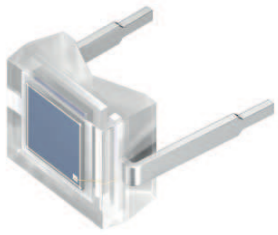
Silicon PIN Photodiode with Enhanced Blue Sensitivity; in SMT
Version 1.6

BPW 34 B



Features:

- Especially suitable for applications from 350 nm to 1100 nm
- Short switching time (typ. 25 ns)
- DIL plastic package with high packing density

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Ordering Information

Type:	**Photocurrent** I_P [µA] **λ = 400 nm, E_e = 1 mW/cm^2, V_R = 5 V**	**Ordering Code**
BPW 34 B	14.8 (≥ 10.8)	Q62702P0945

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Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Operating and storage temperature range	T_{op}; T_{stg}	-40 ... 85	°C
Reverse voltage	V_R	32	V
Total Power dissipation	P_{tot}	150	mW
ESD withstand voltage (acc. to ANSI/ ESDA/ JEDEC JS-001 - HBM)	V_{ESD}	2000	V

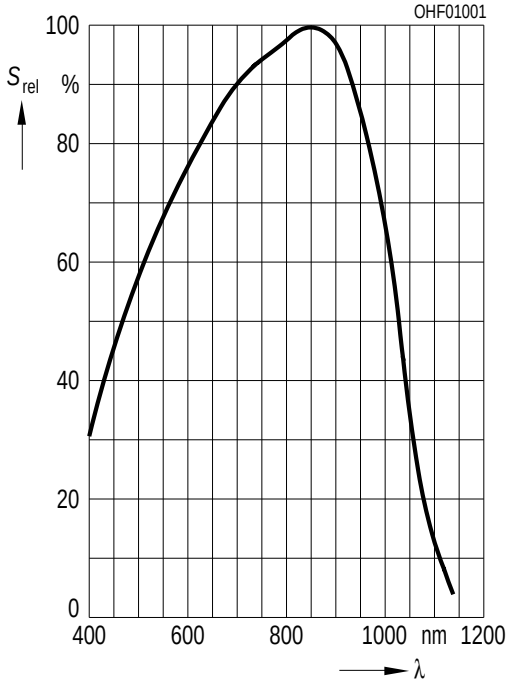
Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Spectral sensitivity (V_R = 5 V, standard light A, T = 2856 K)	(typ)	S	75	nA/lx
Photocurrent (V_R = 5 V, E_e = 1 mW/cm², λ = 400 nm)	(typ (min))	I_P	14.8 (≥ 10.8)	µA
Wavelength of max. sensitivity	(typ)	$\lambda_{S\ max}$	850	nm
Spectral range of sensitivity	(typ)	$\lambda_{10\%}$	(typ) 350 ... 1100	nm
Radiant sensitive area	(typ)	A	7.45	mm²
Dimensions of radiant sensitive area	(typ)	L x W	2.73 x 2.73	mm x mm
Half angle	(typ)	φ	± 60	°
Dark current (V_R = 10 V)	(typ (max))	I_R	2 (≤ 30)	nA
Spectral sensitivity of the chip (λ = 400 nm)	(typ)	$S_{\lambda\ typ}$	0.2	A / W
Quantum yield of the chip (λ = 400 nm)	(typ)	η	0.62	Electrons /Photon
Open-circuit voltage (E_v = 1000 lx, Std. Light A)	(typ (min))	V_O	390	mV
Short-circuit current (E_e = 0.5 mW/cm², λ = 400 nm)	(typ)	I_{SC}	7.4	µA
Rise and fall time (V_R = 5 V, R_L = 50 Ω, λ = 850 nm)	(typ)	t_r, t_f	0.025	µs
Forward voltage (I_F = 100 mA, E = 0)	(typ)	V_F	1.3	V
Capacitance (V_R = 0 V, f = 1 MHz, E = 0)	(typ)	C_0	72	pF
Temperature coefficient of V_O	(typ)	TC_V	-2.6	mV / K

