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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LRTB R48G

Das Bauteil ist speziell für den Einsatz in Vollfarb-Videowänden entwickelt worden. Die 4-lead common anode Technologie läßt eine unahängige Ansteuerung aller Chips zu und bietet dadurch eine additive Farbmischung. Durch die kompakten Gehäuseabmaße ist es bestens für Videowände mit hoher Auflösung und geringem Pixelabstand geeignet.

This device is especially designed for full color video walls. The 4-lead common anode technology admits an additive mixture of color stimuli by independent driving of each chip. Very compact package size fits best for high resolution narrow pitch video walls.

Merkmale

- **Gehäusetyp:** SMT Gehäuse, Harz Verguss
- **Farbe:** Rot/True Grün/Blau, 623 nm (rot), 530 nm (true grün), 471 nm (blau)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Chiptechnologie:** InGaAlP (rot), InGaN (true grün, blau)
- **Lötmethode:** Reflow lötbar
- **Vorbehandlung:** nach JEDEC Level 4
- **ESD-Festigkeit:** ESD-sensitiv

Features

- **package:** SMT package, epoxy resin
- **color:** red/true green/ blue, 623 nm (red), 530 nm (true green), 471 nm (blue)
- **viewing angle:** Lambertian Emitter (120°)
- **chiptechnology:** InGaAlP(red), InGaN (true green, blue)
- **soldering methods:** reflow solderable
- **preconditioning:** acc. to JEDEC Level 4
- **ESD-withstand voltage:** sensitive device

Anwendungen

- Videoleinwände im Innenbereich
- Vollfarb-Displays

Applications

- Indoor Video Walls
- full color display

Bestellinformation
Ordering Information

Typ Type	Emissionsfarbe Color of Emission	Lichtstärke[1] Seite 29 Luminous Intensity[1] *page 29* I_F = 10 mA (red), 5 mA (true green), 5 mA (blue) I_V (mcd)		
		red	true green	blue
LRTB R48G	red true green blue	63 … 140	140 …315	28 … 71

Bestellinformation
Ordering Information

Typ Type	Verpackungseinheit Packingunits	Bestellnummer Ordering Code
LRTBR48G-P9Q7-1+R7S5-26+NP-68	28 reels with 24kpcs/reel	Q65112A4415
LRTBR48G-P9Q7-1+R7S5-26+NP-68	1 reel with 24kpcs	Q65112A3521

.

Grenzwerte
Maximum Ratings

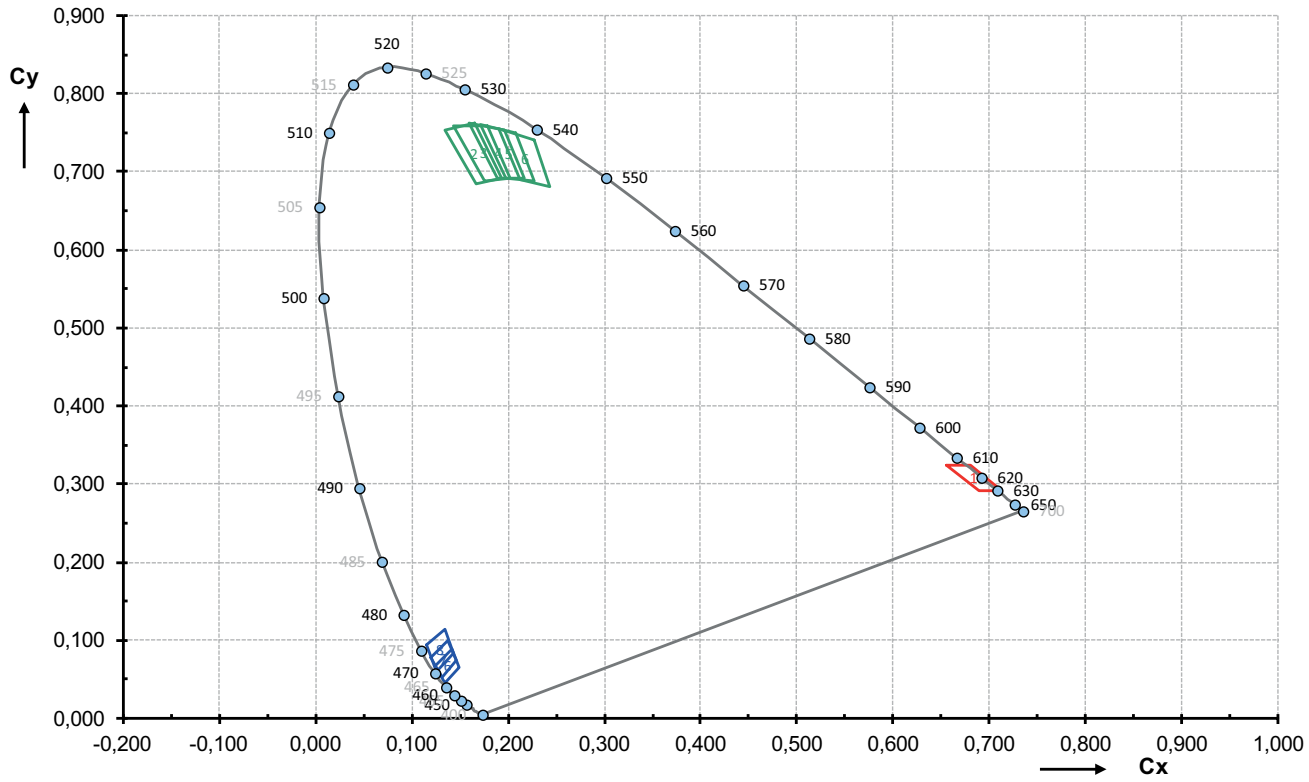
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Werte** **Values**			**Einheit** **Unit**
		red	**true green**	**blue**	
Betriebstemperatur Operating temperature range	T_{op}	– 30… + 85			°C
Lagertemperatur Storage temperature range	T_{stg}	– 40 … + 85			°C
Sperrschichttemperatur Junction temperature	T_j	+ 100			°C
Durchlassstrom Forward current (T_S=25°C)	I_F	10			mA
Stoßstrom Surge current t_p = 10 µs, D = 0.005, T_S=25°C	I_{FM}	100			mA
Sperrspannung Reverse voltage (T_S=25°C)	V_R	10	5		V

Kennwerte
Characteristics
(T_S = 25 °C)

Bezeichnung Parameter		Symbol Symbol	Werte Values			Einheit Unit
			red	true green	blue	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)	(typ.)	λ_{peak}	632	523	455	nm
Dominantwellenlänge[3) Seite 29] Dominant wavelength[3) *page 29*] I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)	(min.) (typ.) (max.)	λ_{dom}	615 623 627	523 530* 539	466 471* 475	nm nm nm
Spektrale Bandbreite bei 50 % $I_{rel\ max}$ Spectral bandwidth at 50 % $I_{rel\ max}$ I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)	(typ.)	$\Delta\lambda$	18	33	25	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	120			Grad deg.
Durchlassspannung[4) Seite 29] Forward voltage[4) *page 29*] I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)	(min.) (typ.) (max.)	V_F V_F V_F	1.6 1.95 2.4	2.4 2.7 3.4	2.4 2.7 3.4	V V V
Sperrstrom[2) Seite 29] Reverse current[2) *page 29*] V_R = 5 V (blue / true green); 10 V (red)	(typ.) (max.)	I_R I_R	0.02 10	0.01 10		µA µA
Wärmewiderstand Thermal resistance Sperrschicht/Lötpad Junction/solder point	(typ.) (max.)	$R_{th\ JS\ real}$ $R_{th\ JS\ real}$	480 580	380 450	550 660	K/W K/W

* Einzelgruppen siehe **Seite 8**
Individual groups on **page 8**
** R_{th}(max) basiert auf statistischen Werten
R_{th}(max) is based on statistic values

Farbortgruppen
Chromaticity Coordinate Groups



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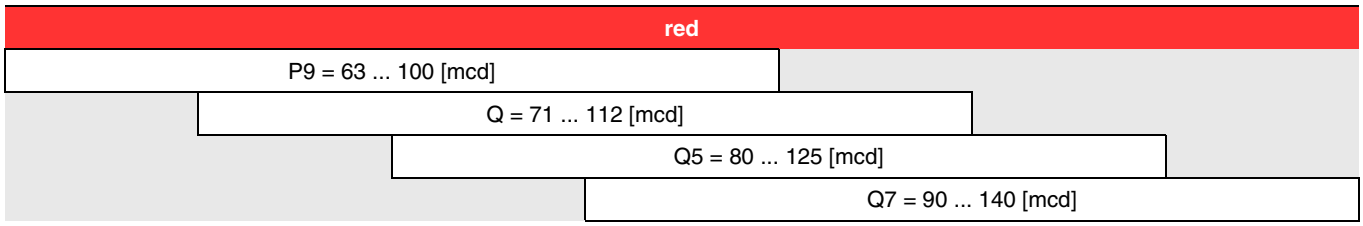
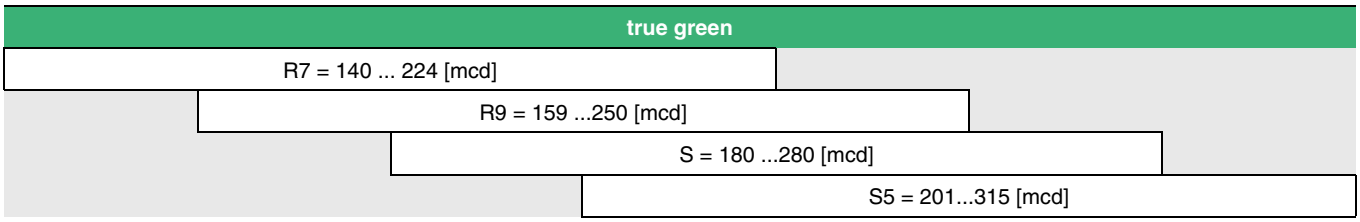
Gruppe Group	Cx	Cy	Gruppe Group	Cx	Cy
red	0.6892	0.292	6	0.1351	0.045
	0.712	0.291		0.1489	0.0651
	0.6801	0.324.		0.142	0.0889.
	0.6551	0.325		0.1246	0.666
2	0.1347	0.7539	7	0.1309	0.052
	0.1672	0.685		0.1464	0.0736
	0.1934	0.6911		0.138	0.1001
	0.1654	0.7627		0.1193	0.0777
3	0.1437	0.7597	8	0.1262	0.0606
	0.1755	0.6882		0.1432	0.0829
	0.2027	0.6913		0.1342	0.114
	0.1779	0.7591		0.1156	0.0935
4	0.1601	0.7618			
	0.1883	0.692			
	0.2165	0.6915			
	0.1963	0.7532			
5	0.1717	0.761			
	0.1976	0.6925			
	0.2269	0.6878			
	0.2083	0.7498			
6	0.1903	0.755			
	0.2121	0.6908			
	0.2429	0.6811			
	0.2273	0.7408			

