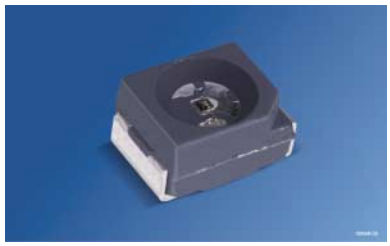
IR-Lumineszenzdiode
Infrared Emitter

SFH 4271



Wesentliche Merkmale

- Schwarz eingefärbtes TOPLED-Gehäuse
- Typische Emissionswellenlänge 880nm
- Verbesserte Abbildungseigenschaften durch Absorption der Seitenstrahlung
- Größe der Leuchtquelle 300µm x 300µm
- IR Reflow und TTW Löten geeignet
- Feuchte-Empfindlichkeitsstufe 2 nach JEDEDC Standard J-STD-020A

Features

- Black coloured TOPLED-package
- Typical Peakwavelength 880nm
- Improved imaging characteristics due to absorption of side emission
- Size of emitting area 300µm x 300µm
- Suited for IR Reflow and TTW-soldering
- Moisture sensitivity level 2 according to JEDEDC Standard J-STD-020A

Anwendungen

- Miniaturlichtschranken und Lichtschranken über große Entfernungen
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Automobiltechnik
- Sensorik
- Alarm- und Sicherungssysteme
- IR-Freiraumübertragung

Applications

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

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung** [1] (I_F = 100 mA, t_p = 20 ms) **Radiant intensity grouping** [1] I_e (mW/sr)
SFH 4271	Q65110A1013	1 ... 5

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

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
Durchlaßstrom Forward current	I_F	100	mA
Stoßstrom, τ = 10 µs, D = 0 Surge current	I_{FSM}	2.5	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}	450	K/W
Wärmewiderstand Sperrschicht - Lötstelle bei Montage auf Metall-Block Thermal resistance junction - soldering point, mounted on metal block	R_{thJS}	≈ 200	K/W

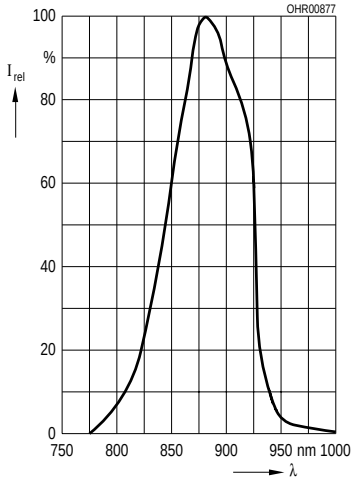
Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Wellenlänge der Strahlung Wavelength at peak emission I_F = 100 mA, t_p = 20 ms	λ_{peak}	880	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA	$\Delta\lambda$	80	nm
Abstrahlwinkel Half angle	φ	± 60	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
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	0.5	µs
Kapazität, Capacitance V_R = 0 V, f = 1 MHz	C_o	15	pF
Durchlaßspannung, Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.5 (≤1.8) 3.0 (≤3.8)	 V V
Sperrstrom, Reverse current V_R = 5 V	I_R	0.01 (≤1)	µA
Gesamtstrahlungsfluß, Total radiant flux I_F = 100 mA, t_p = 20 ms	Φ_e	5	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	– 2	mV/K
Temperaturkoeffizient von λ, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA	TC_λ	+ 0.25	nm/K

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

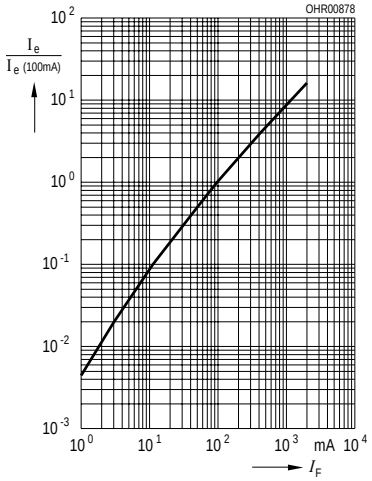
Bezeichnung Parameter	Symbol	Werte Values			Einheit Unit
		- L	- M	- N	
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\,min}$ $I_{e\,max}$	1 2	1.6 3.2	2.5 5.0	mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\,typ}$	16	20	24	mW/sr

