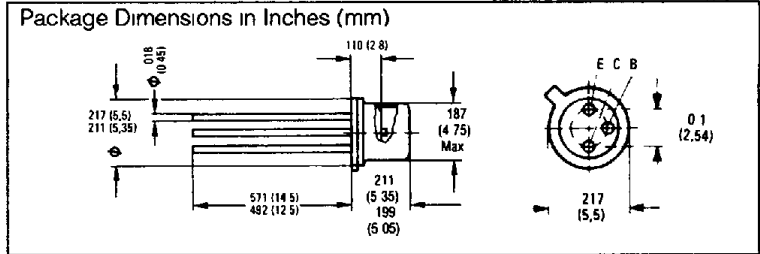
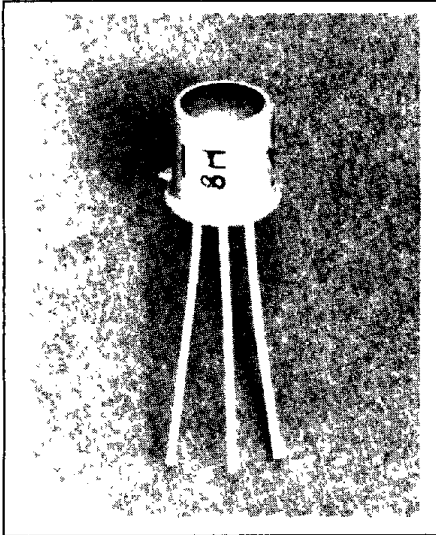


SIEMENS

BPX38 SERIES

PHOTOTRANSISTOR

T-41-61



Maximum Ratings

Operating and Storage Temperature (T_{STG}, T_{OP})	-55°C to +125°C
Soldering Temperature (distance from soldering joint to package ≥ 2 mm)	
Dip Soldering Time ($t \leq 5$ sec.) (T_S)	260°C
Iron Soldering Time ($t \leq 3$ sec.) (T_S)	300°C
Collector Emitter Voltage (V_{CEO})	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_{THA})	450 K/W

FEATURES

- Silicon NPN Epitaxial Phototransistor
- TO-18 Hermetic Package
- Flat Glass Lens
- Premium Hi-Rel Device
- Moderate Gain
- Wide Acceptance Angle, 80°
- Five Sensitivity Ranges

DESCRIPTION

The BPX38 is a silicon epitaxial planar phototransistor in an 18 A 3 DIN 41876 (TO-18) case with a flat window and high radiant sensitivity for front irradiance. The flat window has no influence on light paths. The collector terminal is electrically connected to the case.

The BPX38 is suitable for industrial applications where lens systems are used.

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

Wavelength of Max. Photosensitivity	λ_{max}	880	nm
Spectral Range of Photosensitivity	λ	450 - 1150	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	± 40	Deg.
Photocurrent of the Collector, Base Diode			
($E_e = 1000$ lx, $V_{CE} = 5$ V)	I_{PCB}	5.5	μA
($E_e = 0.5$ mW/cm ² , $\lambda = 950$ nm, $V_{CE} = 5$ V)	I_{PCB}	1.8	μA
Capacitance			
($V_{CE} = 0$ V, $f = 1$ MHz, $E = 0$)	C_{CE}	23	pF
($V_{CB} = 0$ V, $f = 1$ MHz, $E = 0$)	C_{CB}	39	pF
($V_{EB} = 0$ 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