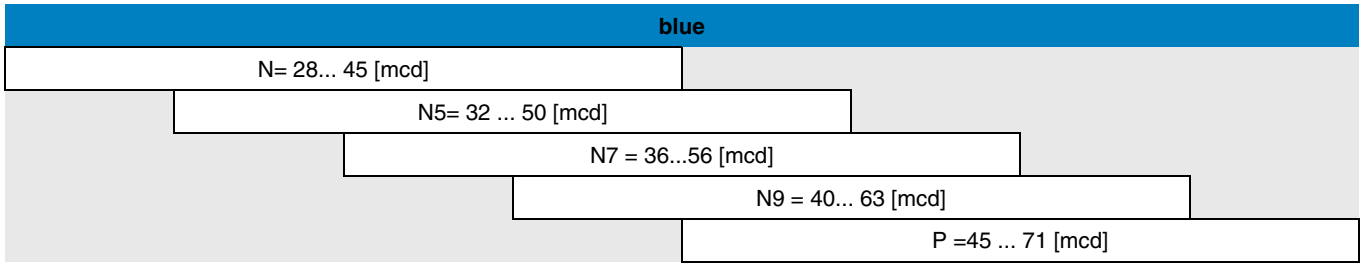
Floating Bins



Floating Bins



Floating Bins



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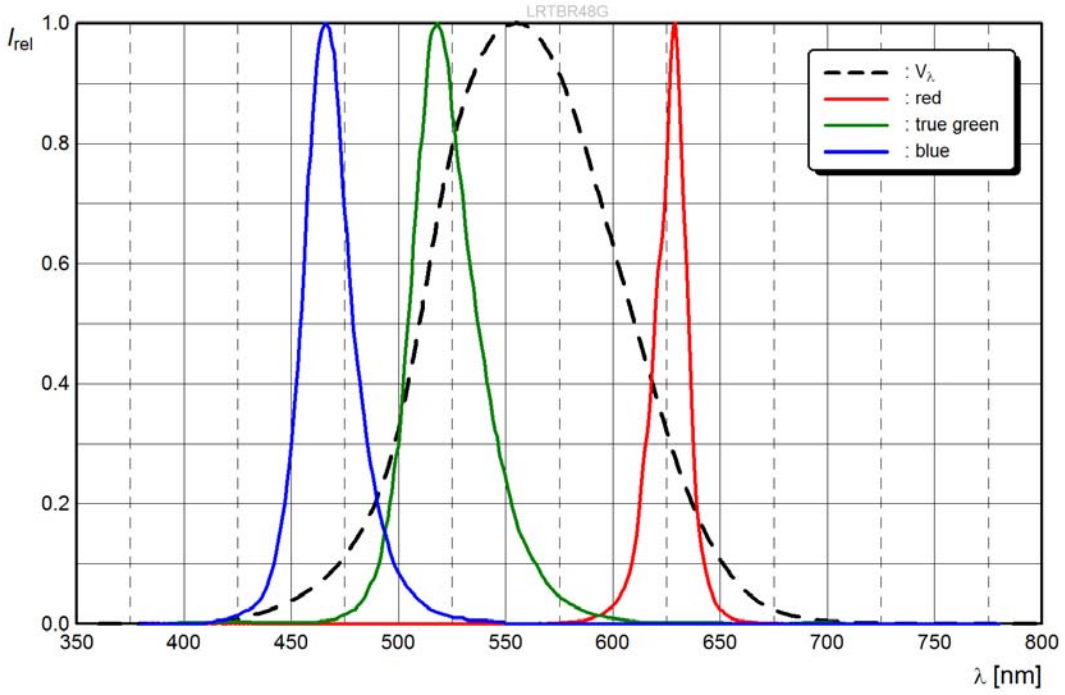
Wellenlängengruppen (Dominantwellenlänge)[3] Seite 29
Wavelength Groups (Dominant Wavelength)[3] *page 29*

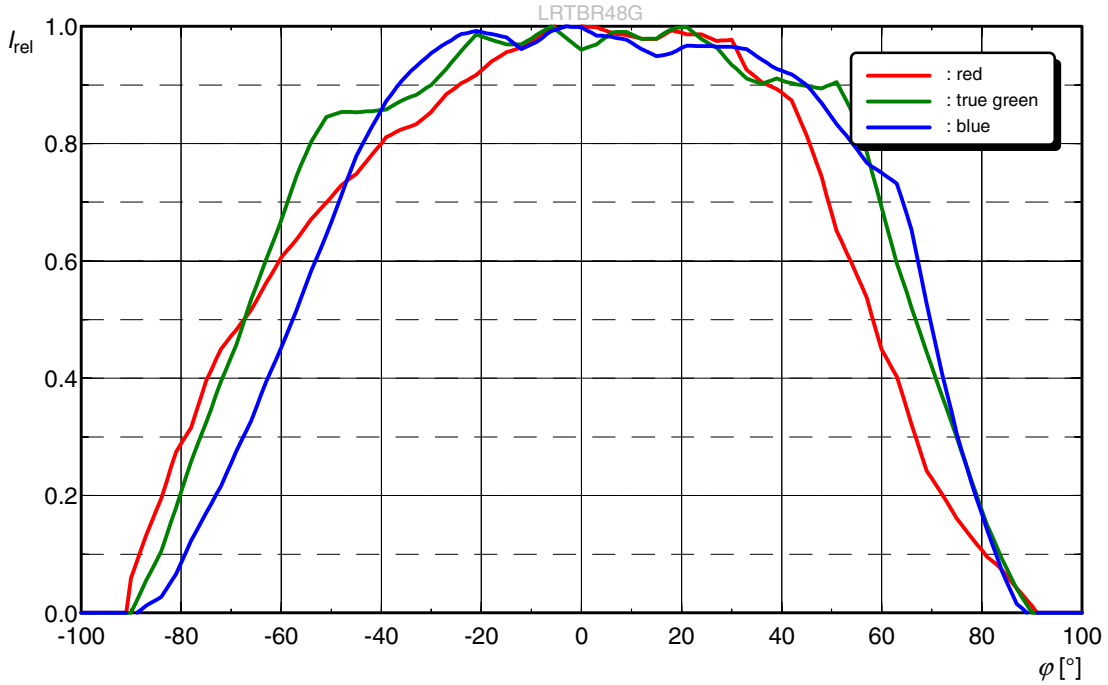
Gruppe Group	true green		Einheit Unit
	min.	max.	
2	523	529	nm
3	525	531	nm
4	528	534	nm
5	530	536	nm
6	533	539	nm

Gruppe Group	blue		Einheit Unit
	min.	max.	
6	466	471	nm
7	468	473	nm
8	470	475	nm

