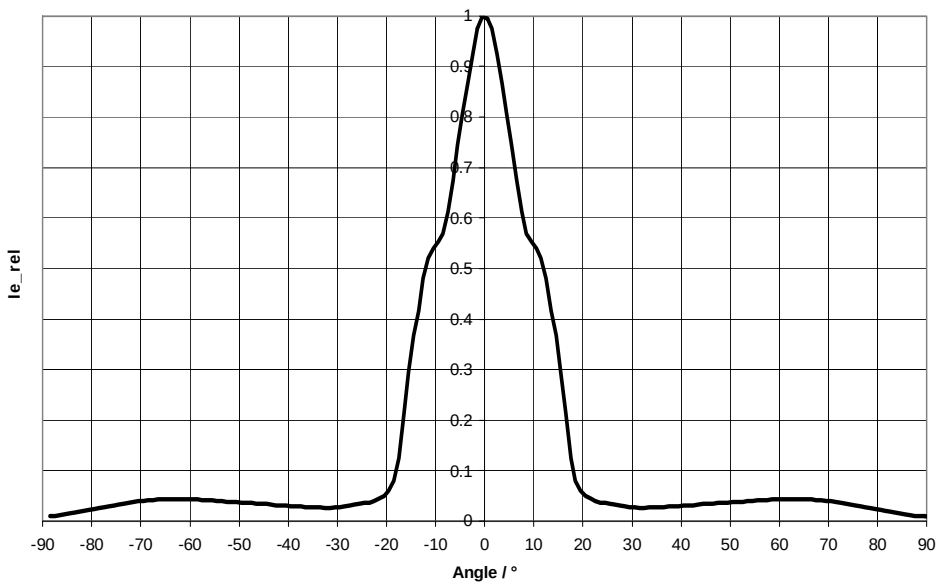
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei I_F = 100 mA, R_L = 50 Ω Switching times, I_e from 10% to 90% and from 90% to 10%, I_F = 100 mA, R_L = 50 Ω	t_r, t_f	12	ns
Durchlassspannung Forward voltage I_F = 20 mA, t_p = 20 ms	V_F	1.3 (< 1.6)	V
Sperrstrom Reverse current	I_R	not designed for reverse operation	µA
Gesamtstrahlungsfluss Total radiant flux I_F = 20 mA, t_p = 20 ms	$\Phi_{e\ typ}$	12	mW
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 100 mA Temperature coefficient of I_e or Φ_e, I_F = 100 mA	TC_I	– 0.5	%/K
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA	TC_V	– 0.7	mV/K
Temperaturkoeffizient von λ, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA	TC_λ	+ 0.3	nm/K

Strahlstärke I_e in Achsrichtung[1)]
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.01 sr

Bezeichnung Parameter	Symbol	Werte Values				Einheit Unit
		IRL 81 A				
		-Q	-R	-S	-T	
Strahlstärke Radiant intensity I_F = 20 mA, t_p = 20 ms	$I_{e\ min}$ $I_{e\ max}$	6.3 12.5	10 20	16 32	25 50	mW/sr mW/sr

[1)] Nur eine Gruppe in einer Verpackungseinheit (Streuung kleiner 1.6:1) /
Only one bin in one packing unit (variation lower 1.6:1)

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



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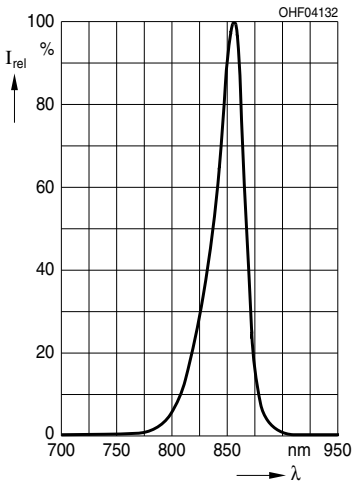
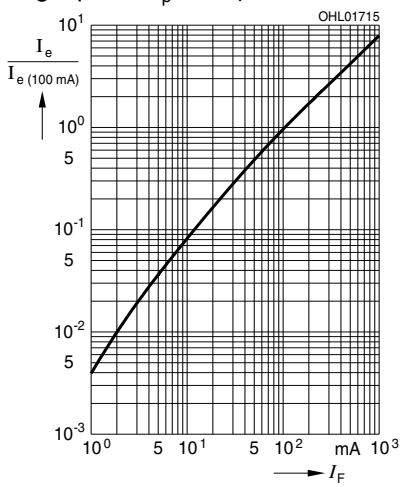
Relative Spectral Emission
$I_{rel} = f(\lambda)$