Parameter		Symbol	Values	Unit
Temperature coefficient of I_{SC} (Std. Light A)	(typ)	TC_I	0.18	% / K
Noise equivalent power (V_R = 10 V, λ = 400 nm)	(typ)	NEP	0.127	pW / $Hz^{½}$
Detection limit	(typ)	D^*	2.2e12	cm x $Hz^{½}$ / W

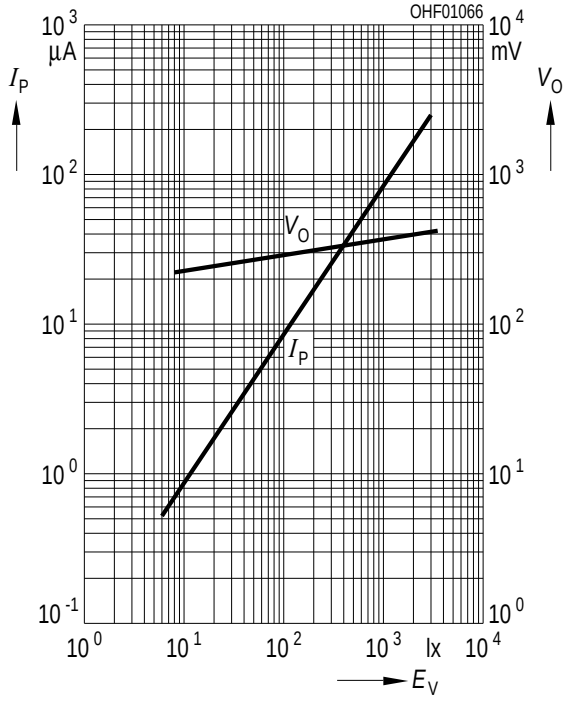
Relative Spectral Sensitivity 1) *page 7*

S_{rel} = f(λ)



Photocurrent / Open-Circuit Voltage 1) *page 7*

I_P (V_R = 5 V) / V_O = f(E_V)



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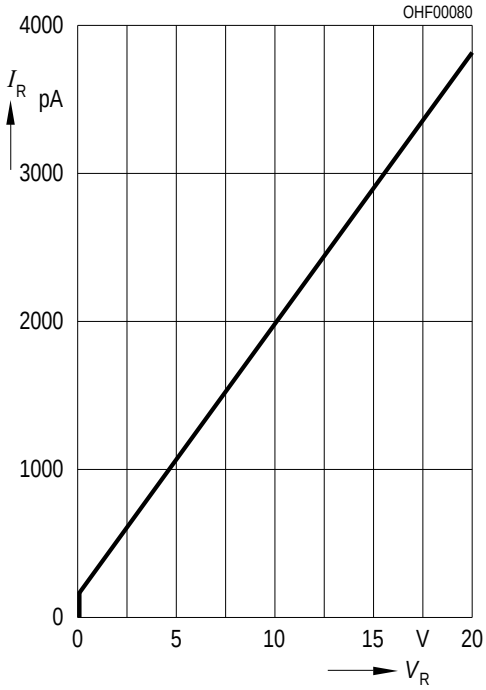
Power Consumption