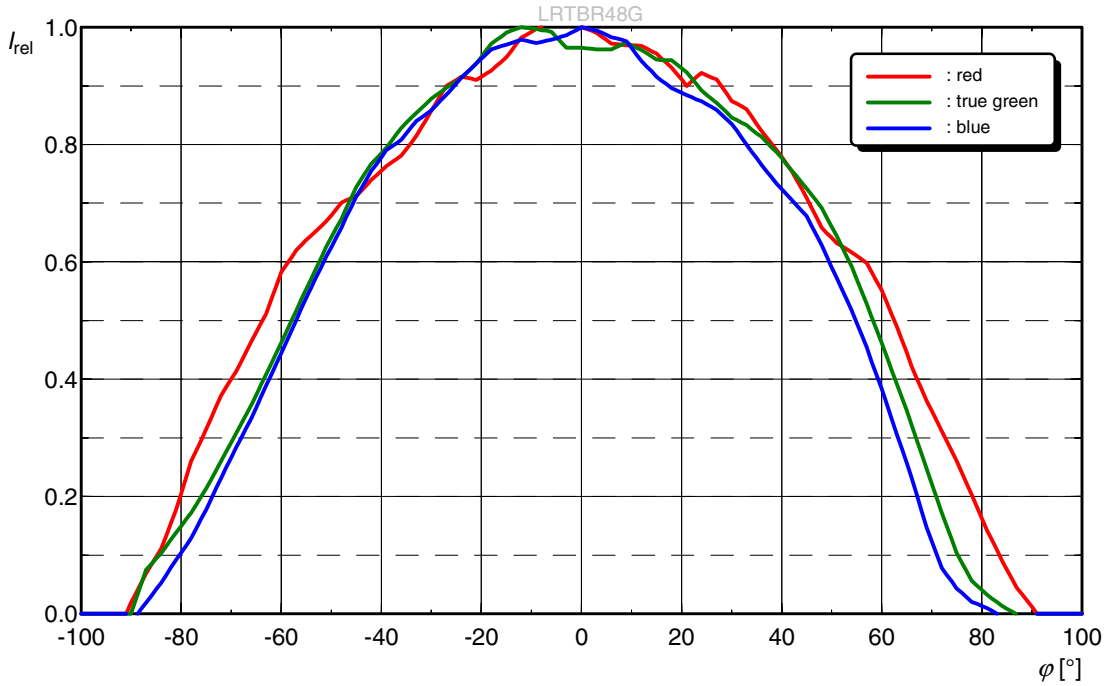
Relative spektrale Emission[5) Seite 29]
Relative Spectral Emission[5) *page 29*]
V(λ) = spektrale Augenempfindlichkeit / Standard eye response curve
$I_{rel} = f(\lambda)$; T_S = 25 °C; I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)



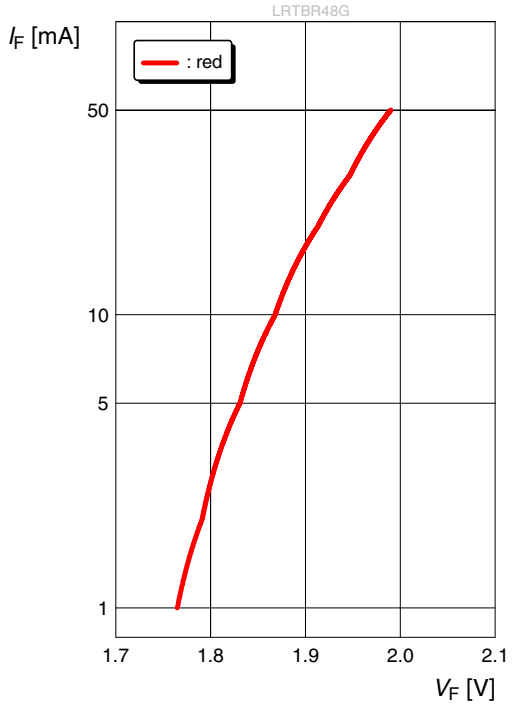
Abstrahlcharakteristik (horizontal)[5) Seite 29]
Radiation Characteristic (horizontal)[5) *page 29*]
$I_{rel} = f(\varphi)$; T_S = 25 °C, I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)



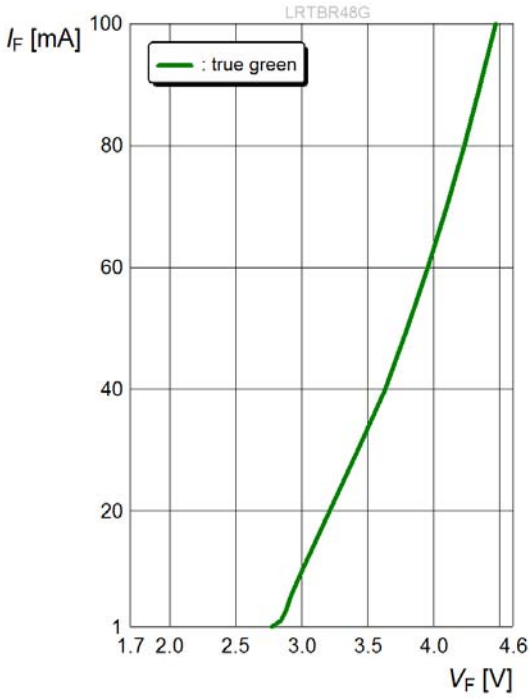
Abstrahlcharakteristik (vertikal)[5) Seite 29]
Radiation Characteristic (vertical)[5) *page 29*]
$I_{rel} = f(\varphi)$; T_S = 25 °C, I_F = 10 mA (red), 5 mA (true green), 5 mA (blue)



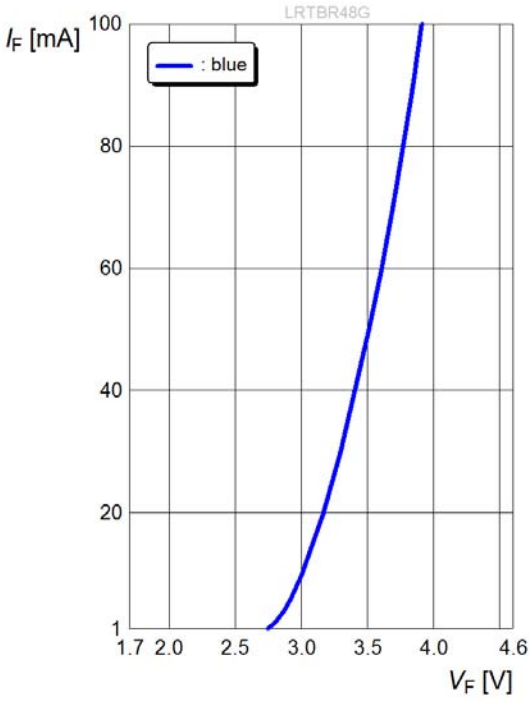
Durchlassstrom[5) Seite 29]
Forward Current[5) *page 29*]
$I_F = f(V_F)$; T_S = 25 °C; **red**



Durchlassstrom[5) Seite 29]
Forward Current[5) *page 29*]
$I_F = f(V_F)$; T_S = 25 °C; **true green**



Durchlassstrom[5) Seite 29]
Forward Current[5) *page 29*]
$I_F = f(V_F)$; T_S = 25 °C; **blue**



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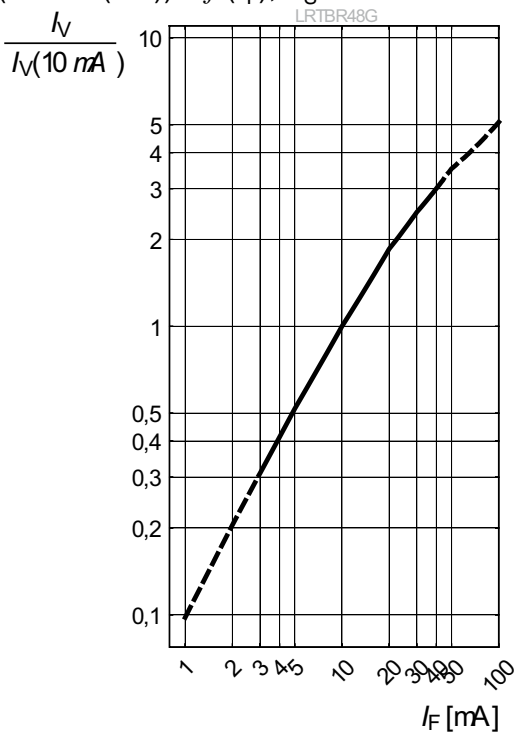
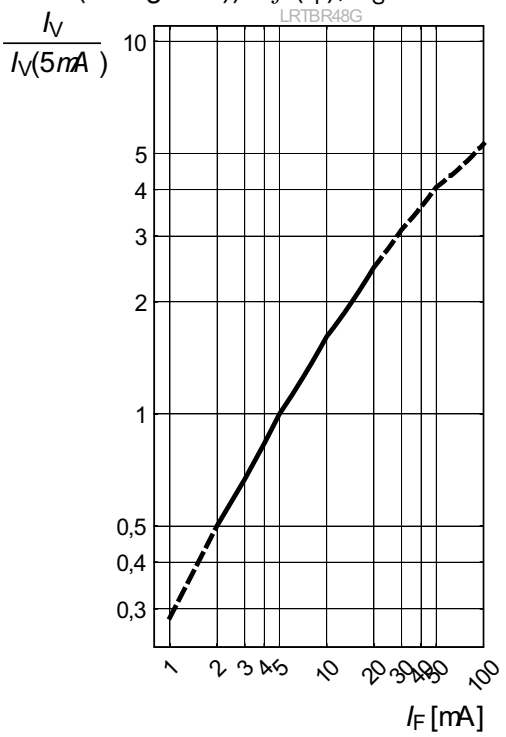
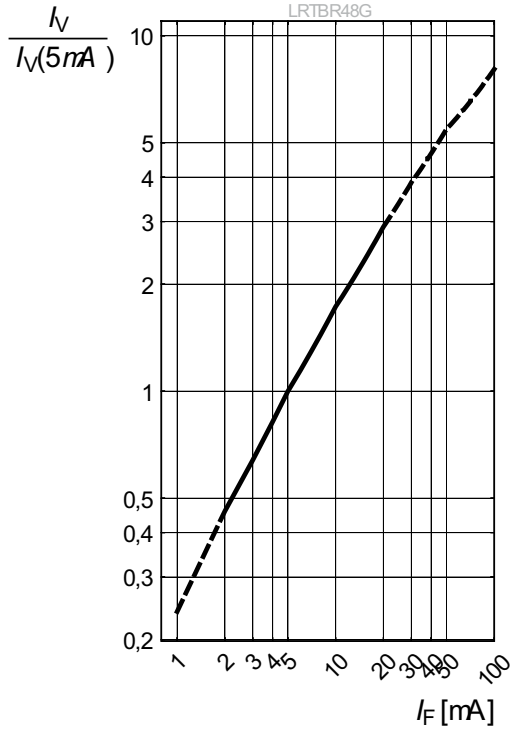
Relative Lichtstärke[5) 6) Seite 29]
Relative Luminous Intensity[5) 6) *page 29*]
$I_V/I_V(10\ mA\ (red)) = f(I_F)$; $T_S = 25\ °C$



