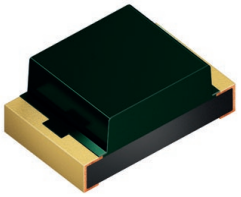
SFH 2711 A01

CHIPLED®

Silicon PIN Photodiode with Vλ Characteristics



Applications

- Ambient Light Sensors
- Industrial Automation (Machine Controls, Light Barriers, Vision Controls)

Features:

- Package: black epoxy
- Corrosion Robustness Class: 3B
- Qualifications: The product qualification test plan is based on the guidelines of AEC-Q101-REV-C, Stress Test Qualification for Automotive Grade Discrete Semiconductors.
- ESD: 2 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)
- Very small SMT package
- Good match to human eye sensitivity (V_λ)
- Sensitivity to IR radiation (λ > 750nm) < 1%

Ordering Information

Type	Photocurrent E_v = 1000 lx; white LED; V_R = 5 V I_P	Photocurrent typ. E_v = 1000 lx; white LED; V_R = 5 V I_P	Ordering Code
SFH 2711 A01	≥ 0.05 µA	0.12 µA	Q65112A4787

Maximum Ratings

T_A = 25 °C

Parameter	Symbol		Values
Operating Temperature	T_{op}	min. max.	-40 °C 100 °C
Storage temperature	T_{stg}	min. max.	-40 °C 100 °C
Reverse voltage	V_R	max.	16 V
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	max.	2 kV

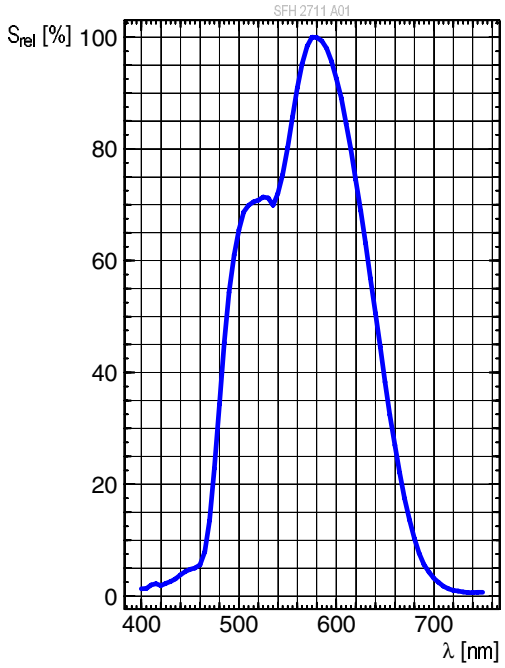
Characteristics

T_A = 25 °C

Parameter	Symbol		Values
Spectral sensitivity V_R = 5 V; Std. Light A; T = 2856 K	S	typ.	0.115 nA/lx
Wavelength of max sensitivity	$\lambda_{S\ max}$	typ.	580 nm
Spectral range of sensitivity	$\lambda_{10\%}$	typ.	470 ... 670 nm
Radiant sensitive area	A	typ.	0.35 mm²
Dimensions of active chip area	L x W	typ.	0.59 x 0.59 mm x mm
Half angle	φ	typ.	55 °
Dark current V_R = 5 V	I_R	typ. max.	0.01 nA 5 nA
Open-circuit voltage E_v = 1000 lx; Std. Light A	V_O	min. typ.	300 mV 377 mV
Short-circuit current E_v = 1000 lx; Std. Light A	I_{SC}	typ.	0.115 µA
Rise time V_R = 5 V, R_L = 50 Ohm, λ = 530nm	t_r	typ.	0.06 µs
Fall time V_R = 5 V, R_L = 50 Ohm, λ = 530nm	t_f	typ.	0.06 µs
Forward voltage	V_F	typ.	0.7 V
Capacitance V_R = 0 V; f = 1 MHz; E = 0	C_0	typ.	28 pF

