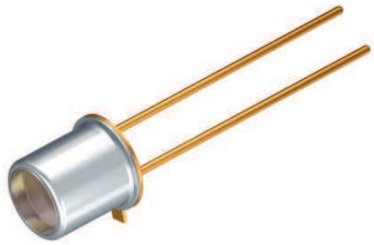
Silicon PIN Photodiode
Version 1.3

BPX 65



Features:

- Wavelength range ($S_{10\%}$) 350 nm to 1100 nm
- Short switching time (typ. 12 ns)
- Hermetically sealed metal can package (TO-18), suitable up to 125 °C

Applications

- Industrial electronics
- For control and drive circuits
- High speed photo detector

Ordering Information

Type:	**Photocurrent** I_P [µA] **E_v = 1000 lx, Std. Light A, V_R = 5 V**	**Ordering Code**
BPX 65	10 (≥ 5.5)	Q62702P0027

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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
Reverse voltage	V_R	20	V
Reverse voltage (t < 2 min)	V_R	50	V
Total Power dissipation	P_{tot}	250	mW
ESD withstand voltage (acc. to ANSI/ ESDA/ JEDEC JS-001 - HBM)	V_{ESD}	2000	V

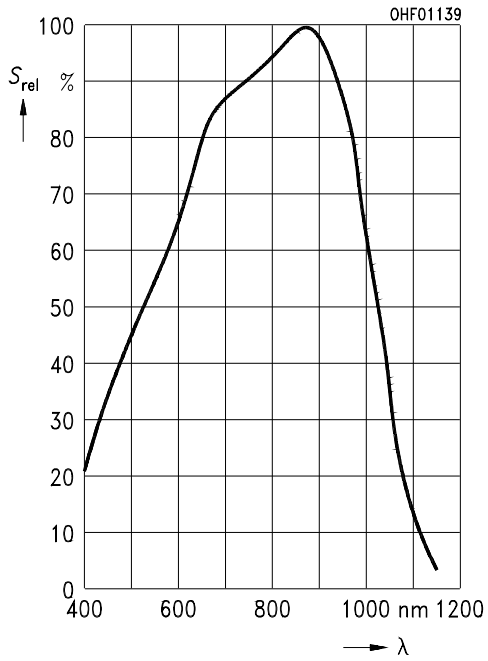
Characteristics (T_A = 25 °C)

Parameter		Symbol	Values	Unit
Spectral sensitivity (V_R = 5 V)	(typ)	S	10 (≥ 5.5)	nA/lx
Photocurrent (E_v = 1000 lx, Std. Light A, V_R = 5 V)	(typ (min))	I_P	10 (≥ 5.5)	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	1.00	mm^2
Dimensions of radiant sensitive area	(typ)	L x W	1 x 1	mm x mm
Half angle	(typ)	φ	± 40	°
Dark current (V_R = 20 V)	(typ (max))	I_R	1 (≤ 5)	nA
Spectral sensitivity of the chip (λ = 850 nm)	(typ)	$S_{\lambda\ typ}$	0.55	A / W
Quantum yield of the chip	(typ)	η	0.80	Electrons /Photon
Open-circuit voltage (E_v = 1000 lx, Std. Light A)	(typ (min))	V_O	320 (≥ 270)	mV
Short-circuit current (E_v = 1000 lx, Std. Light A)	(typ)	I_{SC}	10	µA
Rise and fall time (V_R = 5 V, R_L = 50 Ω, λ = 850 nm)	(typ)	t_r, t_f	0.012	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	11	pF

Parameter		Symbol	Values	Unit
Temperature coefficient of V_O	(typ)	TC_V	-2.6	mV / K
Temperature coefficient of I_{SC} (Std. Light A)	(typ)	TC_I	0.18	% / K
Noise equivalent power (V_R = 20 V, λ = 850 nm)	(typ)	NEP	0.033	pW / $Hz^{½}$
Detection limit	(typ)	D^*	3.1e12	cm x $Hz^{½}$ / W