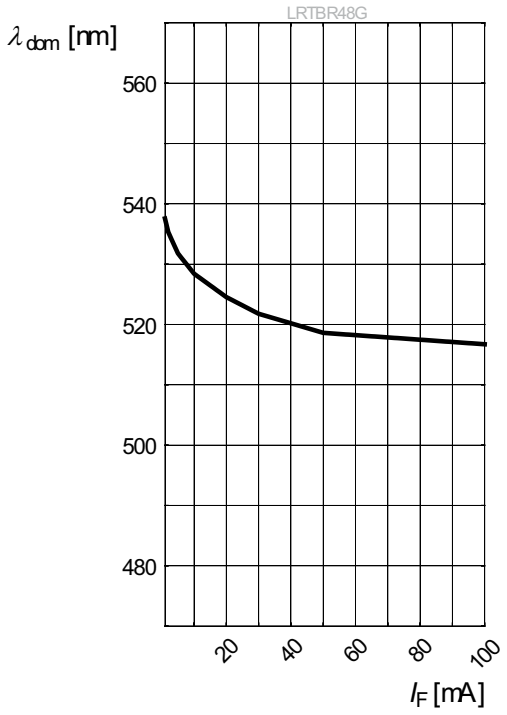
Relative Lichtstärke[5) 6) Seite 29]
Relative Luminous Intensity[5) 6) *page 29*]
$I_V/I_V(5\ mA\ (true\ green)) = f(I_F)$; $T_S = 25\ °C$



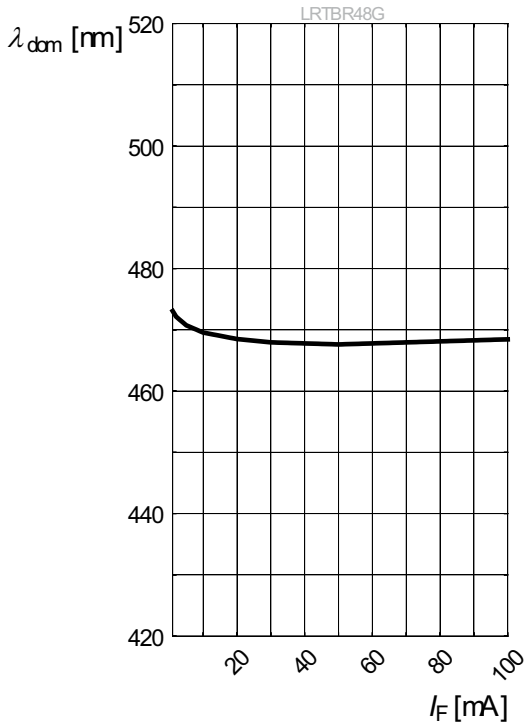
Relative Lichtstärke[5) 6) Seite 29]
Relative Luminous Intensity[5) 6) *page 29*]
$I_V/I_V(5\ mA\ (blue)) = f(I_F)$; $T_S = 25\ °C$



Dominante Wellenlänge[5) Seite 29]
Dominant Wavelength[*5) page 29*]
$\lambda_{dom} = f(I_F)$; T_S = 25 °C, **true green**



Dominante Wellenlänge[5) Seite 29]
Dominant Wavelength[*5) page 29*]
$\lambda_{dom} = f(I_F)$; T_S = 25 °C, **blue**



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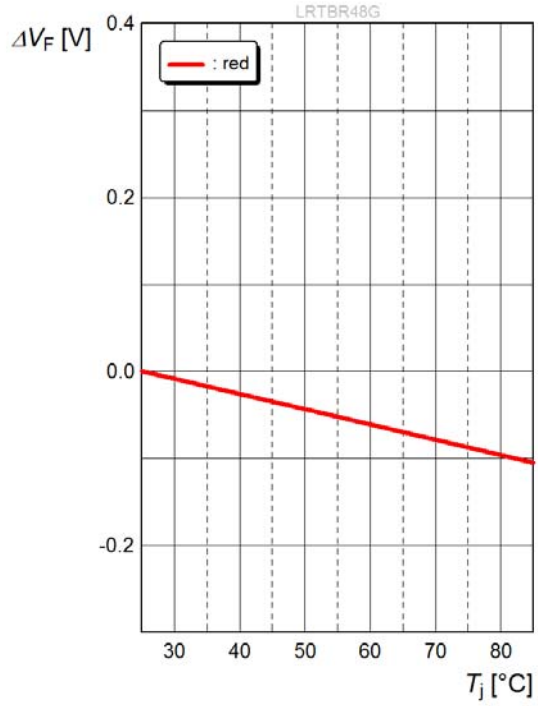
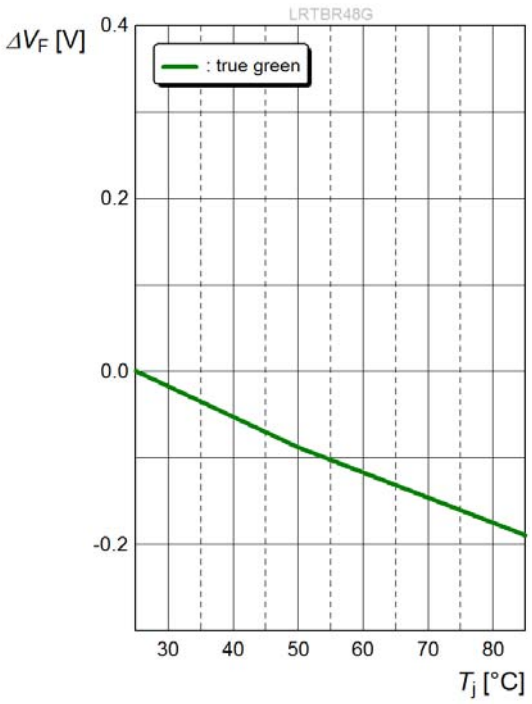
Relative Vorwärtsspannung[5) Seite 29]
Relative Forward Voltage[5) *page 29*]

$\Delta V_F = V_F - V_F(25\ °C) = f(T_j)$; I_F = 10 mA (red)



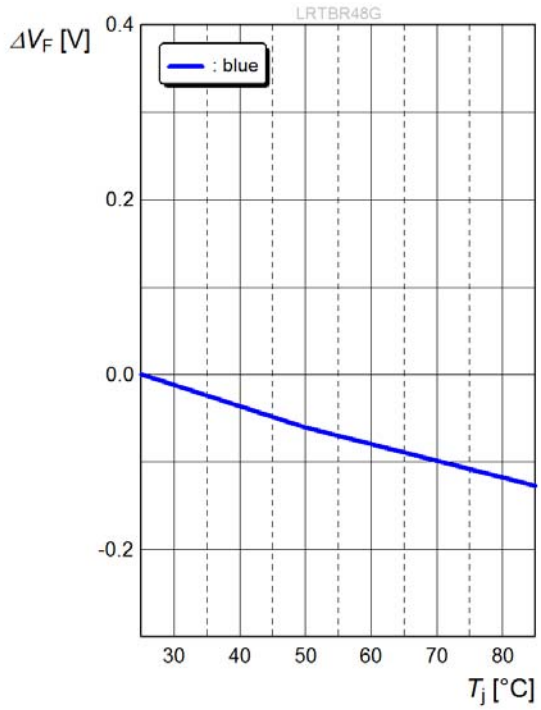
Relative Vorwärtsspannung[5) Seite 29]
Relative Forward Voltage[5) *page 29*]

$\Delta V_F = V_F - V_F(25\ °C) = f(T_j)$; I_F = 5 mA (true green)

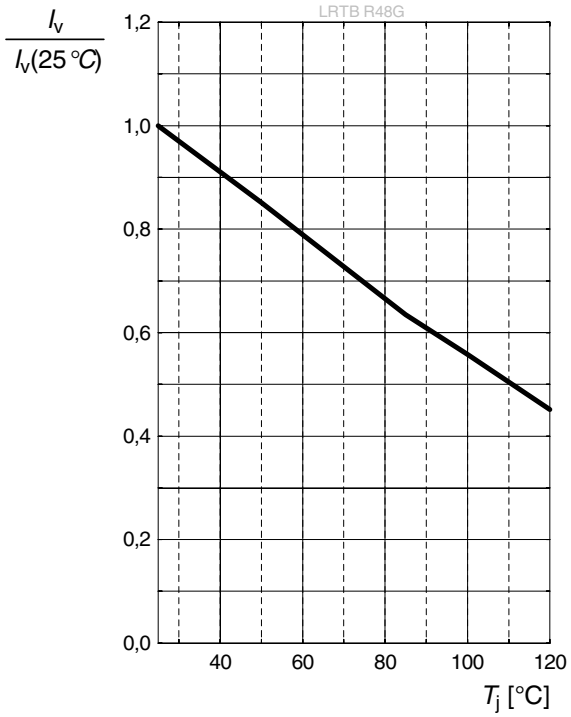


Relative Vorwärtsspannung[5) Seite 29]
Relative Forward Voltage[5) *page 29*]

