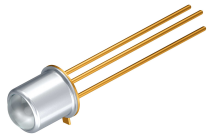
Silicon NPN Phototransistor
Version 1.3

BPY 62



Features:

- **Spectral range of sensitivity:** (typ) 400 ... 1100 nm
- **Package:** Metal Can (TO-18), hermetically sealed
- **Special:** Base connection
- Suitable up to 125 °C
- HIgh photosensitivity
- Available in groups

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Ordering Information

Type:	**Photocurrent** I_{PCE} [µA] **λ = 950 nm, E_e = 0.5 mW/cm², V_{CE} = 5 V**	**Ordering Code**
BPY 62	≥ 500	Q60215Y0062
BPY 62-3/4	800 ... 2500	Q62702P5198
BPY 62-4	1250 ... 2500	Q60215Y1113

Note: Only one bin within one packing unit (variation less than 2:1)

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Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Operating and storage temperature range	T_{op}; T_{stg}	-40 ... 125	°C
Collector-emitter voltage	V_{CE}	35	V
Collector current	I_C	100	mA
Collector surge current (τ < 10 µs)	I_{CS}	200	mA
Emitter-collector voltage	V_{EC}	7	V
Total Power dissipation	P_{tot}	200	mW
ESD withstand voltage (acc. to ANSI/ ESDA/ JEDEC JS-001 - HBM)	V_{ESD}	2000	V

Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Wavelength of max. sensitivity	(typ)	$\lambda_{S\ max}$	830	nm
Spectral range of sensitivity	(typ)	$\lambda_{10\%}$	(typ) 400 ... 1100	nm
Radiant sensitive area	(typ)	A	0.11	mm^2
Dimensions of chip area	(typ)	L x W	(typ) 0.55 x 0.55	mm x mm
Half angle	(typ)	φ	± 8	°
Photocurrent of collector-base photodiode (λ = 950 nm, E_e = 0.5 mW/cm^2, V_{CB} = 5 V)	(typ)	I_{PCB}	5.5	µA
Photocurrent of collector-base photodiode (E_V = 1000 lx, Std. Light A, V_{CB} = 5 V)	(typ)	I_{PCB}	17	µA
Capacitance (V_{CE} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{CE}	7.5	pF
Capacitance (V_{CB} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{CB}	14	pF
Capacitance (V_{EB} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{EB}	19	pF
Dark current (V_{CE} = 20 V, E = 0)	(typ (max))	I_{CE0}	1 (≤ 50)	nA

Grouping (T_A = 25 °C, λ = 950 nm)

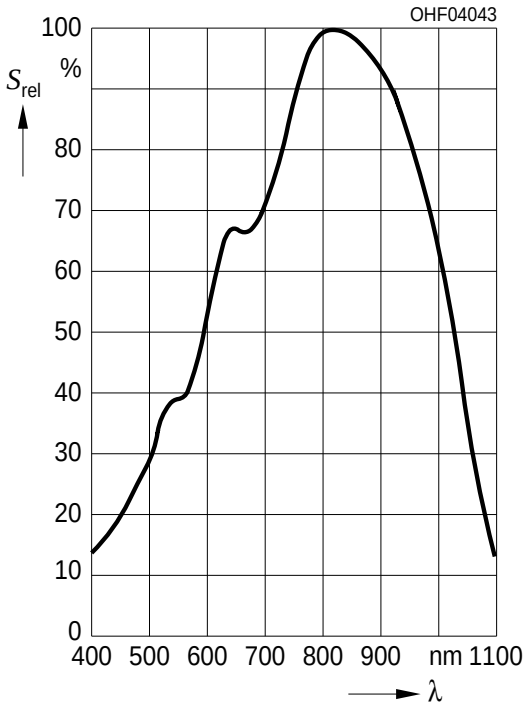
Group	Min Photocurrent E_e = 0.5 mW/cm², V_{CE} = 5 V $I_{PCE, min}$ [µA]	Max Photocurrent E_e = 0.5 mW/cm², V_{CE} = 5 V $I_{PCE, max}$ [µA]	Typ Photocurrent E_V = 1000 lx, Std. Light A, V_{CE} = 5 V I_{PCE} [µA]	Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ t_r, t_f [µs]
BPY 62-2	500	1000	2400	5
BPY 62-3	800	1600	3800	7
BPY 62-4	1250	2500	5800	9
BPY 62-5	2000		9600	12

