



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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IR-Lumineszenzdiode
Infrared Emitter
Lead (Pb) Free Product - RoHS Compliant

SFH 4010



Nicht für Neuentwicklungen im Automobilbereich /
not for new designs in automotive applications

Wesentliche Merkmale

- Sehr kleines Gehäuse:
(LxBxH) 1,7 mm x 0,8 mm x 0,65 mm
- Typische Peakwellenlänge 950 nm
- Gegurtet lieferbar

Features

- Very small package:
(LxWxH) 1.7 mm x 0.8 mm x 0.65 mm
- Typical Peak wavelength 950 nm
- Available on tape and reel

Anwendungen

- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Sensorik
- Alarm- und Sicherungssysteme
- IR-Freiraumübertragung

Applications

- Miniature photointerrupters
- Industrial electronics
- For drive and control circuits
- Sensor technology
- Alarm and safety equipment
- IR free air transmission

Typ Type	Bestellnummer Ordering Code	Strahlstärkegruppierung ¹⁾ ($I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$) Radiant Intensity Grouping ¹⁾ I_e (mW/sr)
SFH 4010	Q65110A6459	> 1.0 (typ. 2.5)

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

Grenzwerte ($T_A = 25\text{ °C}$)

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
Durchlassstrom Forward current	I_F	100	mA
Stoßstrom, $\tau = 10\ \mu\text{s}$, $D = 0$ Surge current	I_{FSM}	3	A
Verlustleistung Power dissipation	P_{tot}	160	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je $5\ \text{mm}^2$ Thermal resistance junction - ambient mounted on PC-board (FR4), pads size $5\ \text{mm}^2$ each	R_{thJA}	450	K/W
Wärmewiderstand Sperrschicht - Lötstelle bei Montage auf Metall-Block Thermal resistance junction - soldering point, mounted on metal block	R_{thJS}	250	K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

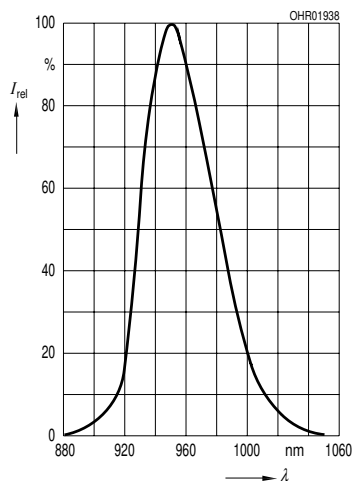
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	λ_{peak}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\text{ mA}$	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle	φ	± 80	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm ²
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.3×0.3	mm ²
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\text{ mA}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$, $R_L = 50\ \Omega$	t_r , t_f	0.5	μs
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	25	pF
Durchlassspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$	V_F V_F	1.3 (≤ 1.5) 1.9 (≤ 2.5)	V V
Sperrstrom Reverse current $V_R = 5\text{ V}$	I_R	0.01 (≤ 1)	μA
Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	20	mW
Temperaturkoeffizient von I_e bzw. Φ_e , $I_F = 100\text{ mA}$ Temperature coefficient of I_e or Φ_e , $I_F = 100\text{ mA}$	TC_I	- 0.55	%/K
Temperaturkoeffizient von V_F , $I_F = 100\text{ mA}$ Temperature coefficient of V_F , $I_F = 100\text{ mA}$	TC_V	- 2	mV/K
Temperaturkoeffizient von λ , $I_F = 100\text{ mA}$ Temperature coefficient of λ , $I_F = 100\text{ mA}$	TC_λ	+ 0.3	nm/K

Strahlstärke I_e in Achsrichtunggemessen bei einem Raumwinkel $\Omega = 0.01$ sr**Radiant Intensity I_e in Axial Direction**at a solid angle of $\Omega = 0.01$ sr

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms	$I_{e \text{ min}}$ $I_{e \text{ typ}}$	1.0 2.5	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ μ s	$I_{e \text{ typ}}$	22	mW/sr