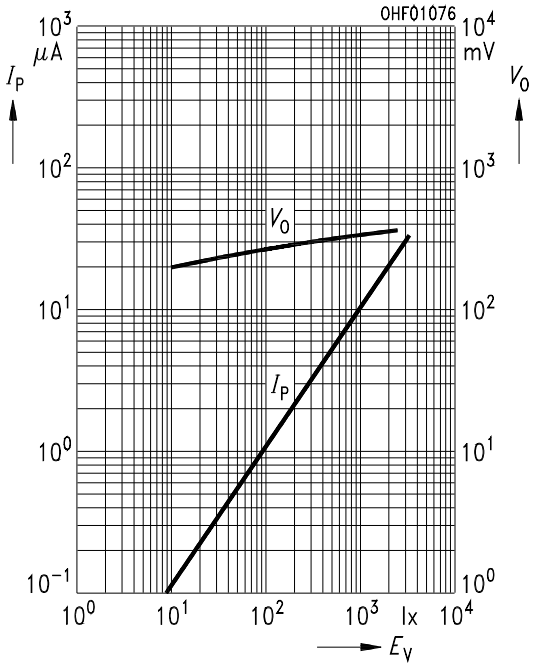
Relative Spectral Sensitivity 1) *page 7*

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



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

I_P (V_R = 5 V) / $V_O = f(E_v)$



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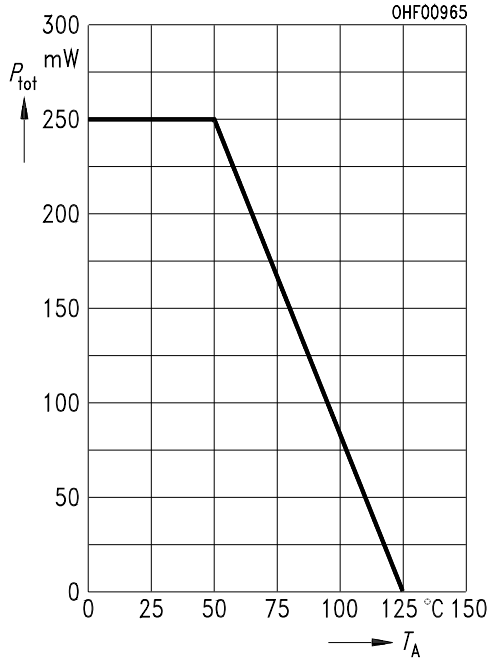
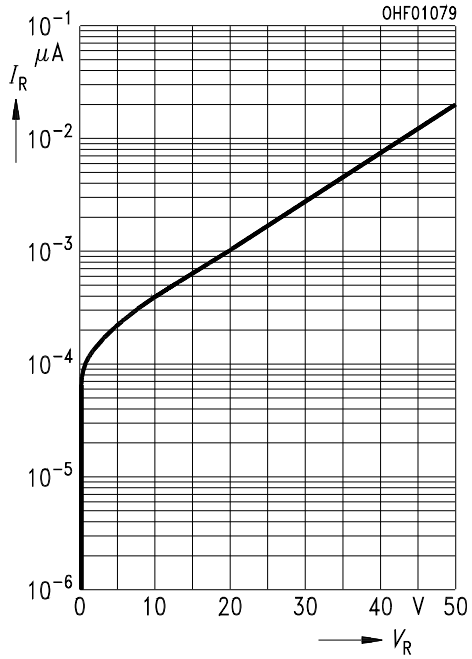
Power Consumption