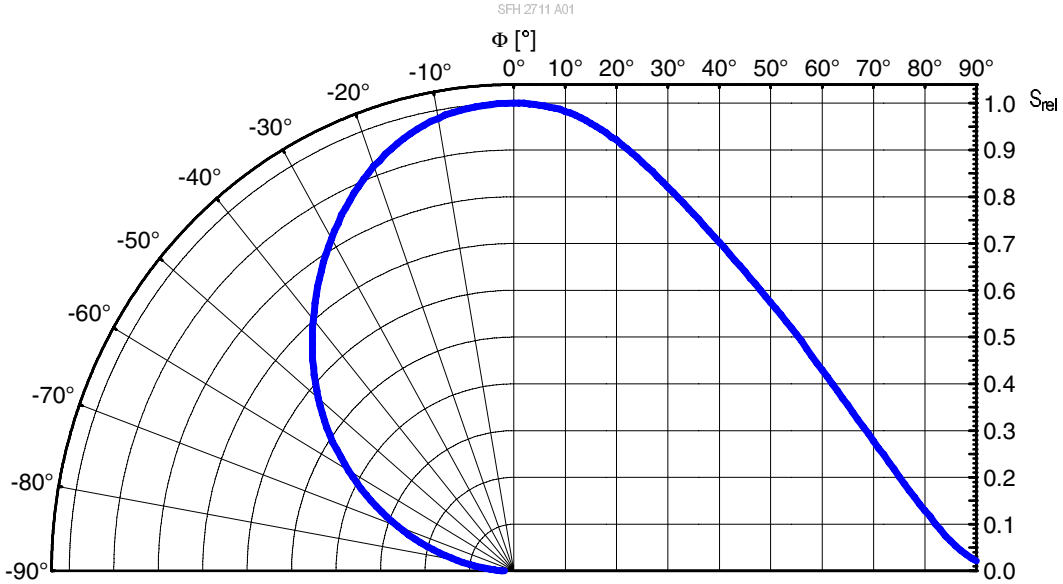
Relative Spectral Sensitivity [1), 2)]

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



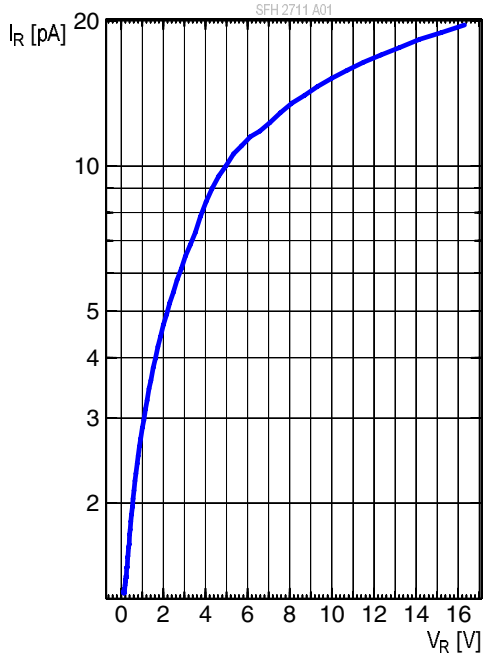
Directional Characteristics [1), 2)]

$S_{rel} = f(\varphi)$



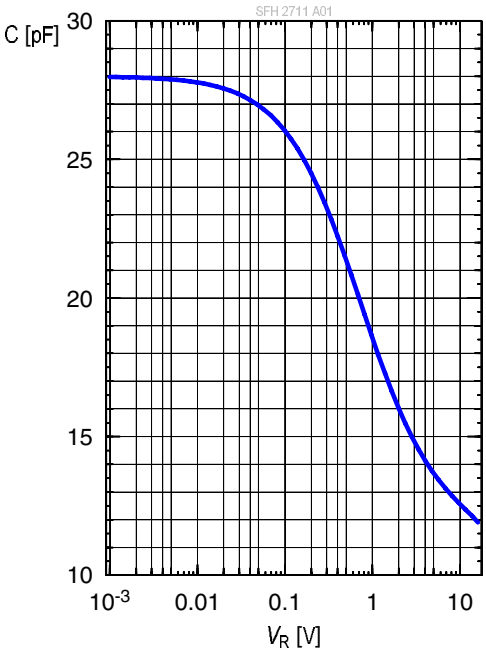
Dark Current [1), 2)]