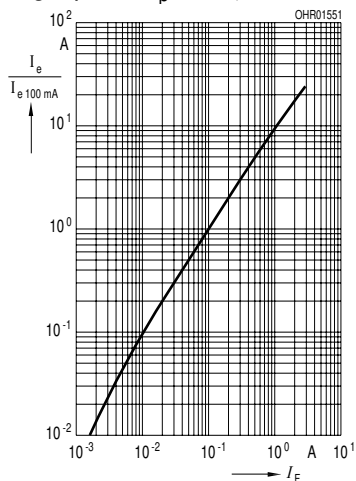
Relative Spectral Emission

$I_{rel} = f(\lambda)$



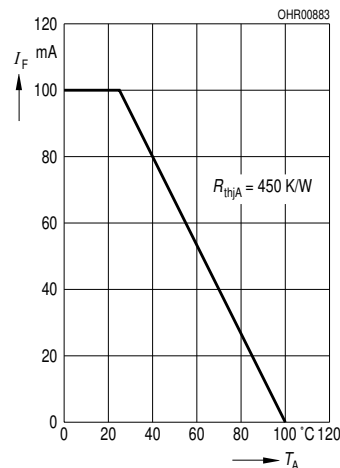
Radiant Intensity $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

Single pulse, $t_p = 20 \mu\text{s}$



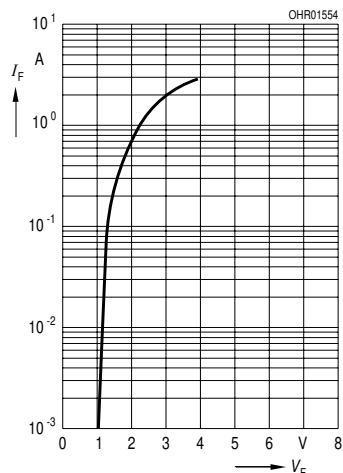
Max. Permissible Forward Current

$I_F = f(T_A), R_{thJA} = 450 \text{ K/W}$



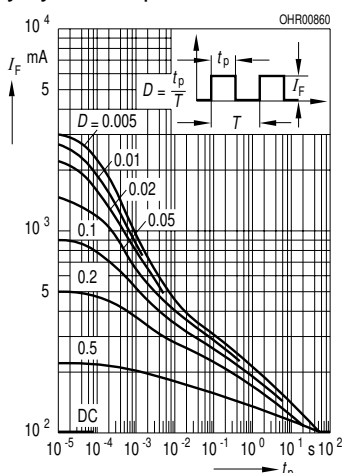
Forward Current