$P_{tot} = f(T_A)$



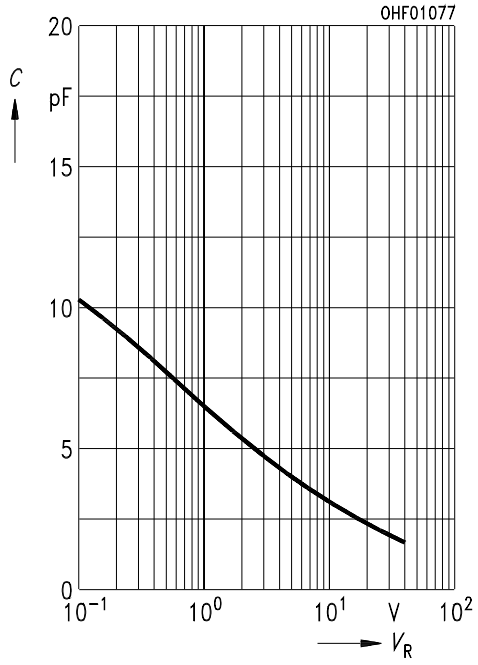
Dark Current [1] *page 7*

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



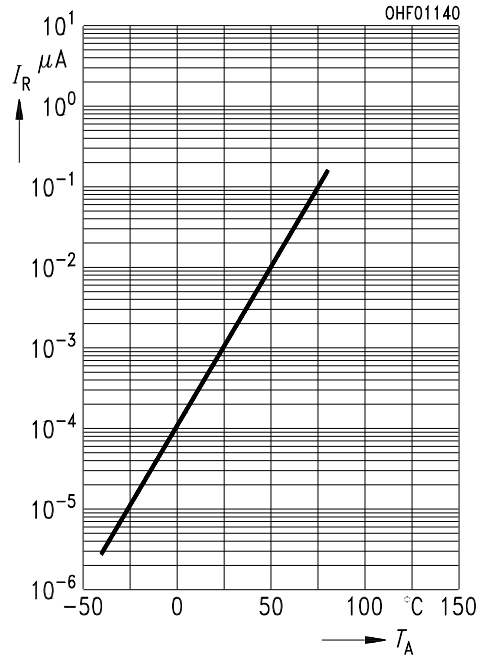
Capacitance [1] *page 7*

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



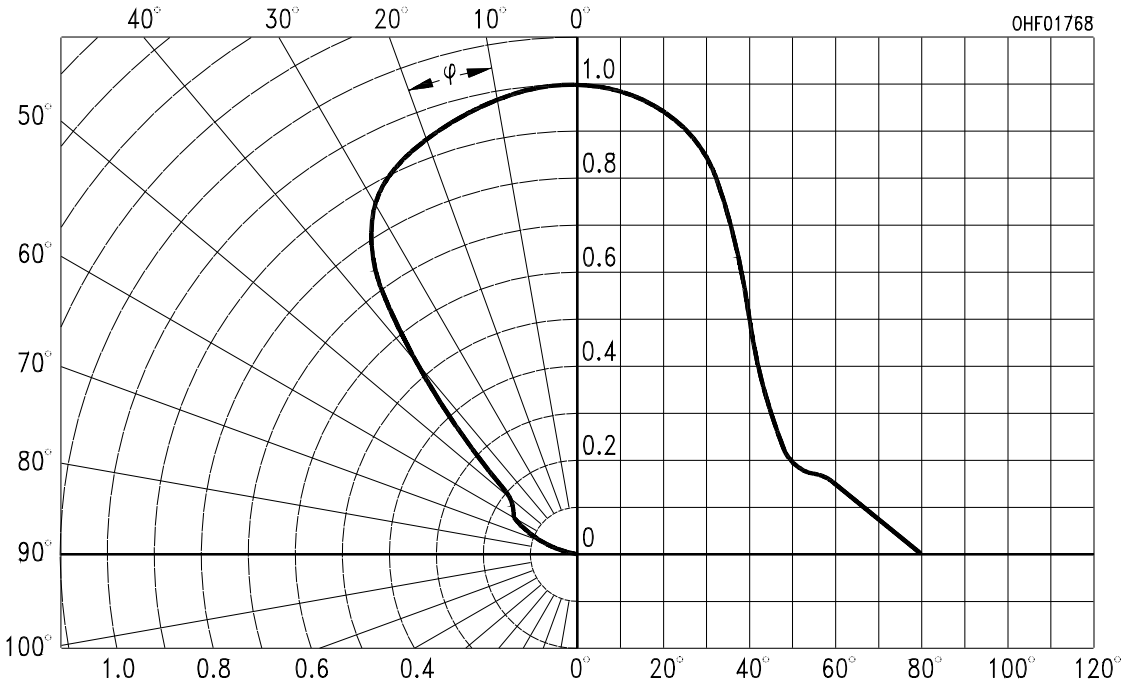
Dark Current [1] *page 7*

$I_R = f(T_A)$, V_R = 20 V, E = 0

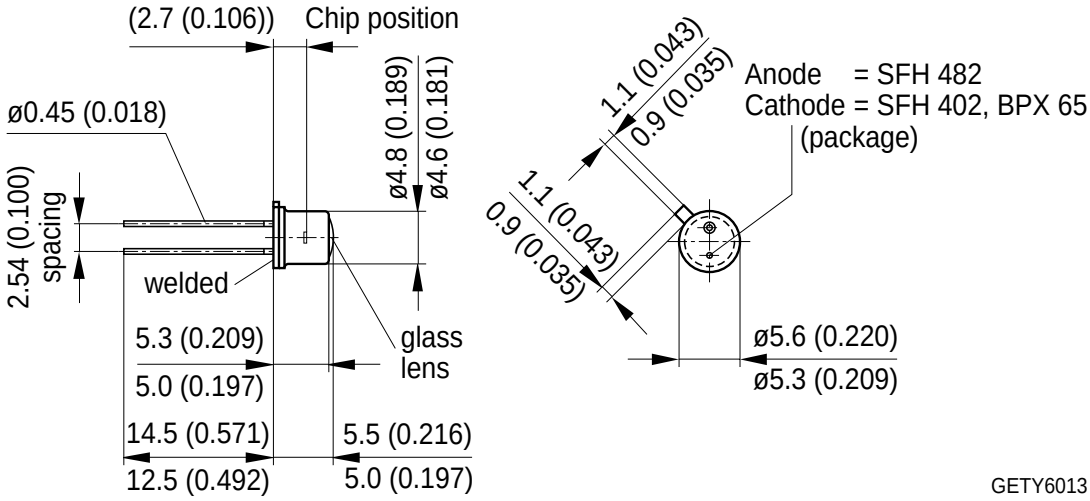