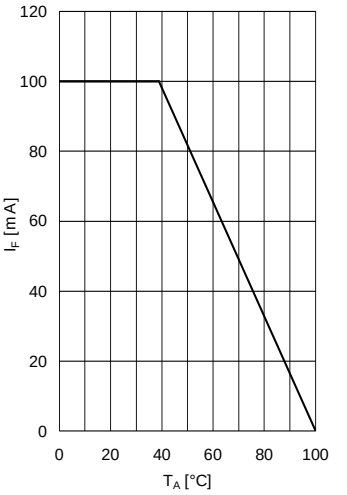


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

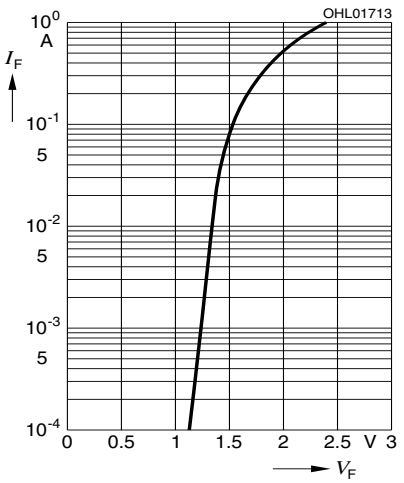
Single pulse, t_p = 25 µs



Max. Permissible Forward Current
$I_F = f(T_A)$, R_{thJA} = 375 K/W



Forward Current $I_F = f(V_F)$
Single pulse, t_p = 100 µs



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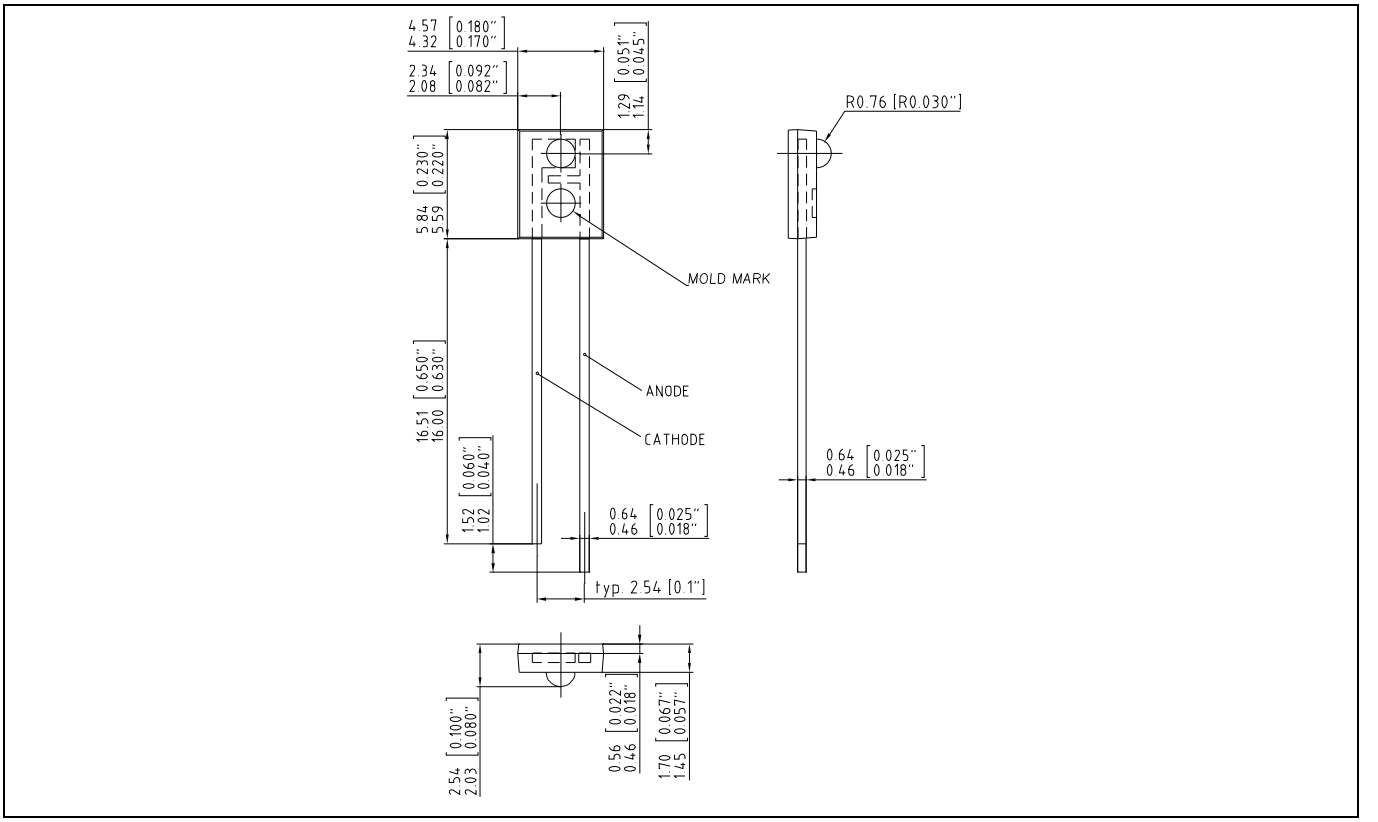
Maßzeichnung
Package Outlines