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

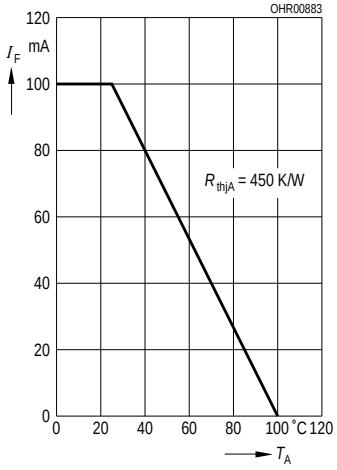


Radiant Intensity $\frac{I_e}{I_{e\,100\,mA}} = f(I_F)$

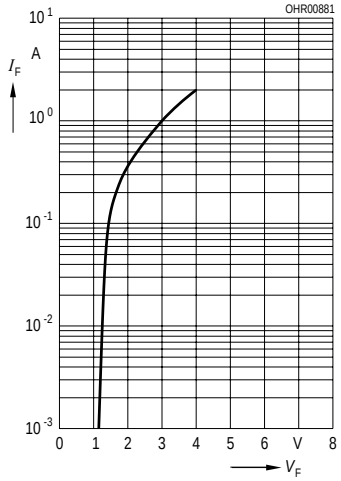
Single pulse, t_p = 20 µs



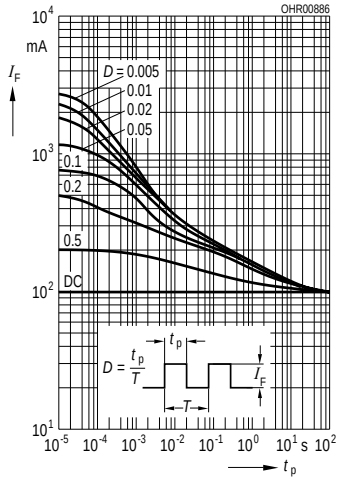
Max. Permissible Forward Current
$I_F = f(T_A)$



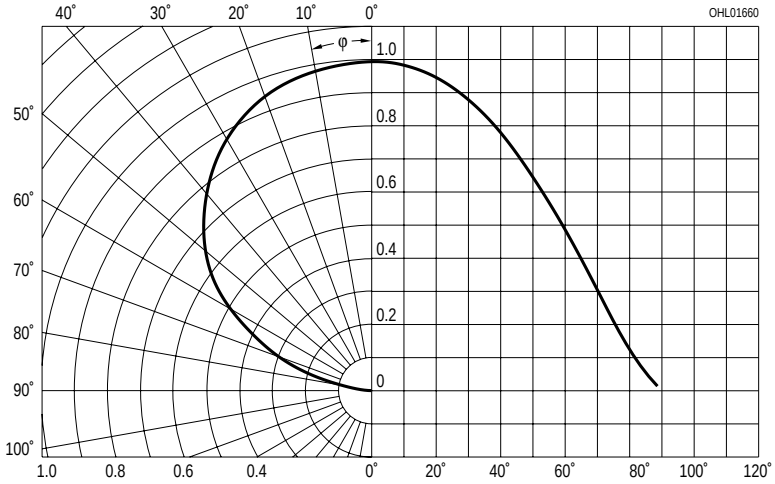
Forward Current
$I_F = f(V_F)$ single pulse, t_p = 20 µs



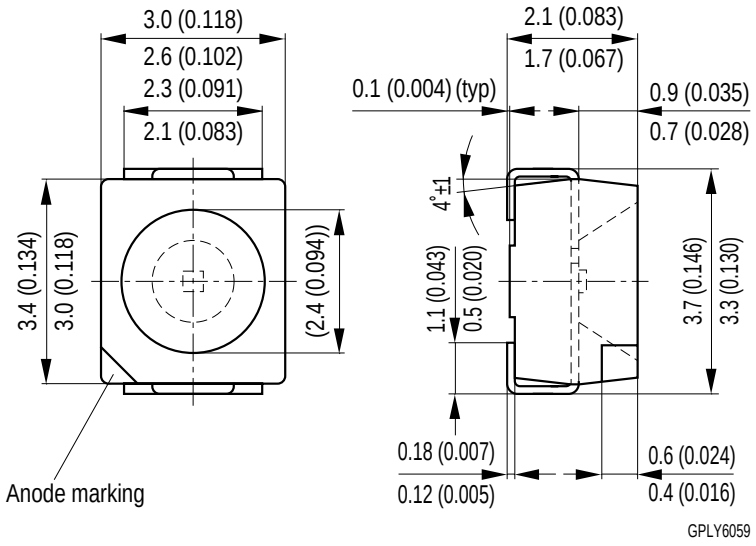
Permissible Pulse Handling Capability $I_F = f(t_p)$, T_A = 25 °C
duty cycle D = parameter