$I_R = f(V_R)$

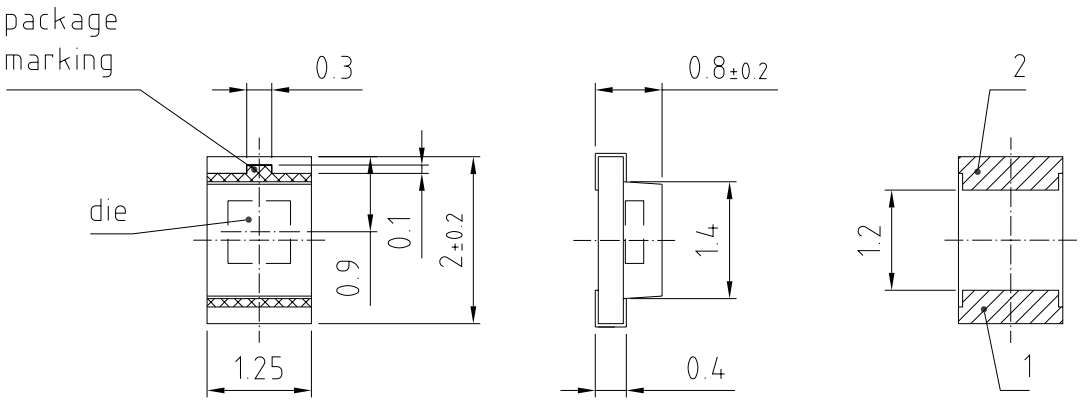


Capacitance [1), 2)]

$C = f(V_R)$; f = 1 MHz; E = 0;



Dimensional Drawing [3)]



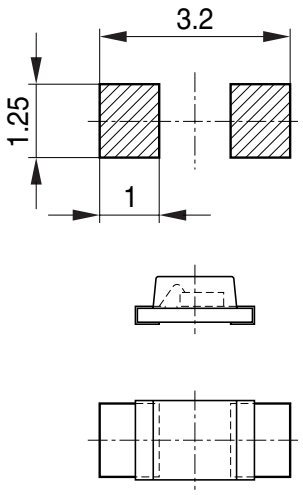
Approximate Weight: 3.8 mg

Package marking: Cathode

Corrosion test: Class: 3B
Test condition: 40°C / 90 % RH / 15 ppm H_2S / 14 days (stricter then IEC 60068-2-43)

Pin	Description
1	Anode
2	Cathode

Recommended Solder Pad [3)]