Directional Characteristics [1] *page 7*

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



Package Outline



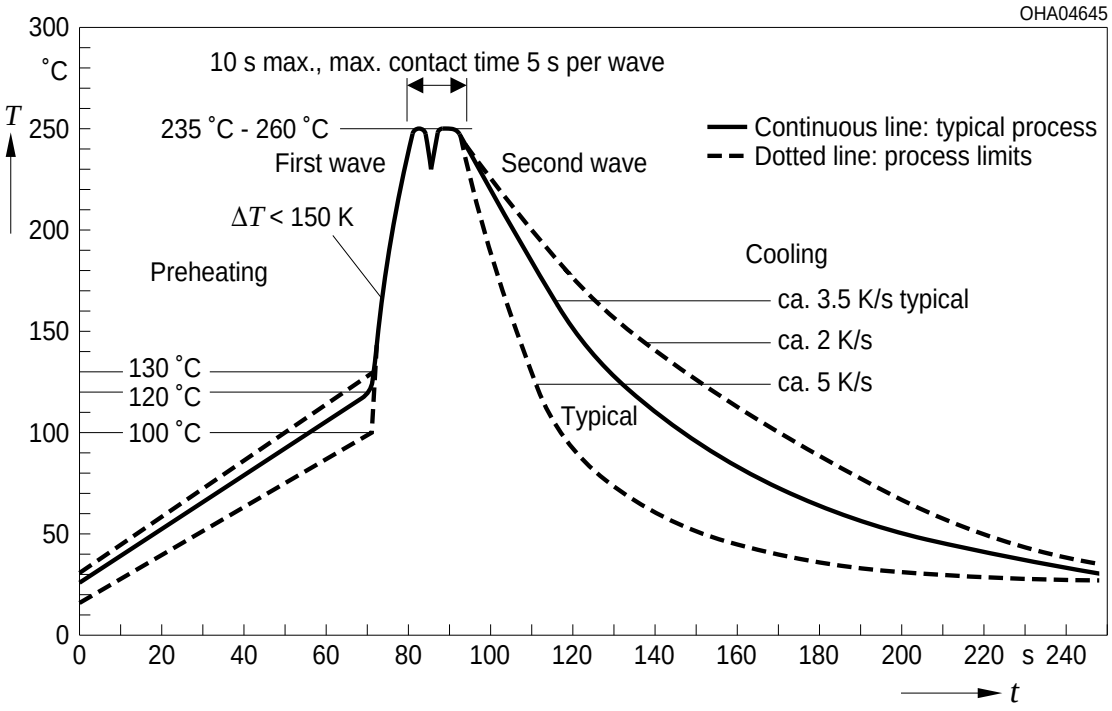
Dimensions in mm (inch).

Package

Metal Can (TO-18), hermetically sealed

Approximate Weight:
0.3 g

TTW Soldering
IEC-61760-1 TTW



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 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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