Radiation Characteristics $S_{el} = f(\varphi)$



Maßzeichnung
Package Outlines



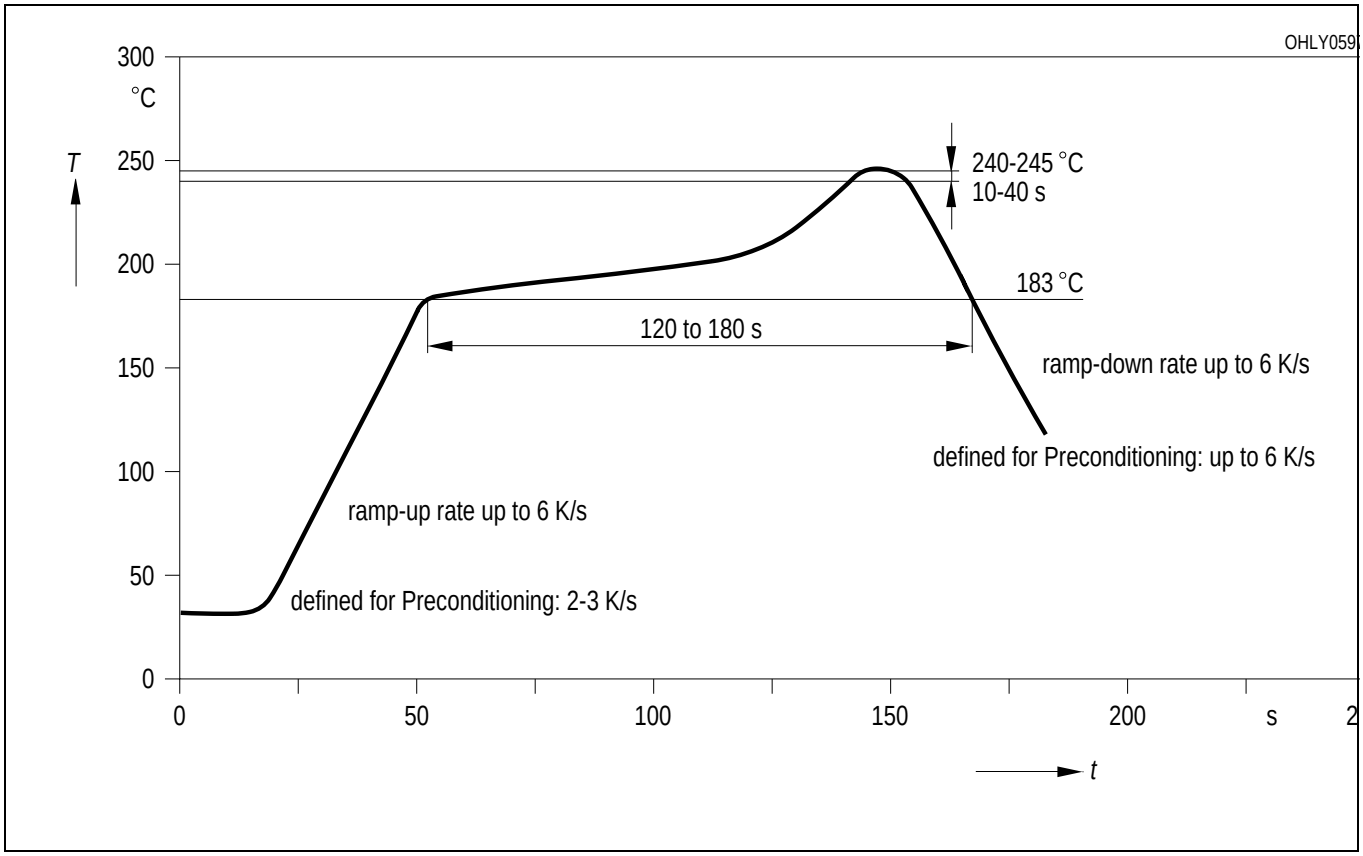
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Gehäusefarbe: schwarz, Verguss klar
Brechungsindex Verguss: 1.53