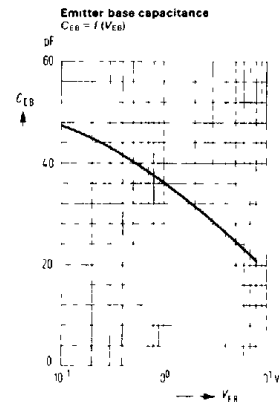
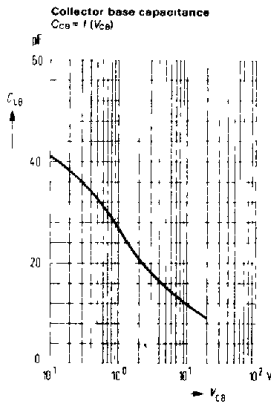
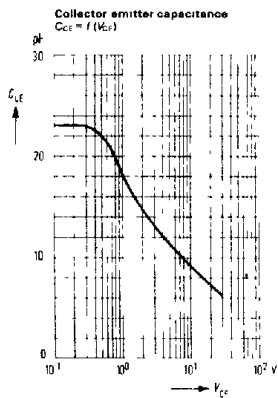
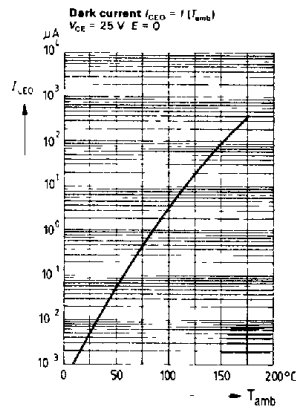
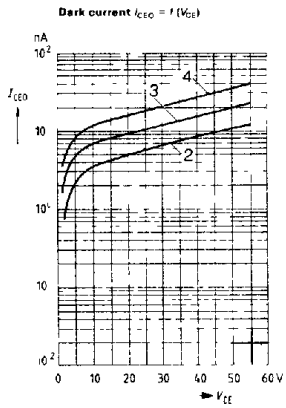
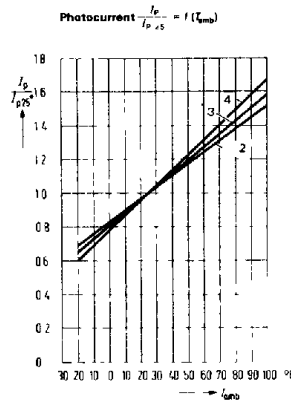
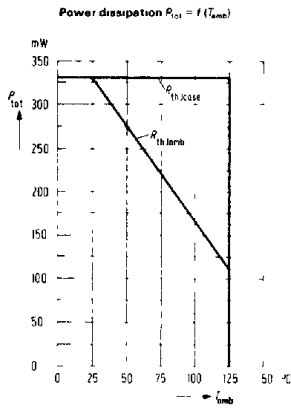
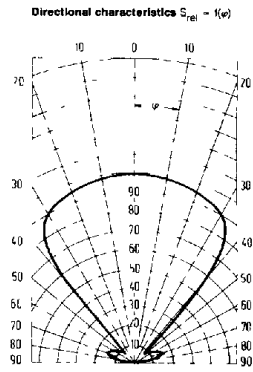
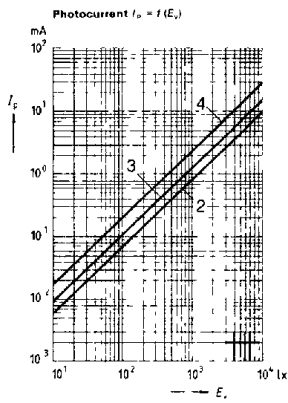
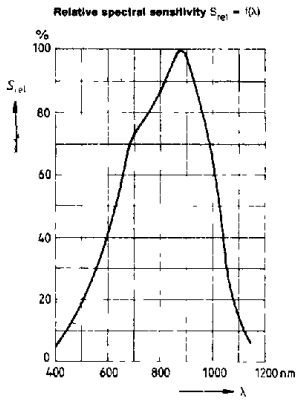
	-2	-3	-4	-5	-6 (2)		
Photocurrent, Collector to Emitter (Note 1) ($E_e = 1000$ lx, standard light A, $V_{CE} = 5$ V)	I_{PCE}	0.95	1.5	2.3	3.6	4.6	mA
	I_{PCE}	0.2 - 0.4	0.32 - 0.63	0.5 - 1.0	0.8 - 1.6	≥ 1.25	mA
Rise/Fall Time ($I_C = 1$ mA, $V_{CE} = 5$ V, $R_L = 1$ k Ω , $\lambda = 830$ nm)	t_r, t_f	9	12	15	18	22	μs
Collector Emitter Saturation Voltage ($I_C = I_{PCEmin} = 0.3$, $\lambda = 950$ nm, $V_{CE} = 5$ V)	V_{CEsat}	200	200	200	200	200	mV
Current Gain ($E_e = 0.5$ mW/cm ² , $\lambda = 950$ nm, $V_{CE} = 5$ V)	$\frac{I_{PCE}}{I_{PCB}}$	170	280	420	650	840	

The illuminances refer to unfiltered radiation of a tungsten filament lamp at a color temperature of 2856K (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

T-41-61



Phototransistors/
Photodarlington