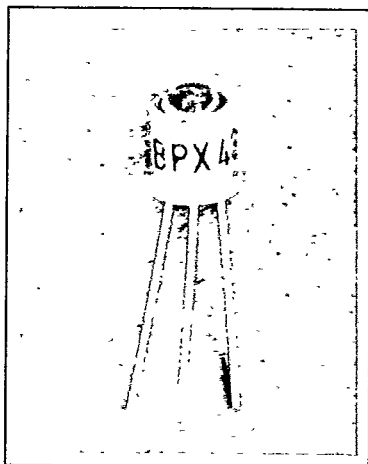


SIEMENS

BPX43 SERIES

PHOTOTRANSISTOR



FEATURES

- Silicon NPN Epitaxial Phototransistor
- TO-18 Hermetic Package
- Rounded Glass Lens
- Premium Hi-Rel Device
- Very High Gain
- Narrow Acceptance Angle, 30°
- Five Sensitivity Ranges

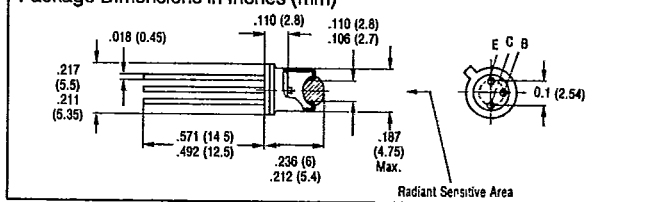
DESCRIPTION

The BPX43 is a silicon NPN epitaxial planar phototransistor in an 18 A 3 DIN 41876 (TO-18) case with lens-shaped window for front irradiance. The special transistor system in connection with the lens shaped window provides a high spectral sensitivity. The collector terminal is electrically connected to the case.

The BPX43 is suitable for industrial applications at low illuminances.

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Package Dimensions in Inches (mm)



Maximum Ratings

Operating and Storage Temperature (T_{STO}, T_{OP})		-55°C to +125°C
Soldering Temperature (distance from soldering joint to package ≥ 2 mm)		260°C
Dip Soldering Time ($t \leq 5$ sec.) (T_S)		300°C
Iron Soldering Time ($t \leq 3$ sec.) (T_S)		300°C
Collector Emitter Voltage (V_{CE})		50 V
Collector Current (I_C)		50 mA
Collector Peak Current ($t < 10 \mu s$) (I_{PK})		200 mA
Emitter Base Voltage (V_{EB})		7 V
Power Dissipation (P_{TOT}) $T_{AMB} = 25^\circ C$		330 mW
Thermal Resistance (R_{THJA})		450 KW

Characteristics ($T_{AMB} = 25^\circ C$)

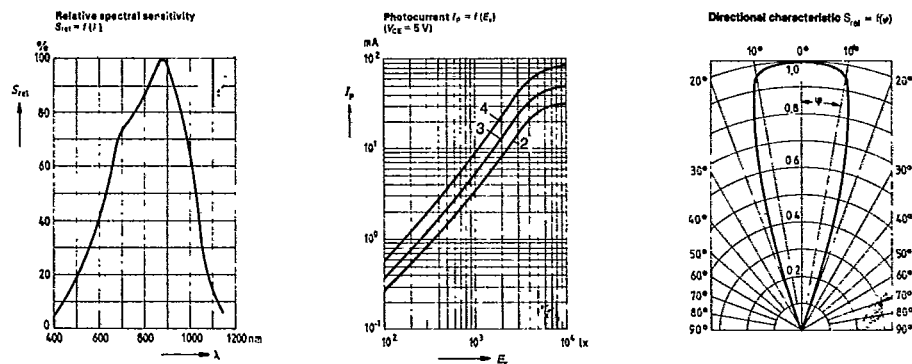
Wavelength of Max. Photosensitivity	λ_{MAX}	880	nm
Spectral Range of Photosensitivity	λ	450 - 1100	nm
Radiant Sensitive Area	A	0.675	mm ²
Die Area	L x W	1 x 1	mm
Distance Die Surface to Package Surface	H	2.25 - 2.55	mm
Half Angle	ϕ	± 15	Deg.
Photocurrent of the Collector, Base Diode			
($E_e = 1000$ lx, $V_{CE} = 5$ V)	I_{PCB}	35	μA
($E_e = 0.5$ mW/cm ² , $\lambda = 950$ nm, $V_{CE} = 5$ V)	I_{PCB}	11	μA
Capacitance			
($V_{CE} = 0$ V, $f = 1$ MHz, $E = 0$)	C_{CE}	23	pF
($V_{CE} = 0$ V, $f = 1$ MHz, $E = 0$)	C_{CB}	39	pF
($V_{CE} = 0$ V, $f = 1$ MHz, $E = 0$)	C_{EB}	47	pF
Collector Emitter Leakage Current			
($V_{CE} = 25$ V, $E = 0$)	I_{CEO}	20 (≤ 300)	nA