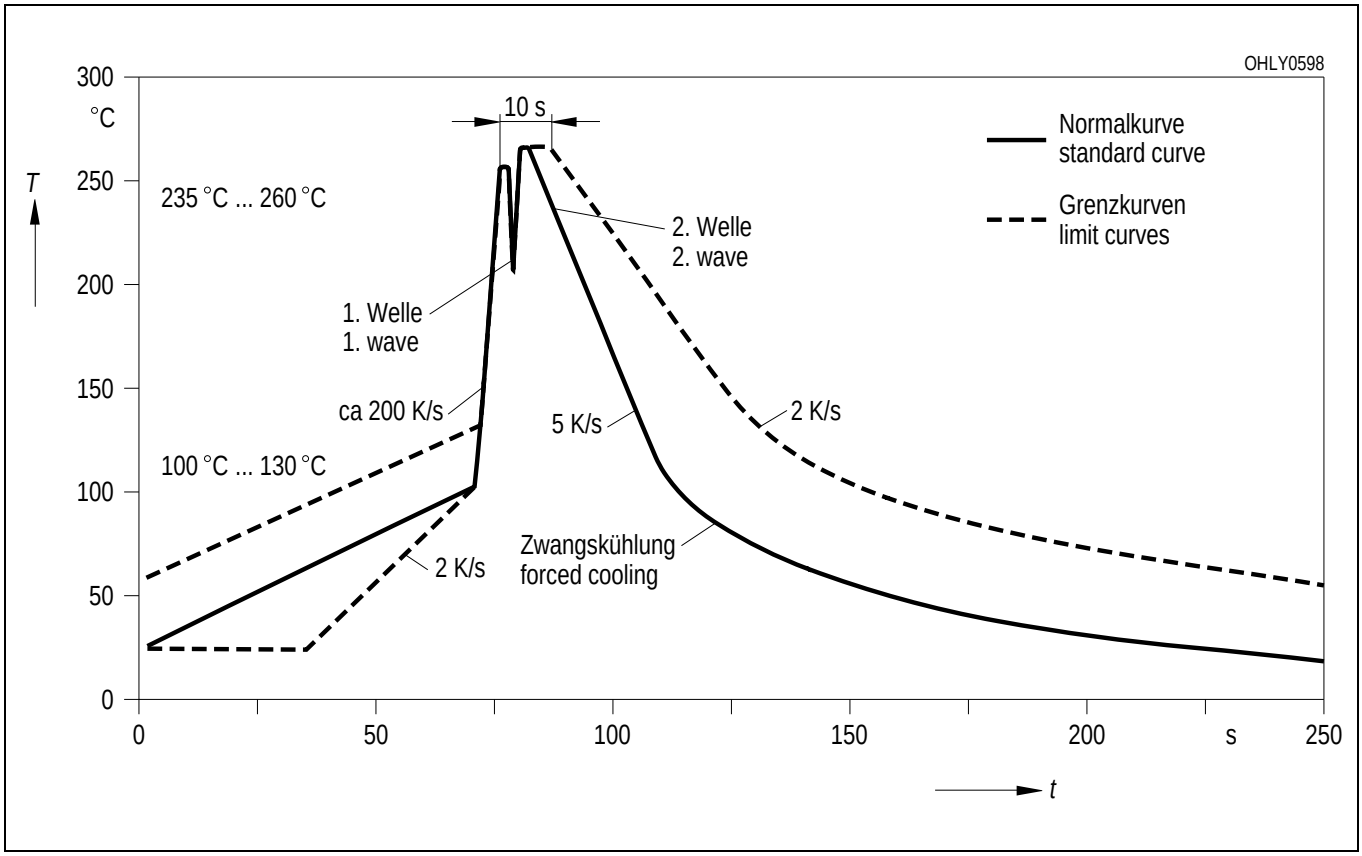
Package Colour: black, resin colourless clear
Refractive index resin: 1.53