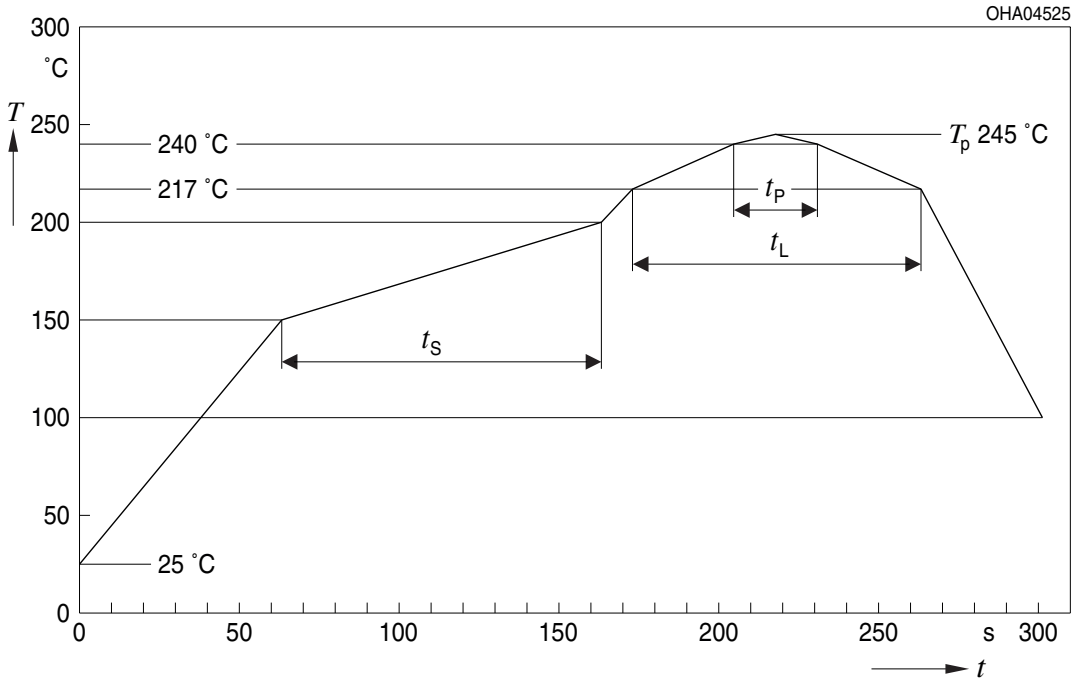


Bauteil positioniert
Component location on pad

OHFP2578

Reflow Soldering Profile

Product complies to MSL Level 3 acc. to JEDEC J-STD-020E



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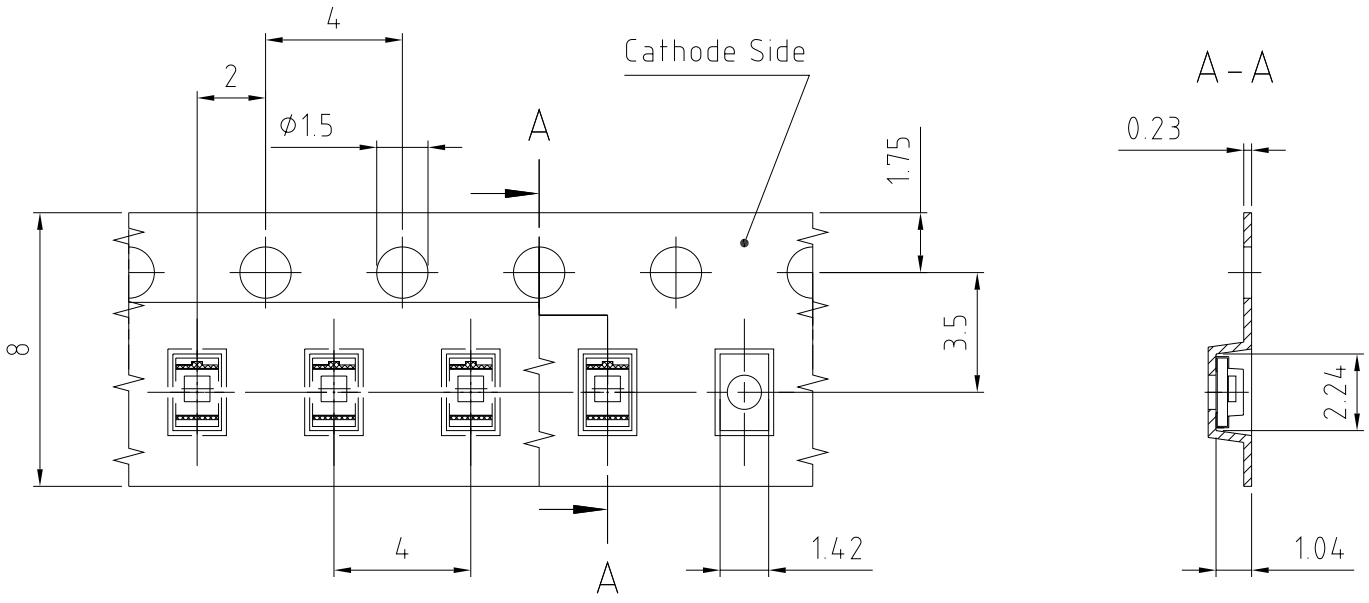
Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_P		245	260	°C
Time within 5 °C of the specified peak temperature T_P - 5 K	t_P	10	20	30	s
Ramp-down rate* T_P to 100 °C			3	6	K/s
Time 25 °C to T_P				480	s

All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

Taping [3)]