$P_{tot} = f(T_A)$

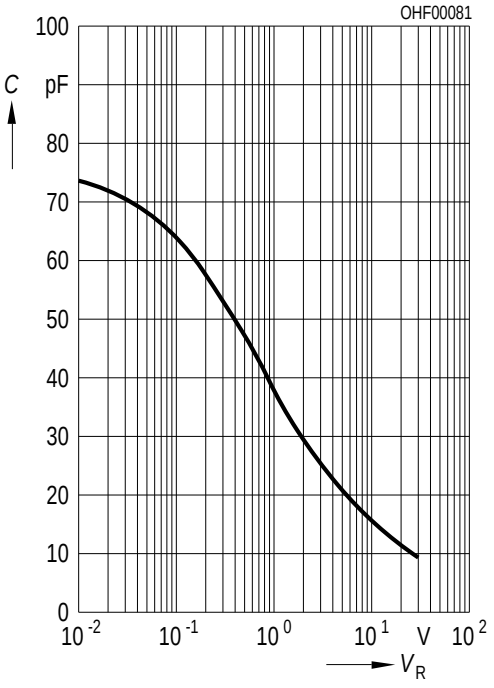
Dark Current [1] *page 7*

$I_R = f(V_R)$, E = 0



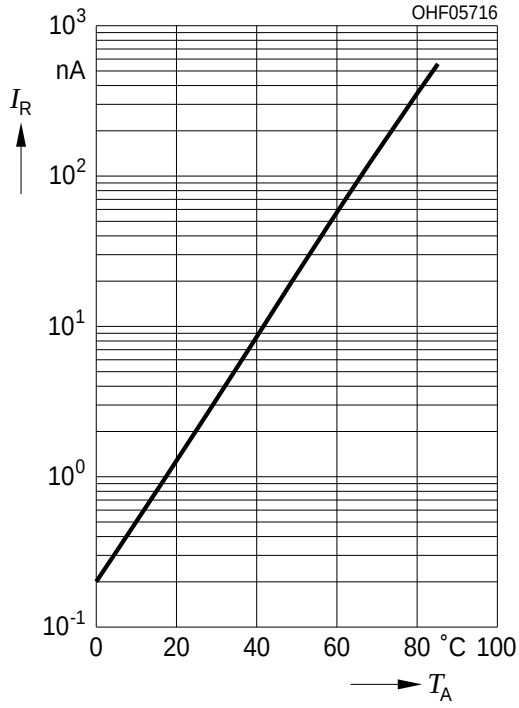
Capacitance [1] *page 7*

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



Dark Current [1] *page 7*

$I_R = f(T_A)$, V_R = 10 V, E = 0



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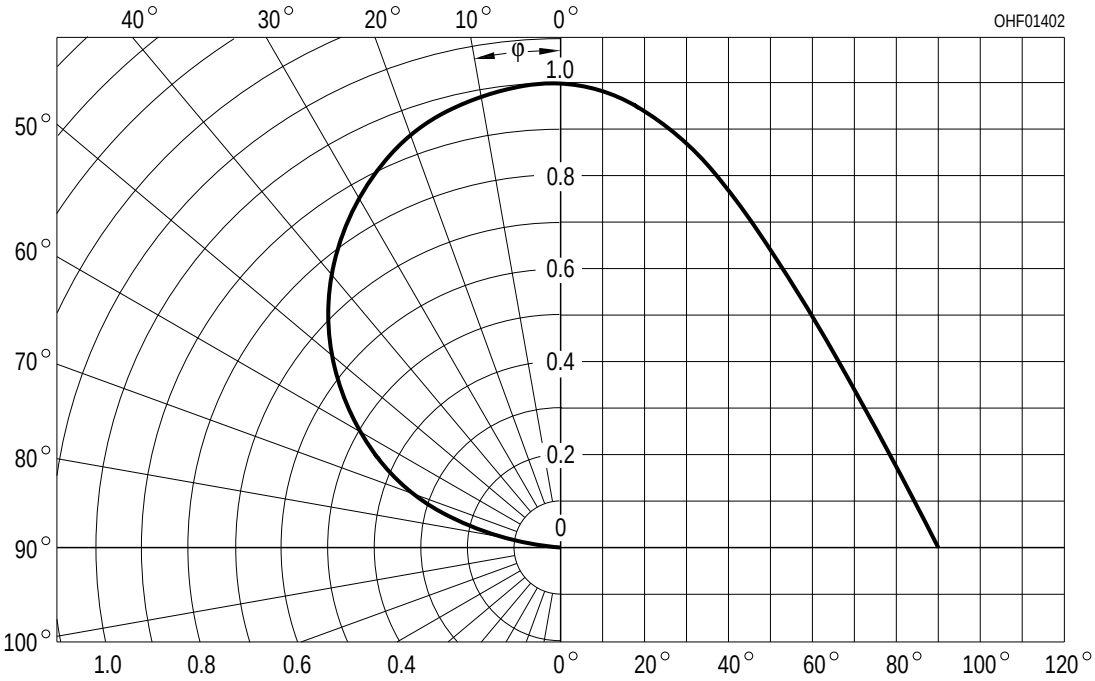
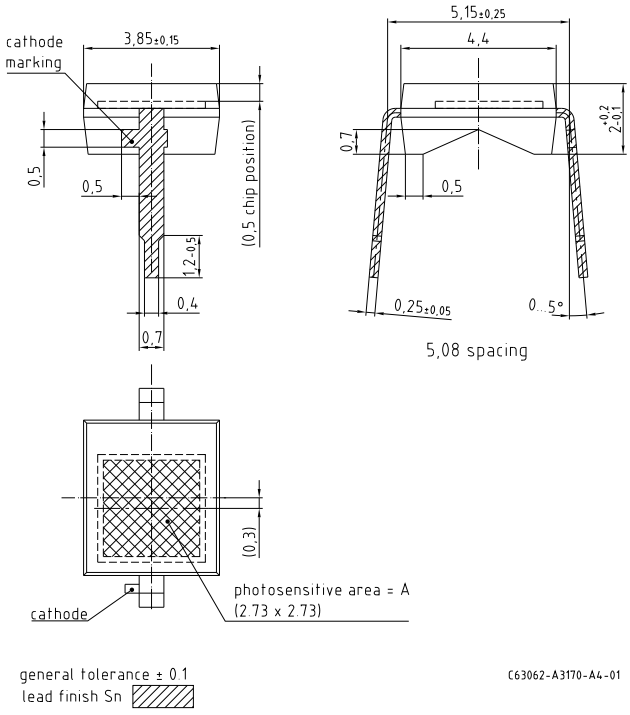
Directional Characteristics [1] *page 7*