Lötbedingungen Vorbehandlung nach JEDEC Level 2
Soldering Conditions Preconditioning acc. to JEDEC Level 2

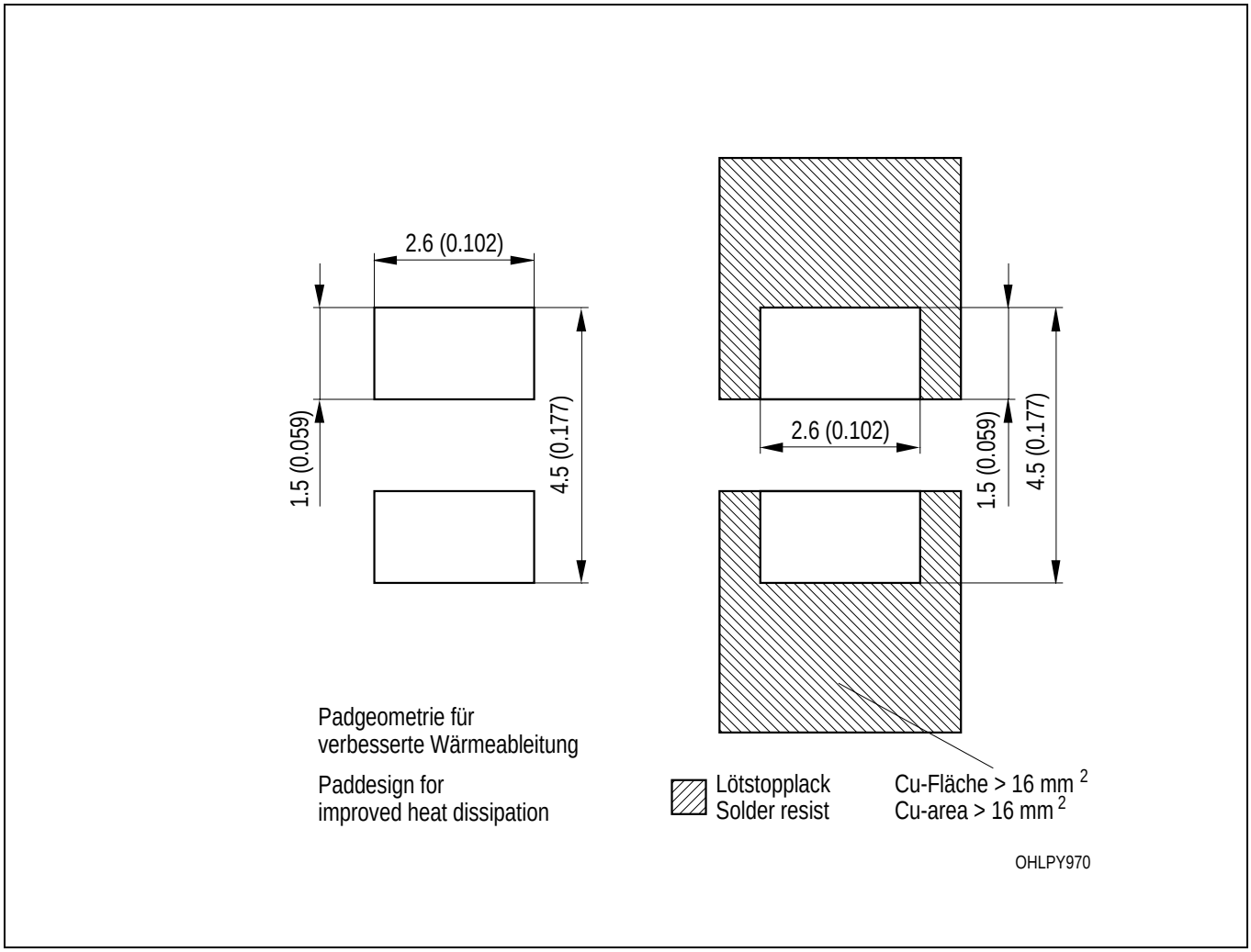
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



Empfohlenes Lötpaddesign IR-Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch)
Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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Packing
Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.
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