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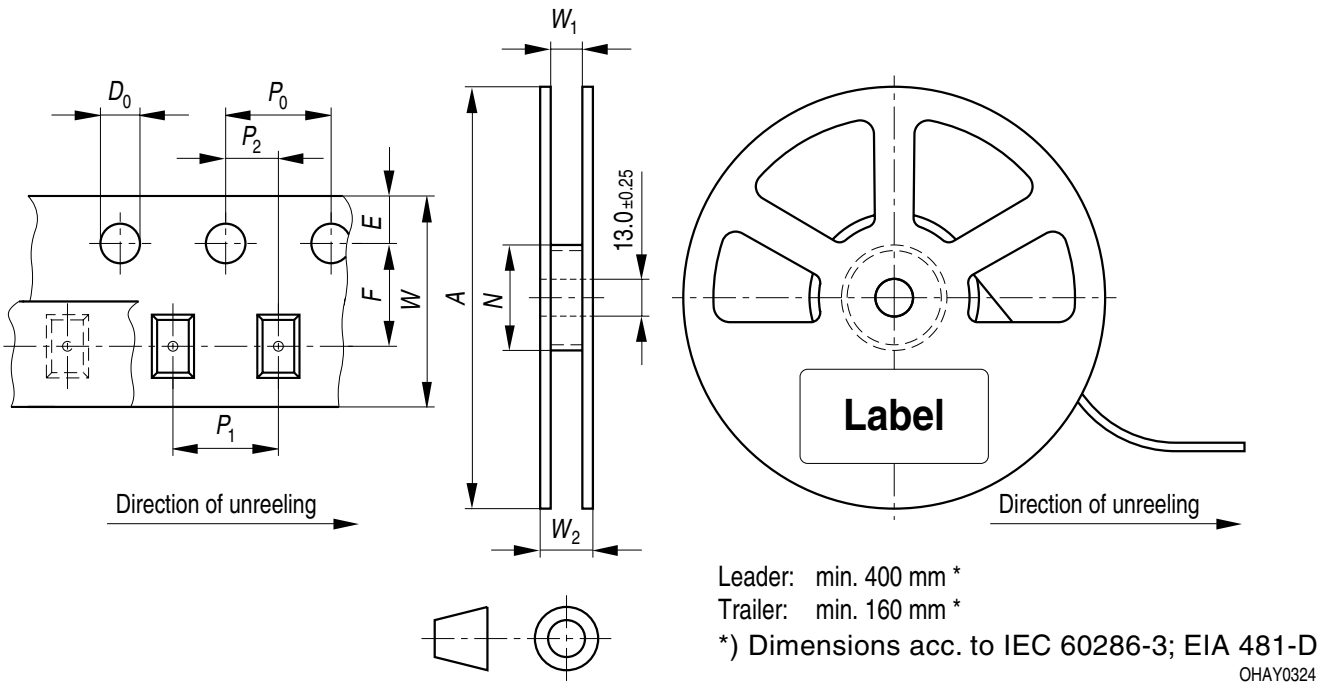
Tape and Reel [4)]

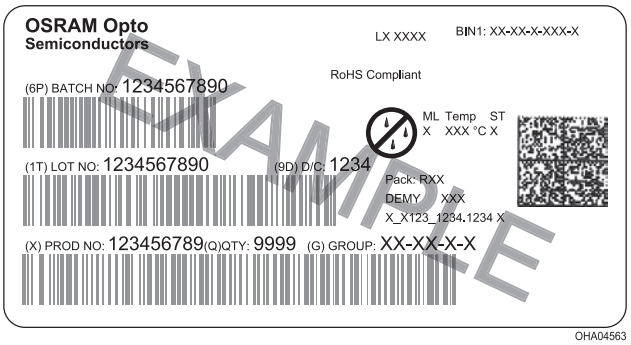


Leader: min. 400 mm *
Trailer: min. 160 mm *
*) Dimensions acc. to IEC 60286-3; EIA 481-D
OHAY0324