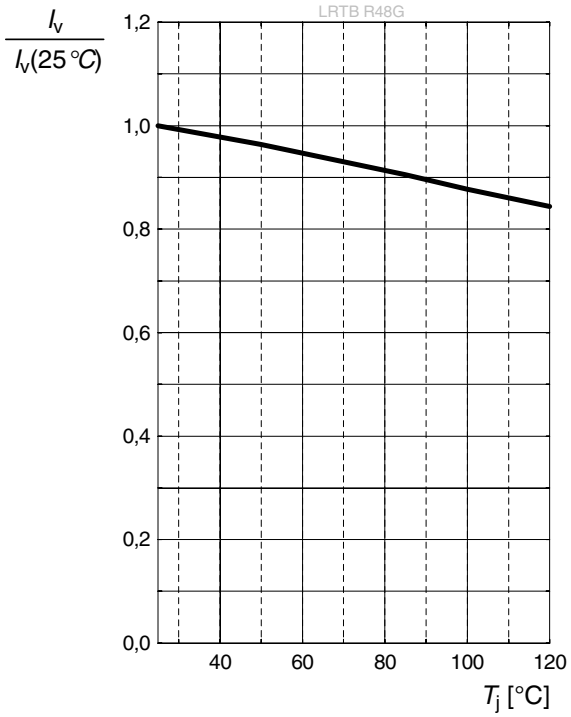
$\Delta V_F = V_F - V_F(25\ °C) = f(T_j)$; I_F = 5 mA (blue)



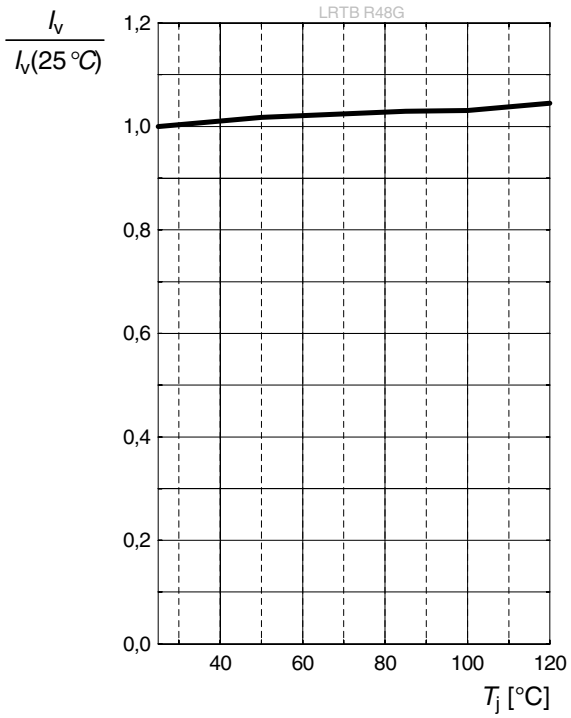
Relative Lichtstärke[5) Seite 29]
Relative Luminous Intensity[5) *page 29*]
$I_V/I_V(25\ °C) = f(T_S)$; I_F = 10 mA (red)



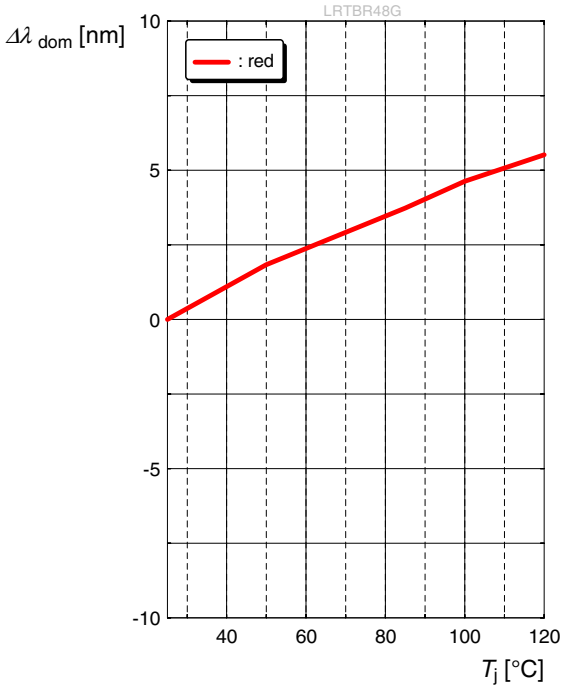
Relative Lichtstärke[5) Seite 29]
Relative Luminous Intensity[5) *page 29*]
$I_V/I_V(25\ °C) = f(T_S)$; I_F = 5 mA (true green);



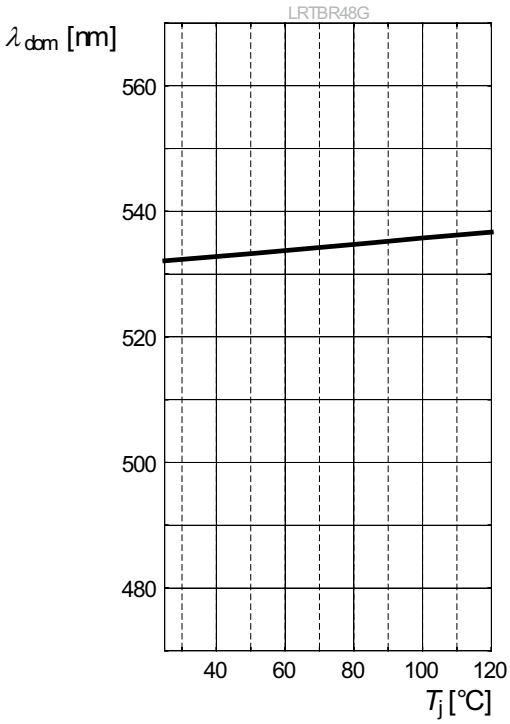
Relative Lichtstärke[5) Seite 29]
Relative Luminous Intensity[5) *page 29*]
$I_V/I_V(25\ °C) = f(T_S)$; I_F = 5 mA (blue)



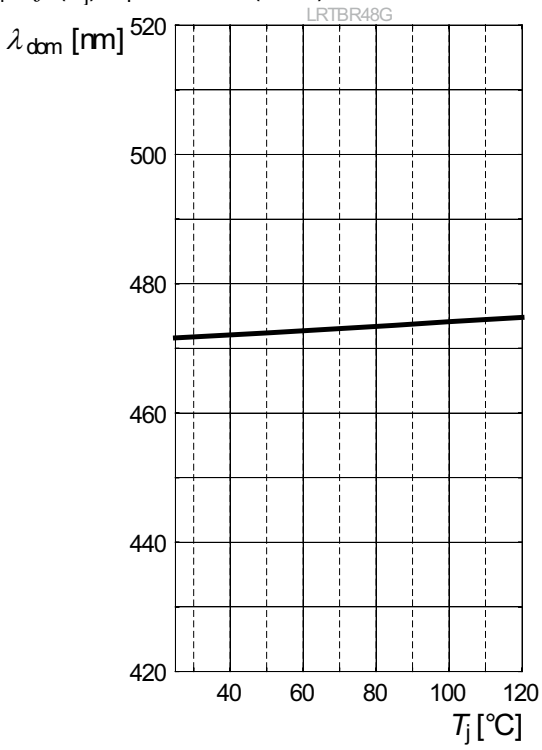
Dominante Wellenlänge[5) Seite 29]
Dominant Wavelength[5) *page 29*]
$\Delta\lambda_{dom} = f(T_j)$; I_F = 10 mA (red)



Dominante Wellenlänge[5) Seite 29]
Dominant Wavelength[5) *page 29*]
$\lambda_{dom} = f(T_j)$; I_F = 5 mA (true green)



Dominante Wellenlänge[5) Seite 29]
Dominant Wavelength[5) *page 29*]
$\lambda_{dom} = f(T_j)$; I_F = 5 mA (blue)