$I_F = f(V_F)$ single pulse, $t_p = 20 \mu\text{s}$

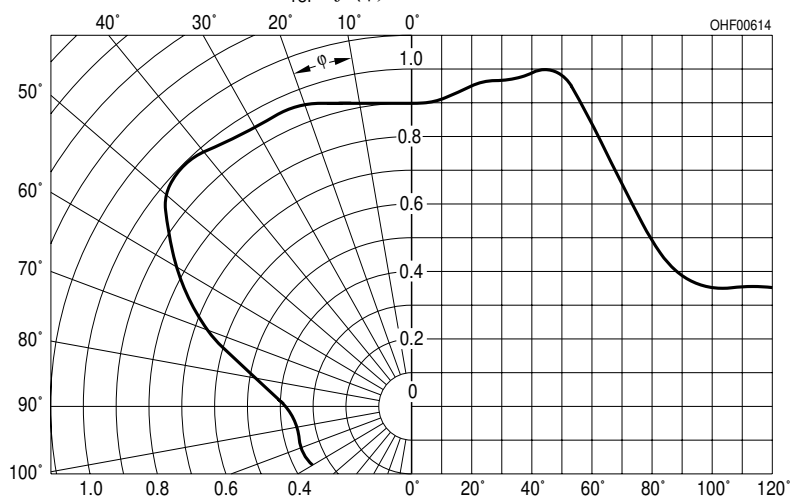


Permissible Pulse Handling Capability

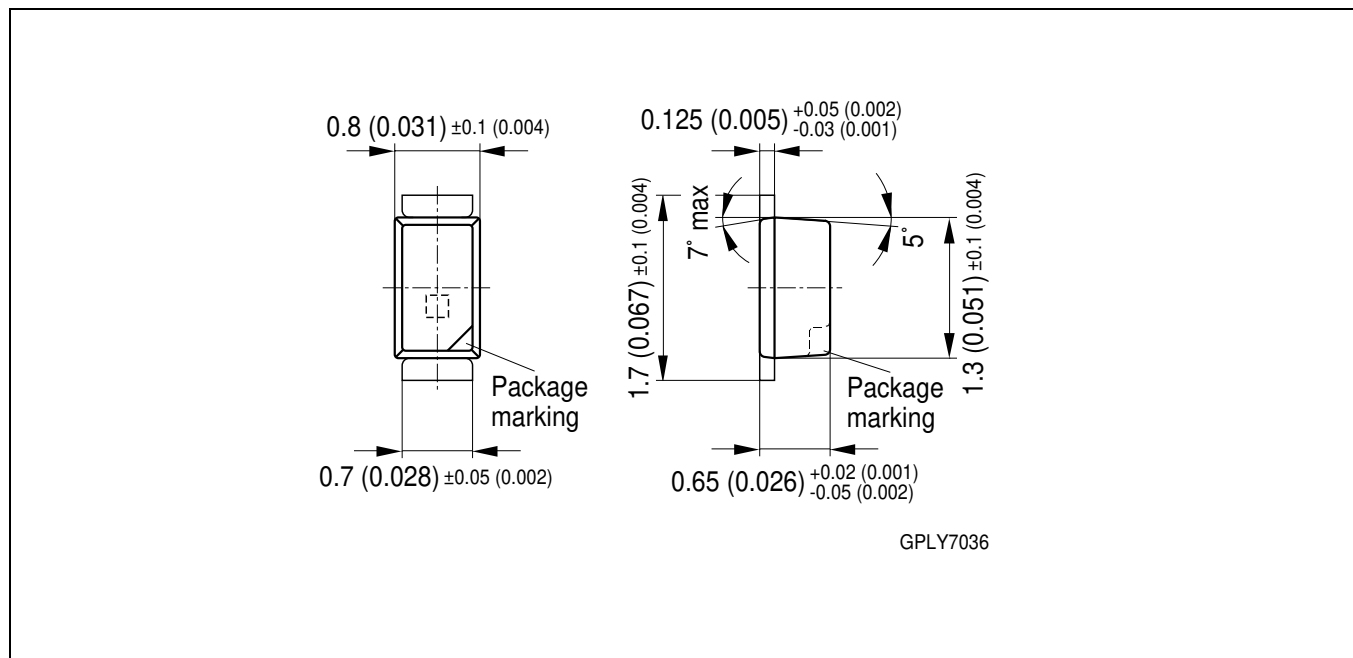
$I_F = f(t_p, T_A = 25^\circ\text{C})$
duty cycle $D = \text{parameter}$



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



Maßzeichnung Package Outlines

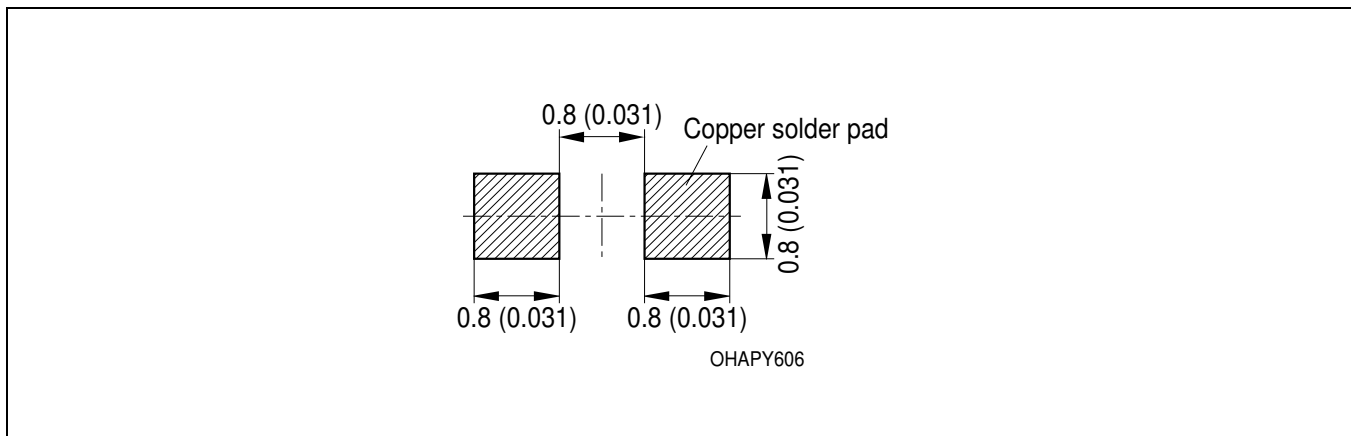


Maße in mm (inch) / Dimensions in mm (inch).