Group	Collector-emitter saturation voltage $I_C = I_{PCEmin}$ x 0.3, E_e= 0.5 mW/cm² V_{CEsat} [mV]	Current gain E_e = 0.5 mW/cm², V_{CE} = 5 V I_{PCE} / I_{PCB}
BPY 62-2	150	140
BPY 62-3	150	220
BPY 62-4	160	340
BPY 62-5	180	550

Note.: I_{PCEmin} *is the min. photocurrent of the specified group.*

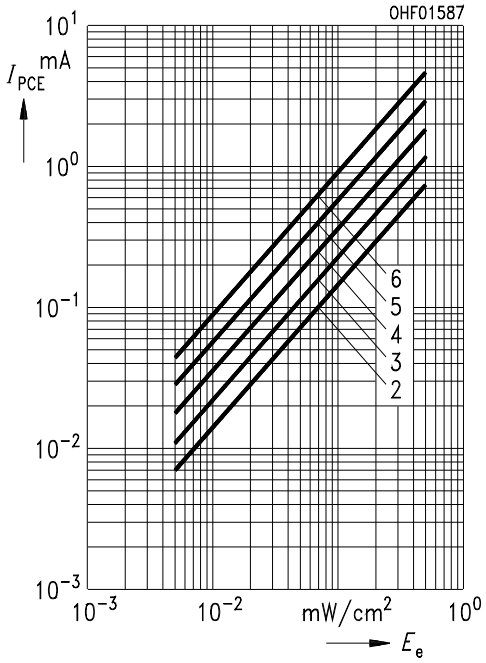
Relative Spectral Sensitivity [1] *page 9*