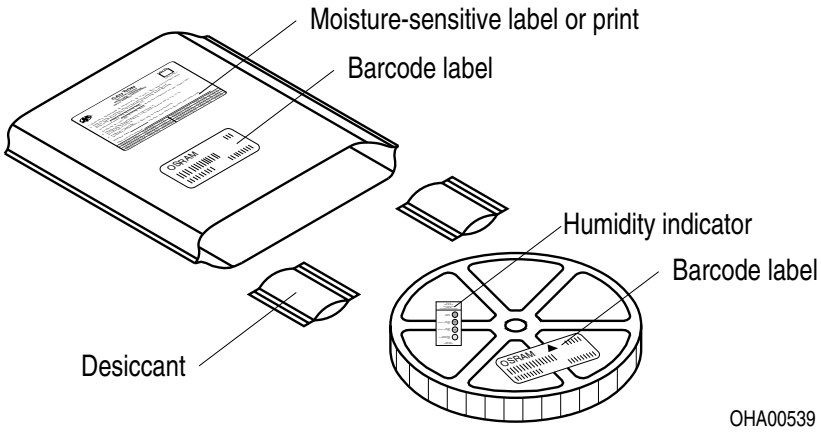
Reel dimensions [mm]

A	W	N_{min}	W_1	$W_{2\ max}$	Pieces per PU
180 mm	12 + 0.3 / - 0.1	60	12.4 + 2	18.4	3000

Barcode-Product-Label (BPL)

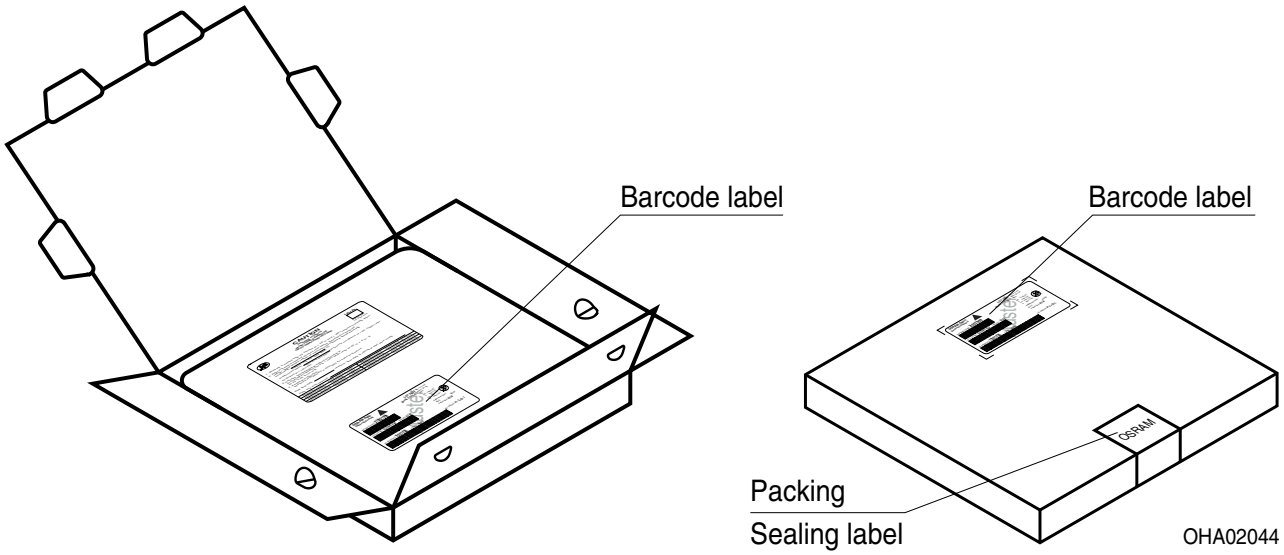


Dry Packing Process and Materials [3)]



Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card according JEDEC-STD-033.

Transportation Packing and Materials [3)]



Dimensions of transportation box in mm

Width	Length	Height
195 ± 5 mm	195 ± 5 mm	30 ± 5 mm

Disclaimer

Disclaimer
Language english will prevail in case of any discrepancies or deviations between the two language wordings.

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Glossary

1) **Typical Values**: Due to the special conditions of the manufacturing processes of semiconductor devices, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

2) **Testing temperature**: T_A = 25°C

3) **Tolerance of Measure**: Unless otherwise noted in drawing, tolerances are specified with ±0.1 and dimensions are specified in mm.

4) **Tape and Reel**: All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

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EU RoHS and China RoHS compliant product

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