Gehäuse / Package	Epoxydharz, diffus / Epoxy, diffuse
Farbe / Colour	Farblos / colourless
Gehäusemarkierung/ Package marking	Kathode / cathode

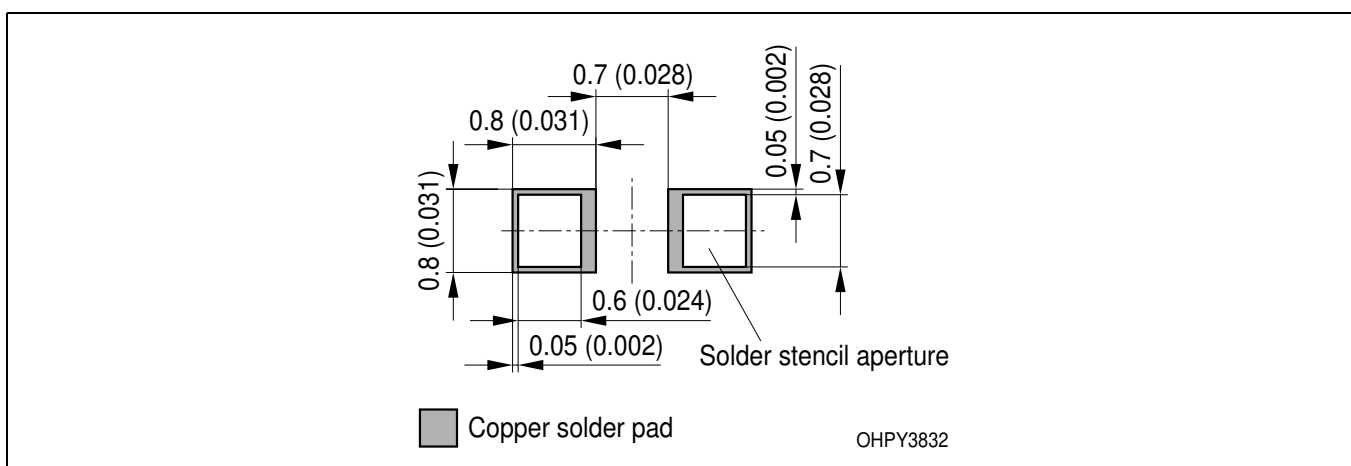
Empfohlenes Lötpaddesign
Recommended Solder Pad