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



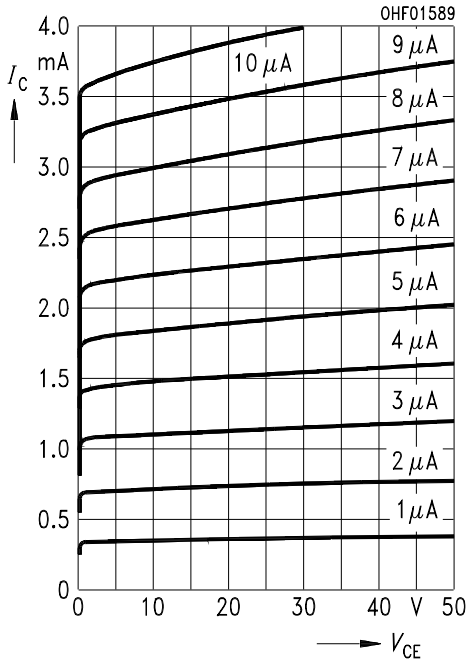
Photocurrent [1] *page 9*

$I_{PCE} = f(E_e)$, V_{CE} = 5 V



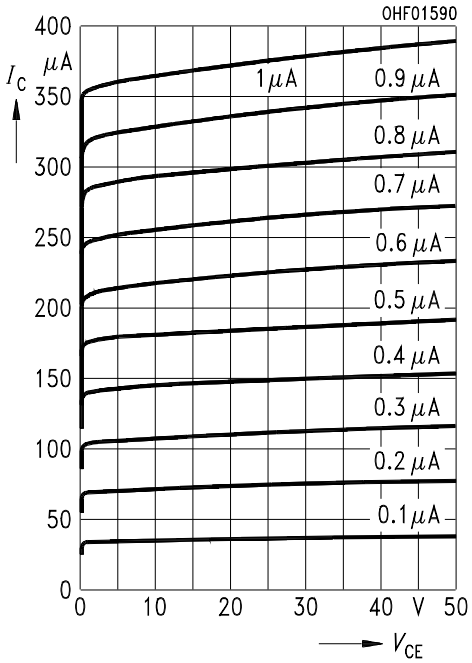
Collector Current [1] *page 9*

$I_C = f(V_{CE})$, I_B = Parameter



Collector Current [1] *page 9*

$I_C = f(V_{CE})$, I_B = Parameter



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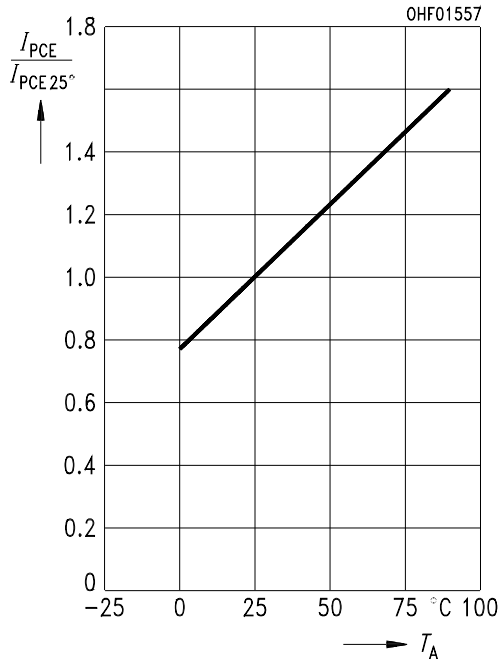
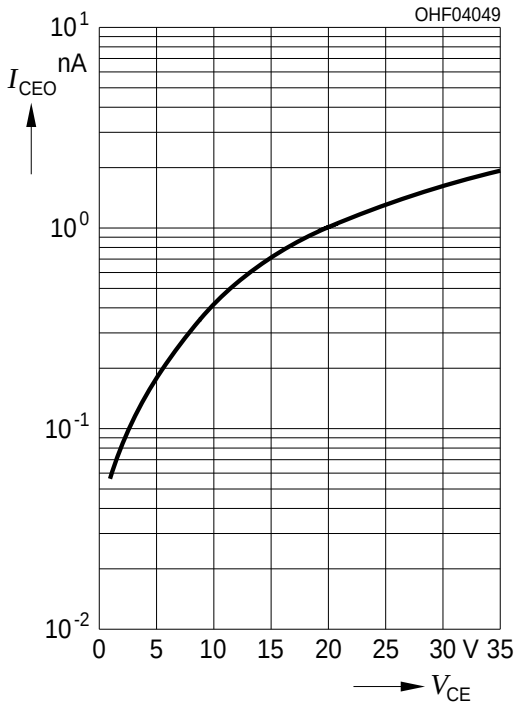
Photocurrent [1] *page 9*