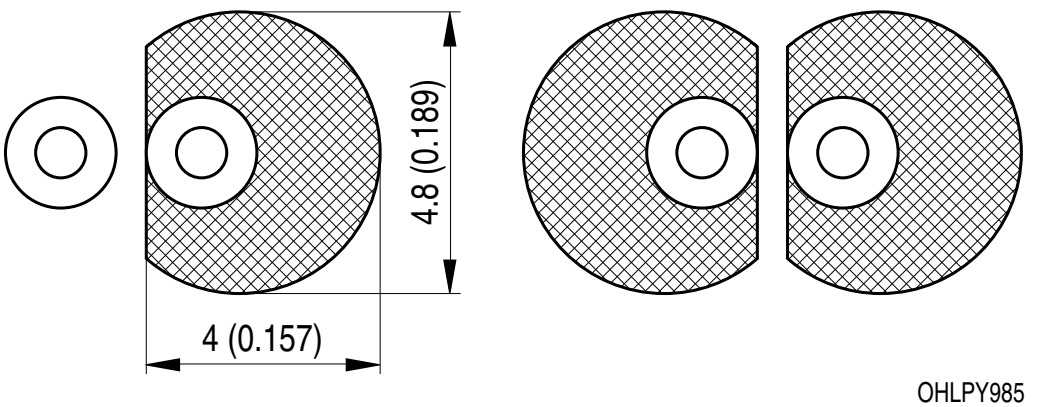


Maße in mm (inch) / Dimensions in mm (inch).

Gehäuse / Package	Hellrot eingefärbtes Kunststoffgehäuse, seitliche Abstrahlung, Anschlüsse im 2,54 mm-Raster Light-red colored plastic package, sidelooker, solder tabes 2.54 mm ($^1/_{10}$")
Anschlussbelegung Pin configuration	siehe Zeichnung see drawing

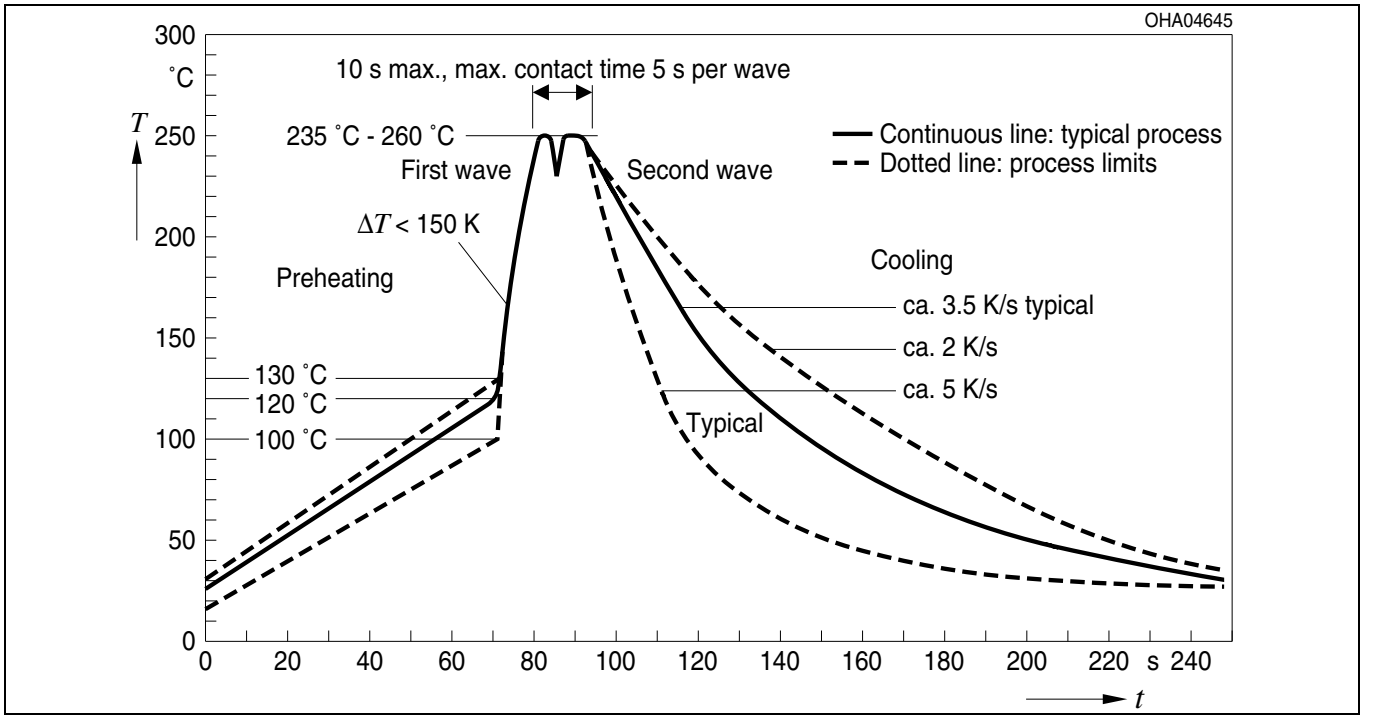
Empfohlenes Lötpaddesign
Recommended Solder Pad

Wellenlöten (TTW)
TTW Soldering



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach IEC 61760-1)
TTW Soldering (acc. to IEC 61760-1)



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Leibnizstraße 4, D-93055 Regensburg
www.osram-os.com

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