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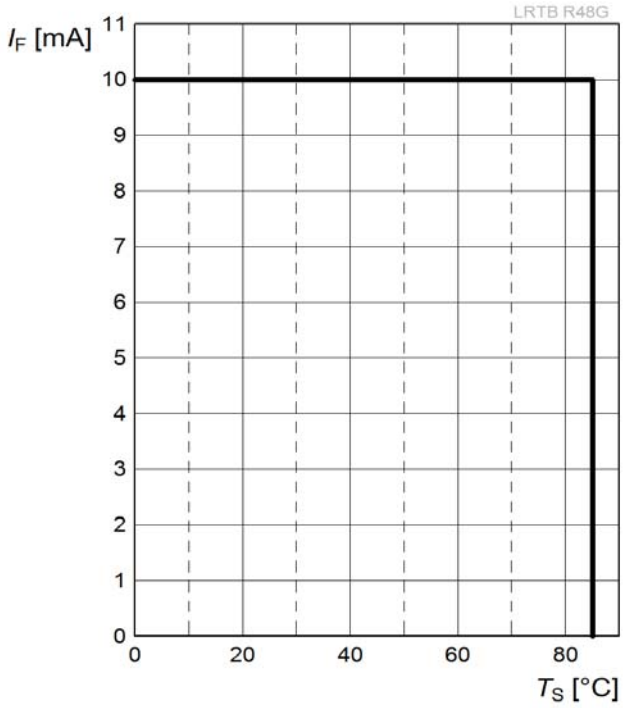
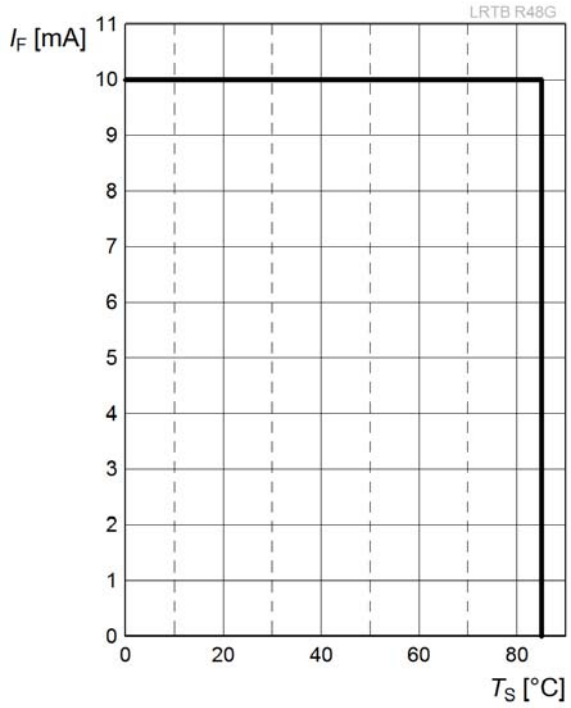
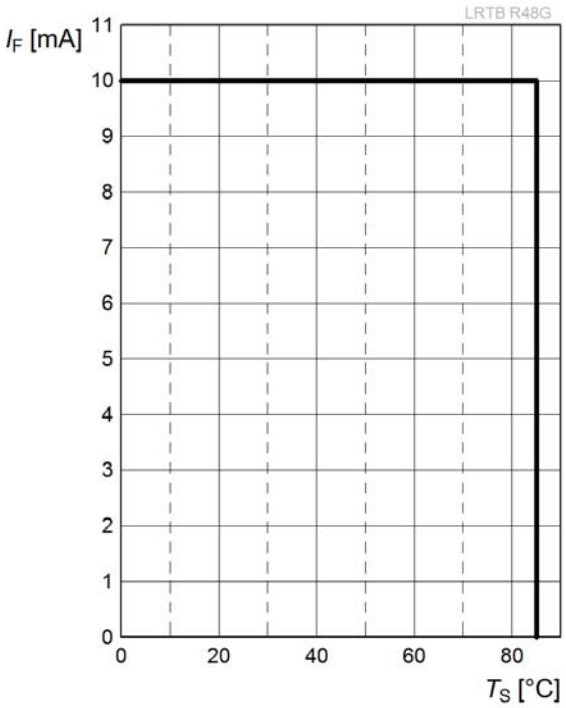
Maximal zulässiger Durchlassstrom
Max. Permissible Forward Current
$I_F = f(T)$; 1 chip on; **red**



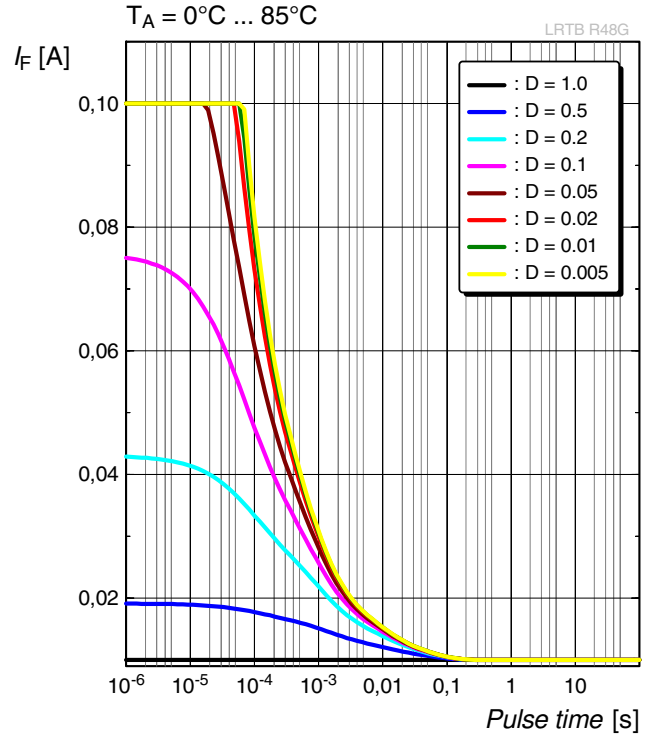
Maximal zulässiger Durchlassstrom
Max. Permissible Forward Current
$I_F = f(T)$; 1 chip on; **true green**



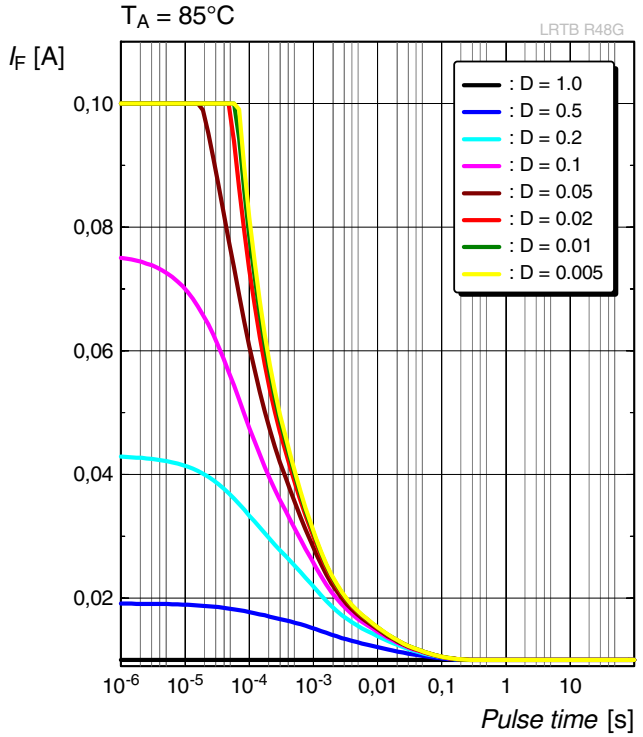
Maximal zulässiger Durchlassstrom
Max. Permissible Forward Current
$I_F = f(T)$; 1 chip on; **blue**



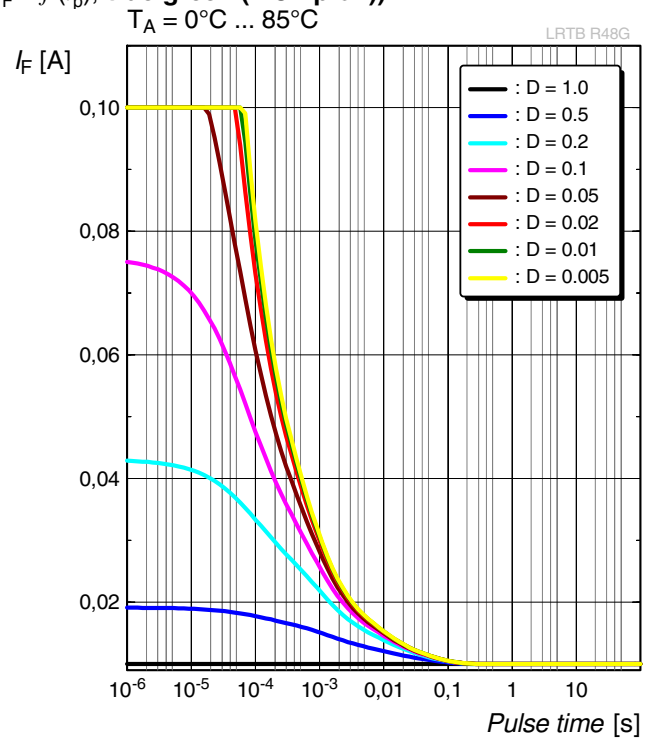
Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 0 °C...85°C
$I_F = f(t_p)$; **red (1 Chip on)**



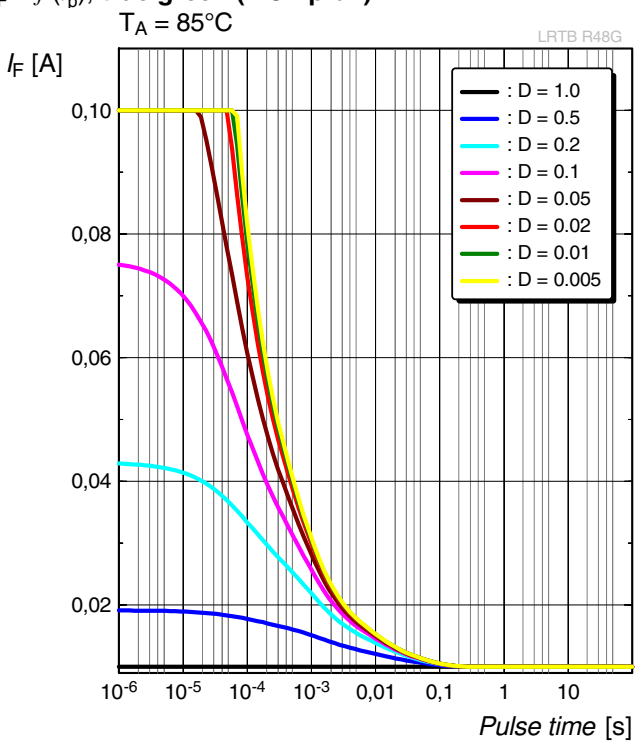
Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 85°C
$I_F = f(t_p)$; **red (1 Chip on)**



Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 0 °C...85°C
$I_F = f(t_p)$; **true green (1 Chip on))**



Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 85°
$I_F = f(t_p)$; **true green (1 Chip on)**



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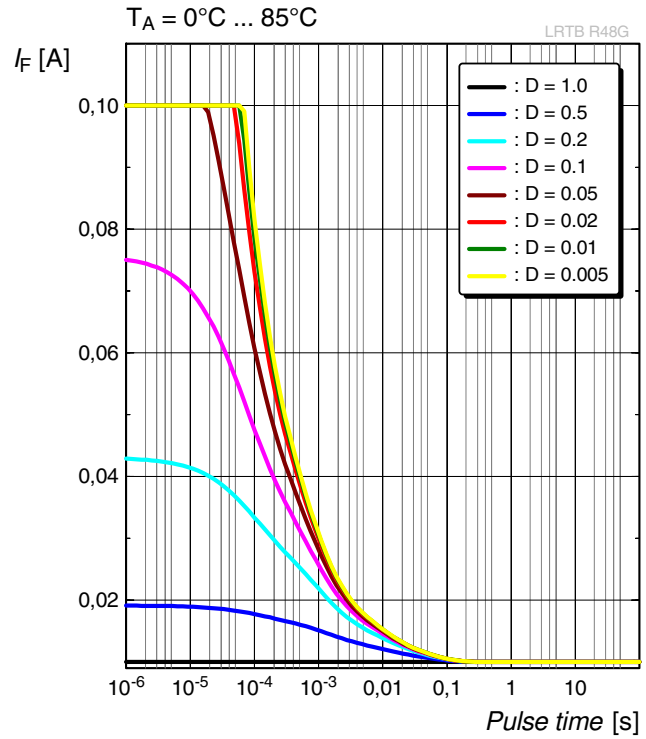
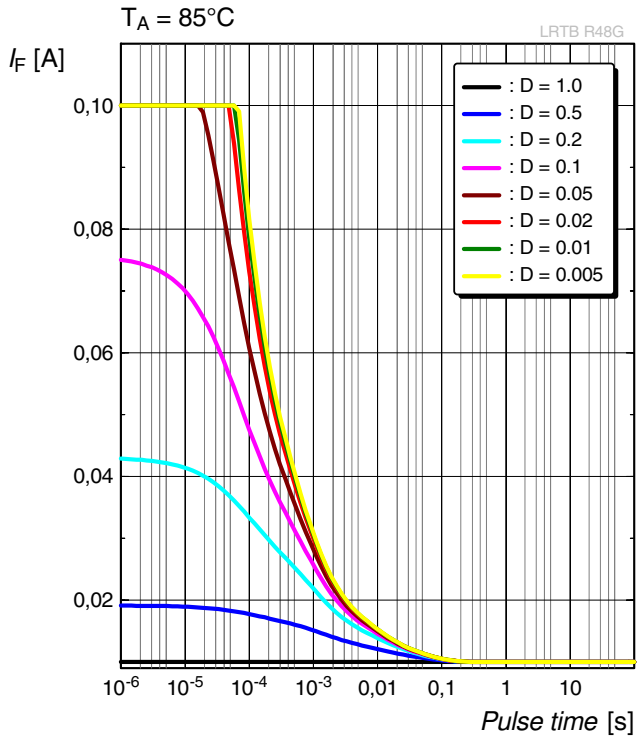
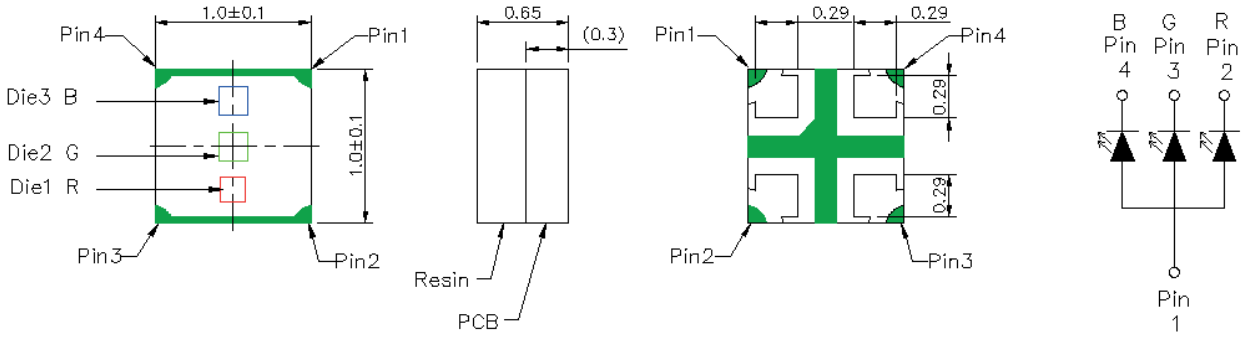
Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 0 °C...85°C
$I_F = f(t_p)$; **blue (1 Chip on)**



Zulässige Impulsbelastbarkeit
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_S= 85°C
$I_F = f(t_p)$; **blue (1 Chip on)**

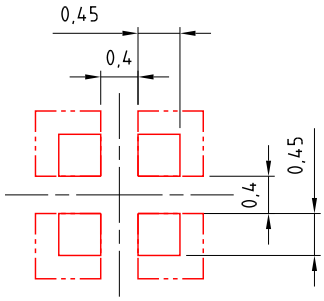


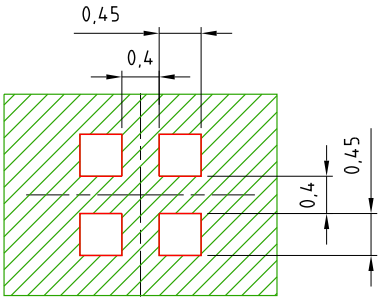
Maßzeichnung[7) Seite 29]
Package Outlines[7) page 29]



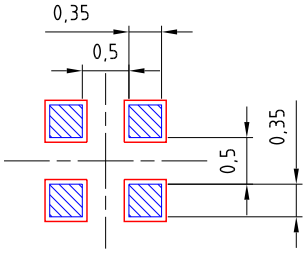
Gewicht / Approx. weight: 1.38 mg

Empfohlenes Lötpaddesign[7) Seite 29]
Recommended Solder Pad[7) page 29]



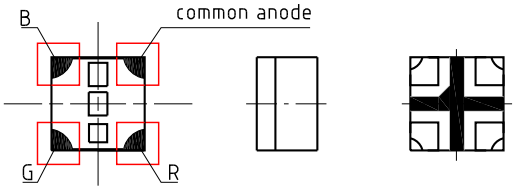


Reflow Löten
Reflow Soldering



foot print Cu area solder resist solder stencil

Component Location on Pad



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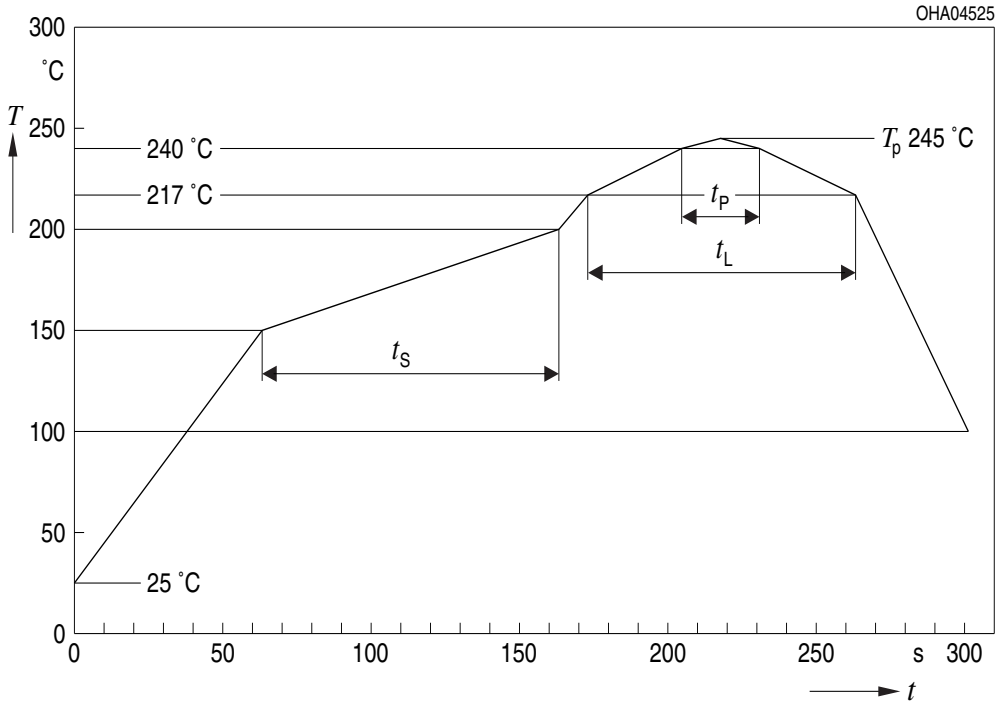
Lötbedingungen
Soldering Conditions

Vorbehandlung nach JEDEC Level 4
Preconditioning acc. to JEDEC Level 4

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

(nach J-STD-020D.01)
(acc. to J-STD-020D.01)