I_{PCE} / $I_{PCE}(25°C) = f(T_A)$, V_{CE} = 5 V



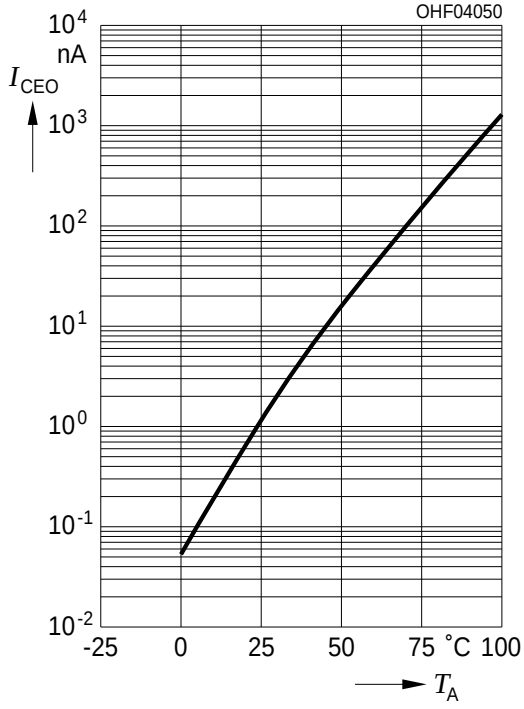
Dark Current [1] *page 9*

$I_{CEO} = f(V_{CE})$, E = 0



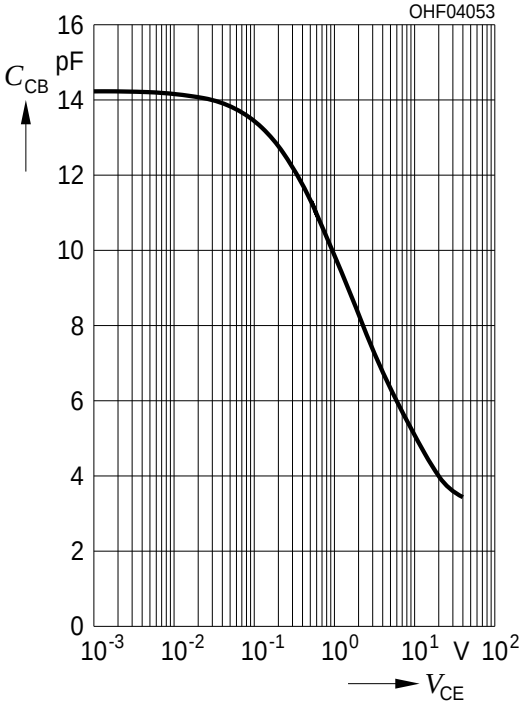
Dark Current [1] *page 9*

$I_{CEO} = f(T_A)$, E = 0



Collector-Base Capacitance [1] *page 9*

$C_{CB} = f(V_{CB})$, f = 1 MHz, E = 0



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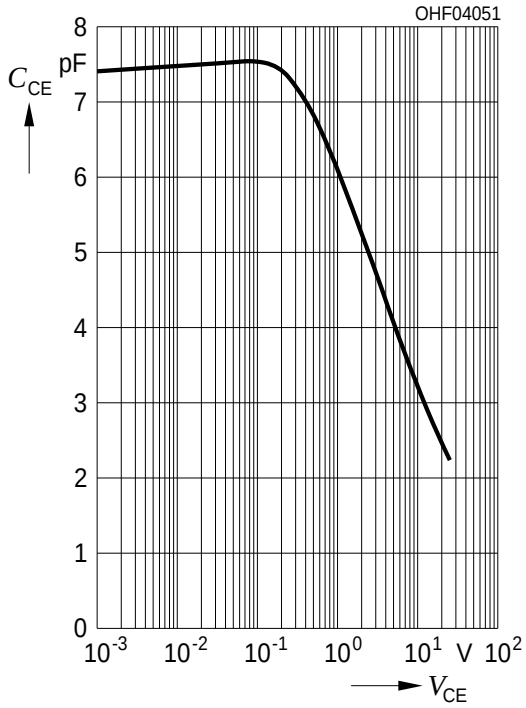
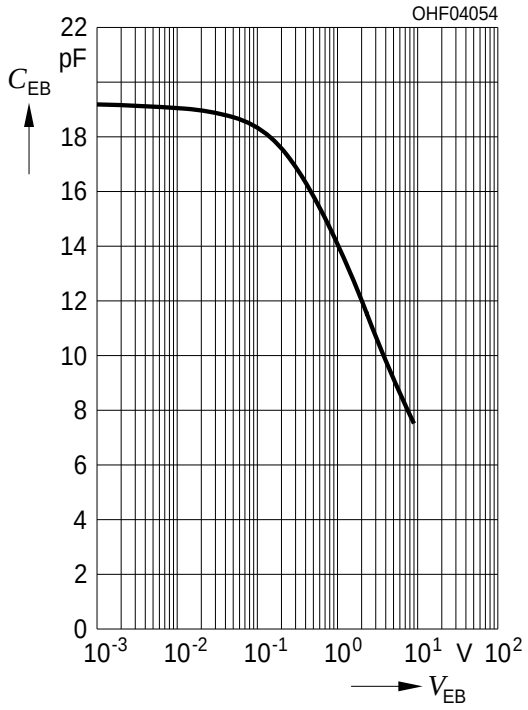
Collector-Emitter Capacitance [1] *page 9*