	-2	-3	-4	-5	-6 (M)	
Photocurrent, Collector to Emitter (Note 1)						
($E_e = 1000$ lx, standard light A, $V_{CE} = 5$ V)	I_{PCE}	3.8	6.0	9.5	15.0	22.5 mA
($E_e = 0.5$ mW/cm ² , $\lambda = 950$ nm, $V_{CE} = 5$ V)	I_{PCE}	0.8 - 1.6	1.25 - 2.5	2 - 4	3.2 - 6.3	≥ 5 mA
Rise/Fall Time ($I_C = 1$ mA, $V_{CE} = 5$ V, $R_L = 1$ k Ω , $\lambda = 830$ nm)	t_r, t_f	9	12	15	18	22 μs
Collector Emitter Saturation Voltage						
($I_C = I_{PCE-sat} \approx 0.3$, $\lambda = 950$ nm, $V_{CE} = 5$ V)	V_{CEsat}	200	220	240	260	290 mV
Current Gain						
($E_e = 0.5$ mW/cm ² , $\lambda = 950$ nm, $V_{CE} = 5$ V)	$\frac{I_{PCE}}{I_{PCB}}$	110	170	270	430	640

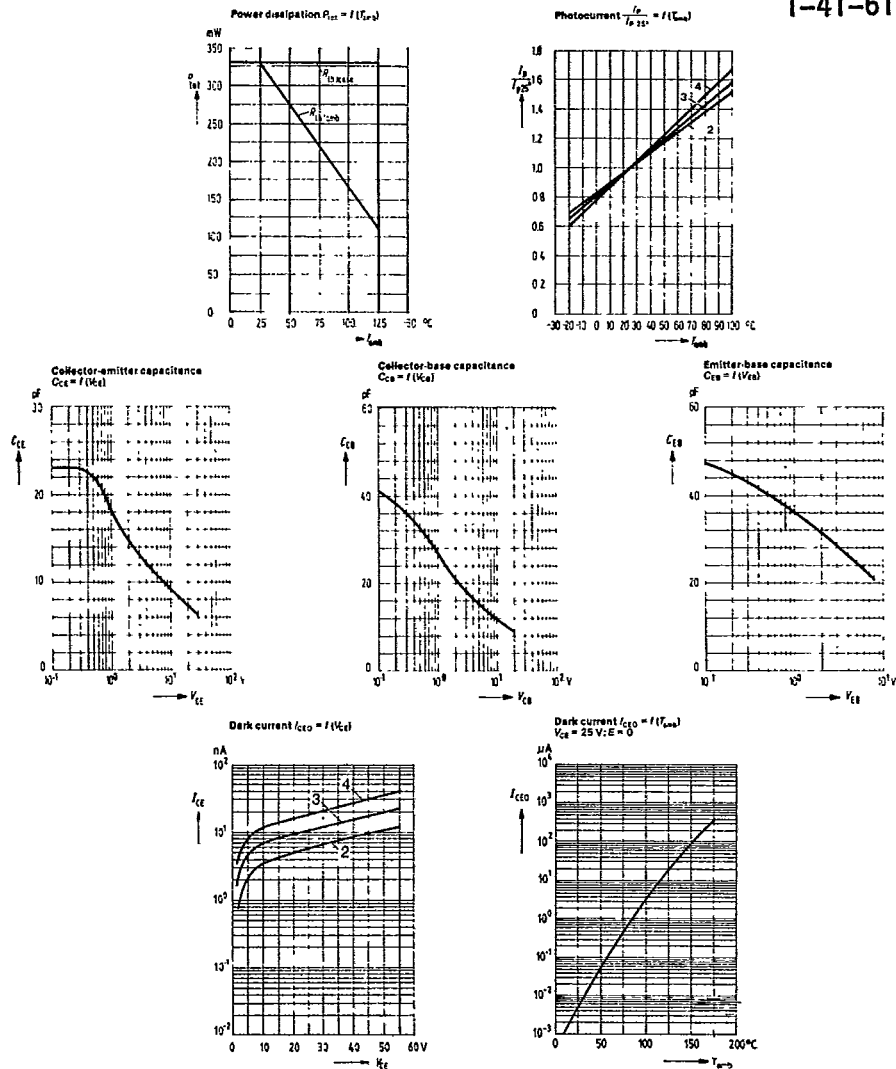
The illuminances refer to unfiltered radiation of a tungsten filament lamp at a color temperature of 2858K (standard light A in accordance with DIN 5033 and IEC publ. 306-11). Irradiance E_e measured with HP radiant flux meter 8334A with option 013.

Notes:

1. Measured with LED $\lambda = 950$ nm. I_{PCE} = Photocurrent of transistors, I_{PCB} = Photocurrent of Collector-Base Diode.
2. Supplies of this group cannot be guaranteed due to unforeseeable spread of yield. In this case we will reserve us the right of delivering a substitute group.



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Phototransistors/
Photodarlington

BPX 43