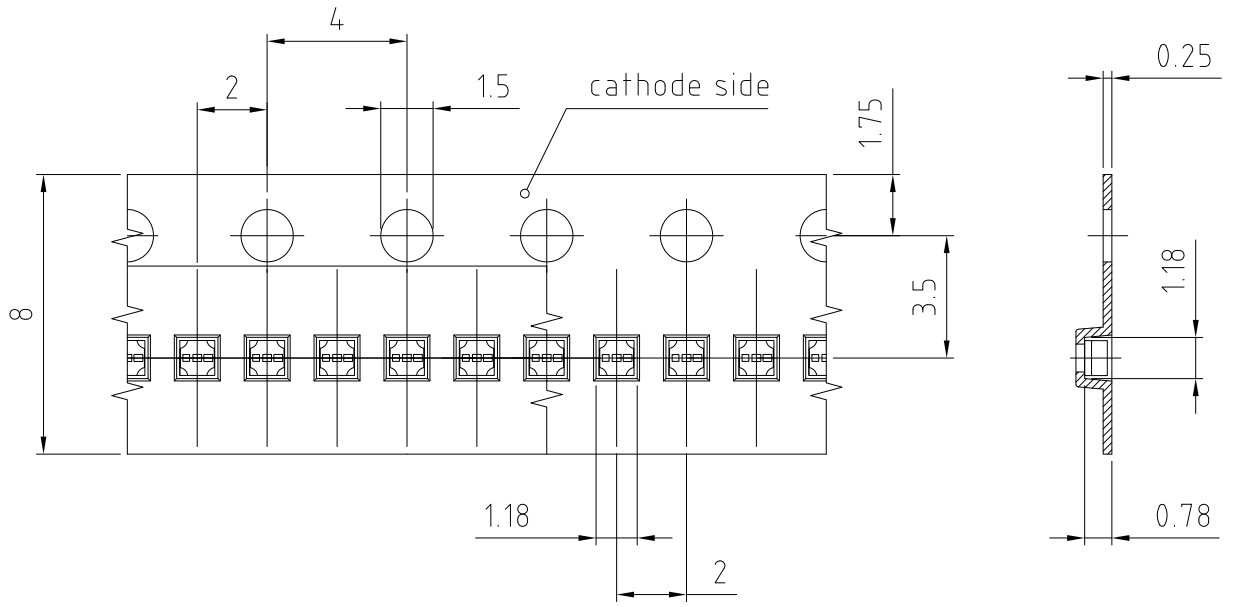
Anm.: Das Gehäuse ist nicht für nasschemische Reinigung geeignet.

Note: Package not suitable for wetcleaning.

Profile Feature	**Pb-Free (SnAgCu) Assembly**	
	Recommendation	**Max. Ratings**
Ramp-up Rate to Preheat*) 25°C to 150°C	2°C / sec	3°C / sec
Time t_s from T_{Smin} to T_{Smax} (150°C to 200°C	100s	min. 60sec max. 120sec
Ramp-up Rate to Peak*) T_{Smax} to T_P	2°C / sec	3°C / sec
Liquidus Temperture T_L	217°C	
Time t_L above T_L	80sec	max. 100sec
Peak Temperature T_P	245°C	max. 260°C
Time t_P within 5°C of the specified peak temperature T_P - 5K	20sec	min. 10sec max. 30sec
Ramp-down Rate* T_P to 100°C	3°K / sec	6°K / sec maximum
Time 25°C to Peak temperature		max. 8 min.

Gurtung / Polarität und Lage[7) Seite 29]
Method of Taping / Polarity and Orientation[7) *page 29*]

Verpackungseinheit 24000/Rolle, ø330mm
Packing unit 24000/Reel, ø330 mm



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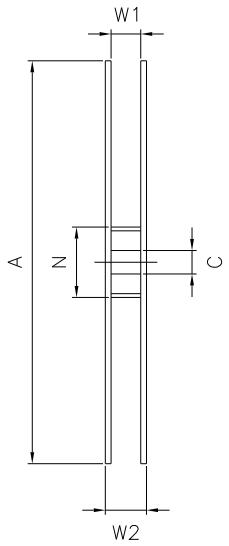
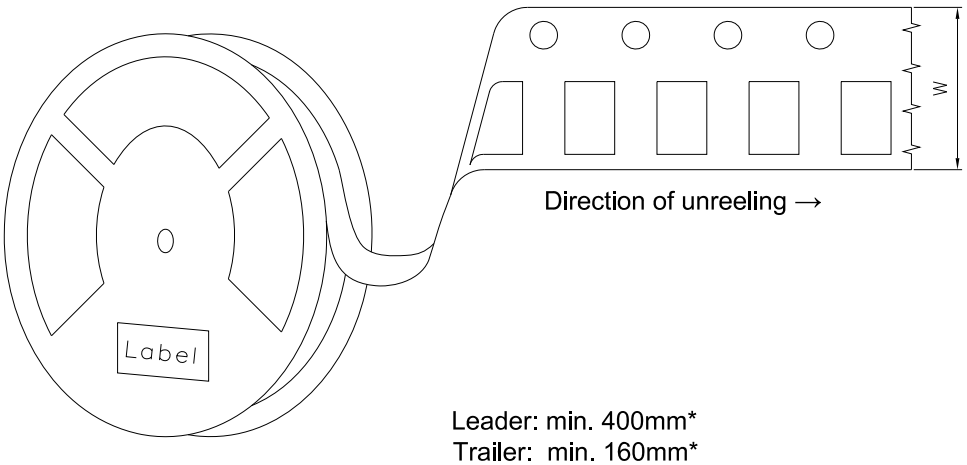
Gurtverpackung
Tape and Reel



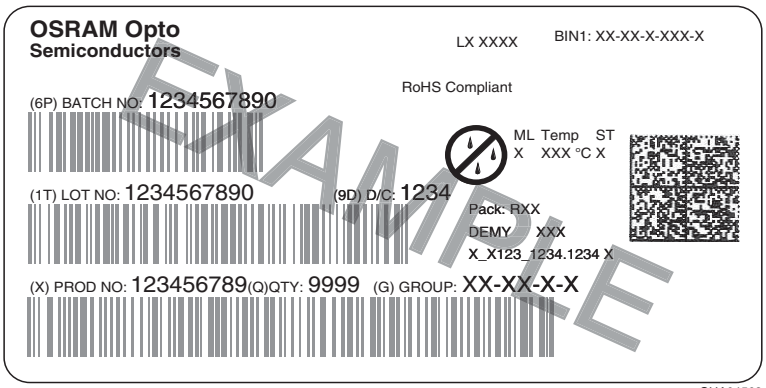


Leader: min. 400mm*
Trailer: min. 160mm*
*)Dimensions acc. to IEC 60286-3; EIA 481-E

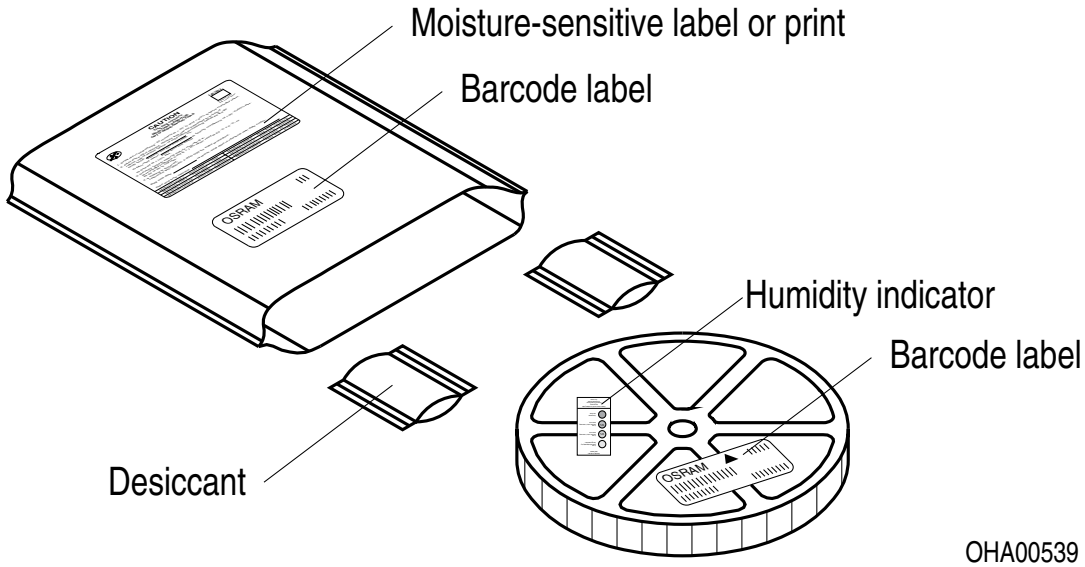
Reel dimensions in mm

A	W	N_{min}	W_1	$W_{2\ max}$
330	8	60	8.4 + 2	14.4

Barcode-Produkt-Etikett (BPL)
Barcode-Product-Label (BPL)



Trockenverpackung und Materialien
Dry Packing Process and Materials



Anm.: Feuchteempfindliche Produkte sind verpackt in einem Trockenbeutel zusammen mit einem Trockenmittel und einer Feuchteindikatorkarte
Bezüglich Trockenverpackung finden Sie weitere Hinweise im Internet und in unserem Short Form Catalog im Kapitel "Gurtung und Verpackung" unter dem Punkt "Trockenverpackung". Hier sind Normenbezüge, unter anderem ein Auszug der JEDEC-Norm, enthalten.

Note: Moisture-senisitve product is packed in a dry bag containing desiccant and a humidity card.
Regarding dry pack you will find further information in the internet and in the Short Form Catalog in chapter "Tape and Reel" under the topic "Dry Pack". Here you will also find the normative references like JEDEC.