$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



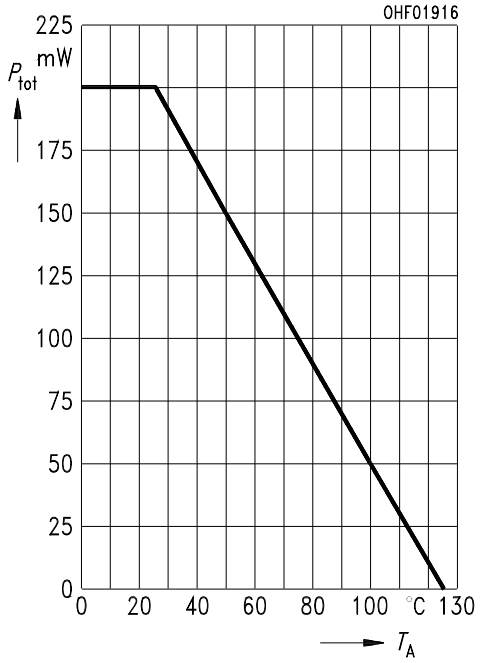
Emitter-Base Capacitance [1] *page 9*

$C_{EB} = f(V_{EB})$, f = 1 MHz, E = 0



Power Consumption

$P_{tot} = f(T_A)$



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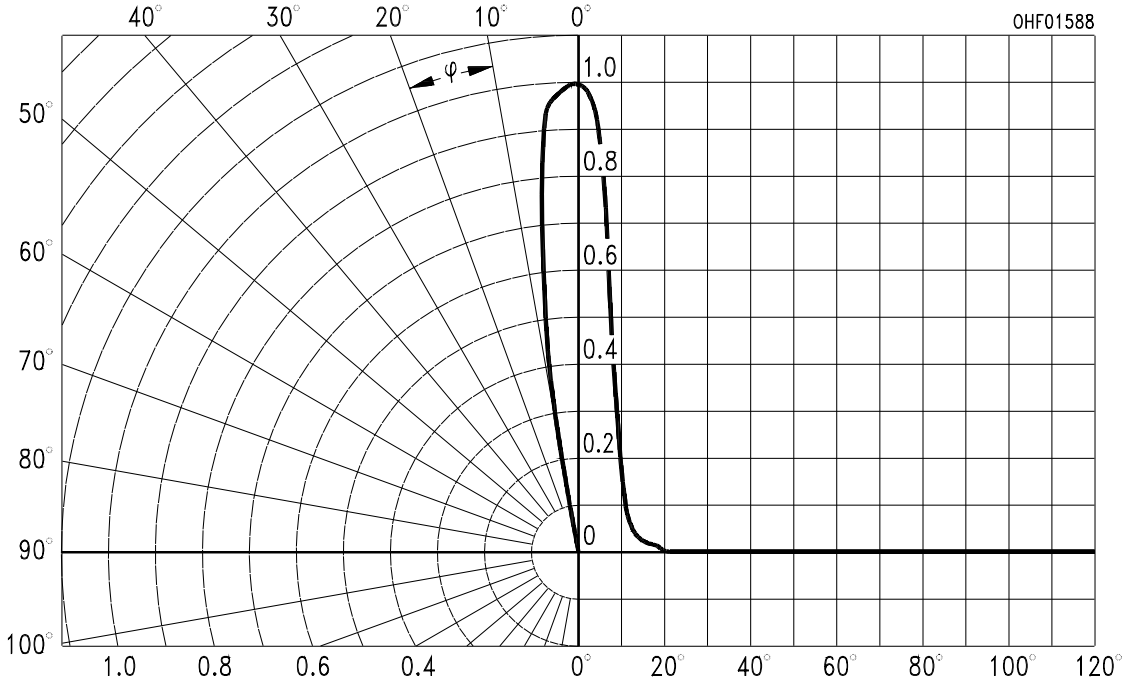
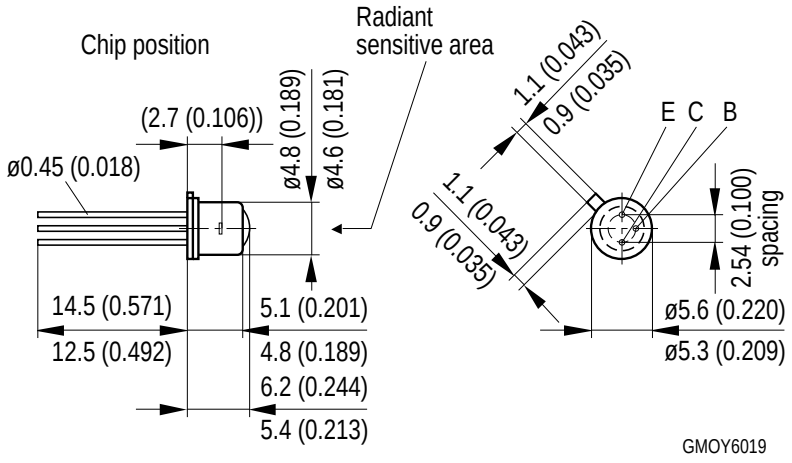
Directional Characteristics [1] *page 9*