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



Package Outline



Dimensions in mm.

Package

DIL, Epoxy

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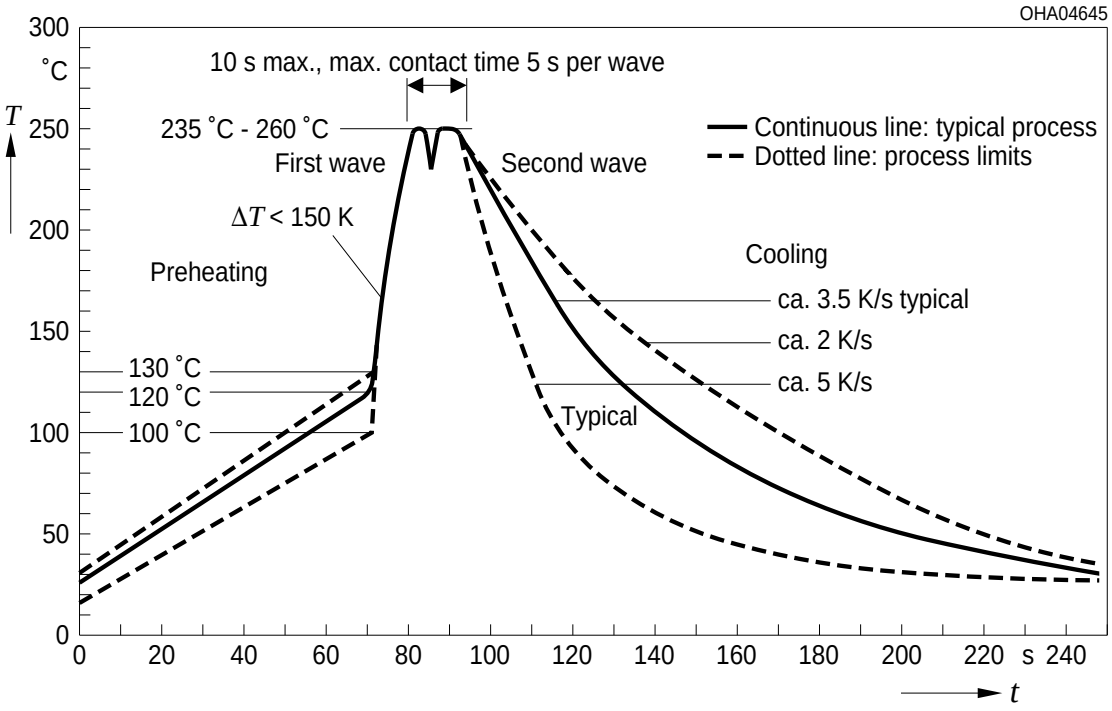
Approximate Weight:
78 mg

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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