Reflow Löten
 Reflow Soldering



Alternatives Lötpaddesign
Alternative Solder Pad

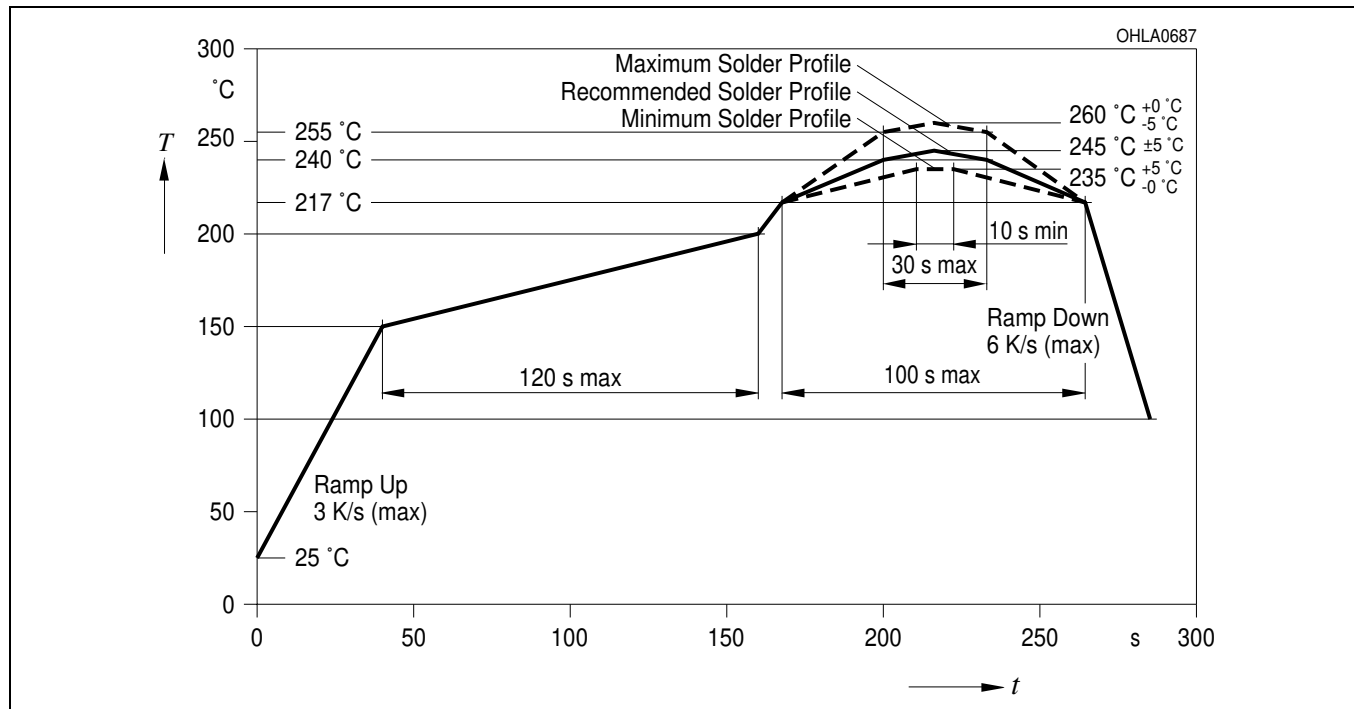
Reflow Löten
 Reflow Soldering



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

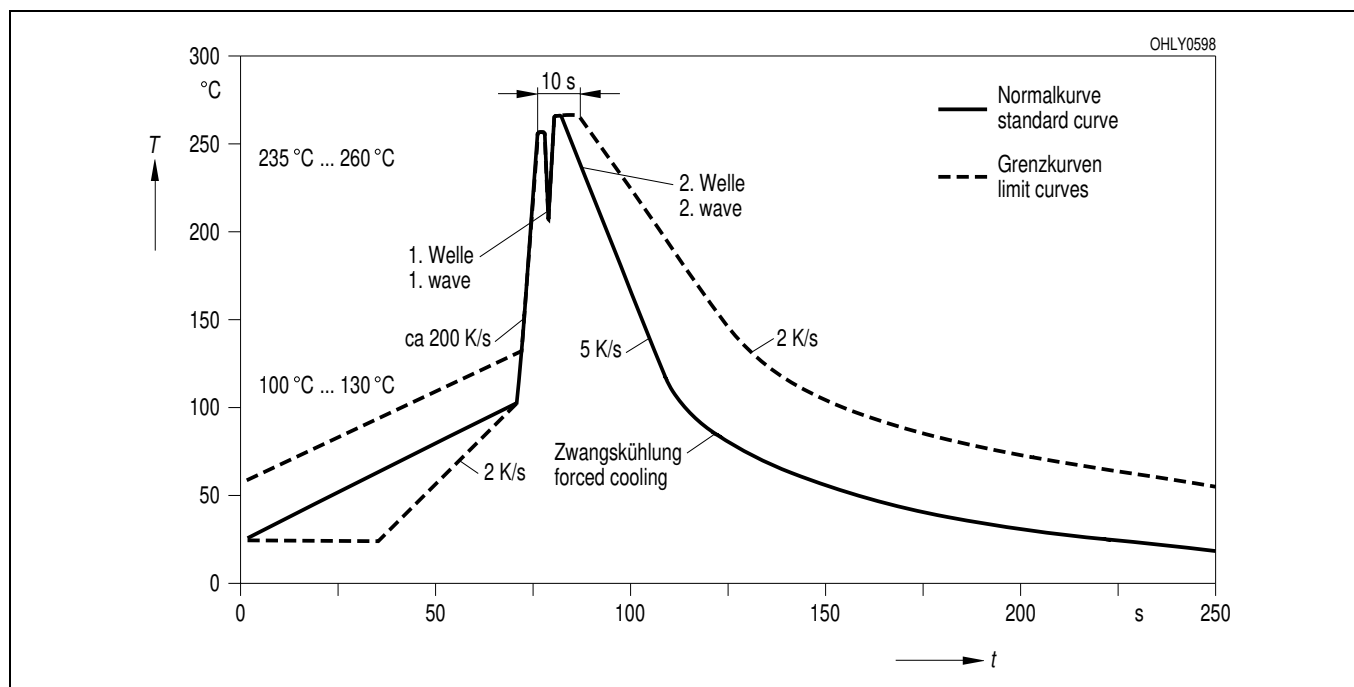
Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2
 Preconditioning acc. to JEDEC Level 2
 (nach J-STD-020C)
 (acc. to J-STD-020C)



Wellenlöten (TTW)
TTW Soldering

(nach CECC 00802)
 (acc. to CECC 00802)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com

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