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



Package Outline



Dimensions in mm (inch).

Package

Metal Can (TO-18), hermetically sealed

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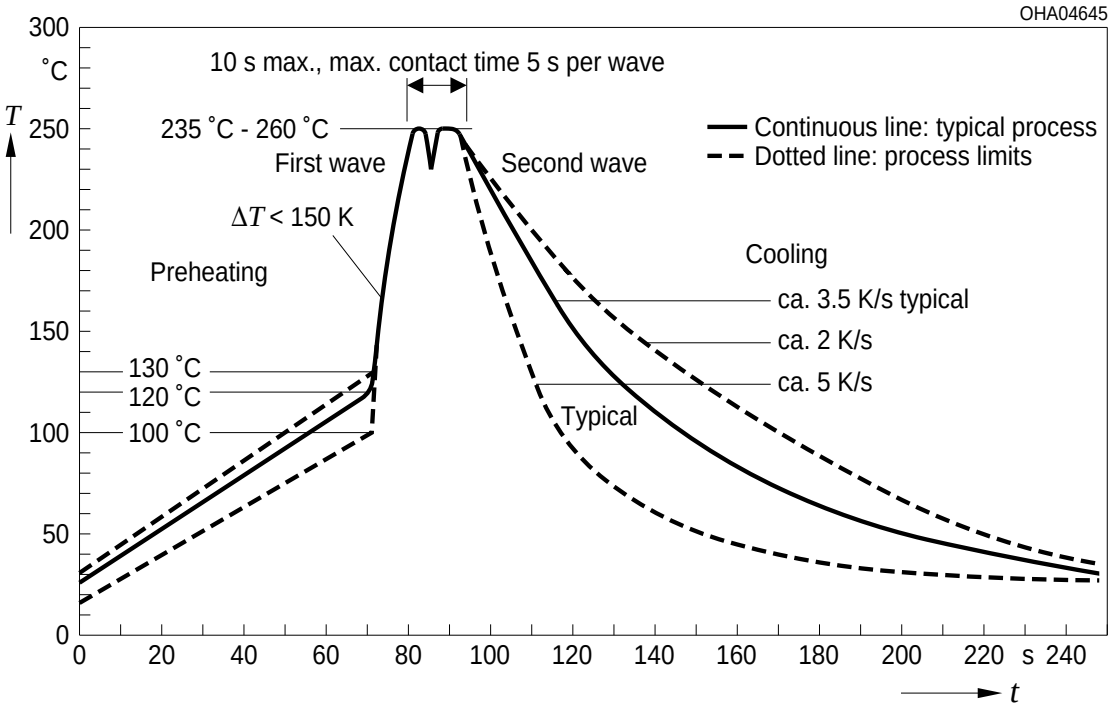
Approximate Weight:
0.3 g

TTW Soldering
IEC-61760-1 TTW



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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 LED, 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.

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