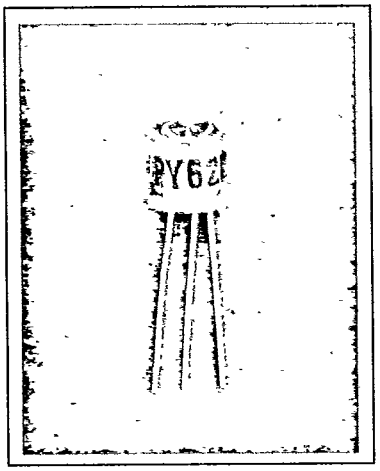
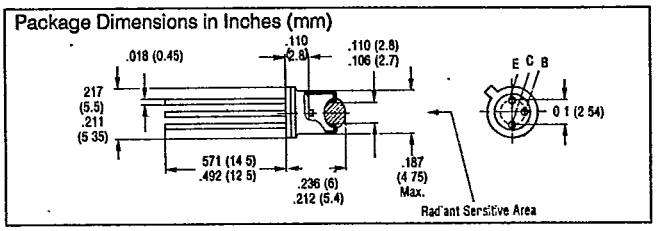
SIEMENS

BPY62 SERIES

PHOTOTRANSISTOR

T-41-61





FEATURES

- Silicon NPN Epitaxial Phototransistor
- TO-18 Hermetic Package
- Rounded Glass Lens
- Premium Hi-Rel Device
- High Gain
- Very Narrow Acceptance Angle, 16°
- Five Sensitivity Ranges

DESCRIPTION

The BPY62 is a silicon NPN epitaxial phototransistor in an 18 A 3 DIN 41876 (TO-18) package with a light window for front irradiance. The base connection is brought out and the emitter is marked by a tab on the case bottom. The collector is electrically connected to the case.

The BPY62 is suitable for versatile applications in connection with filament lamp light where sensitive photoelectric detectors are required.

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 ≤5 sec.) (T_s) ..... 260°C
Iron Soldering Time (t ≤3 sec.) (T_s) ..... 300°C
Collector Emitter Voltage (V_{CEO}) ..... 50 V
Collector Current (I_C) ..... 100 mA
Collector Peak Current (t <10 µs) (I_{CR}) ..... 200 mA
Emitter Base Voltage (V_{EB}) ..... 7 V
Power Dissipation (P_{TOT}) T_{amb} = 25°C ..... 300 mW
Thermal Resistance (R_{thJA}) ..... 450 K/W

Characteristics (T_{amb}=25°C)

Wavelength of Max. Photosensitivity	λ_{SMAX}	850	nm
Spectral Range of Photosensitivity	λ	400 –1100	nm
Radiant Sensitive Area	A	0.12	mm^2
Die Area	L x W	0.5 x 0.5	mm
Distance Die Surface to Package Surface	H	2.6 –3.2	mm
Half Angle	φ	±8	Deg.
Photocurrent of the Collector, Base Diode			
(E_V=1000 lx, V_{CE}=5 V)	I_{PCB}	17	µA
(E_E=0.5 mW/cm², λ=950 nm, V_{CB}=5 V)	I_{PCB}	4.5	µA
Capacitance			
(V_{CE}=0 V, f=1 MHz, E=0)	C_{CE}	6	pF
(V_{CB}=0 V, f=1 MHz, E=0)	C_{CB}	11	pF
(V_{EB}=0 V, f=1 MHz, E=0)	C_{EB}	19	pF
Collector Emitter Leakage Current			
(V_{CE}=25 V, E=0)	I_{CEO}	5 (≤100)	nA

		-2	-3	-4	-5	-6 [1]	
Photocurrent, Collector to Emitter (Note 1) (E_V=1000 lx, standard light A, V_{CE}=5 V)	I_{PCE}	3.0	4.6	7.2	11.4	15.3	mA
(E_E=0.5 mW/cm², λ=950 nm, V_{CE}=5 V)	I_{PCE}	0.5–1	0.8–1.6	1.25–2.5	2–4	≥3.2	mA
Rise/Fall Time (I_C=1 mA, V_{CE}=5 V, R_L=1 kΩ, λ=830 nm)	t_r,t_f	5	7	9	12	15	µs
Collector Emitter Saturation Voltage (I_C=I_{PCE-n} • 0.3, λ=950 nm, V_{CE}=5 V)	V_{CEsat}	150	150	160	180	200	mV
Current Gain (E_E=0.5 mW/cm², λ=950 nm, V_{CE}=5 V)	$\frac{I_{PCE}}{I_{PCB}}$	170	270	420	670	880	

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 λ= 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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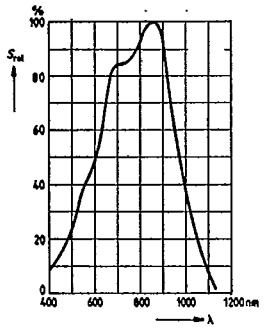
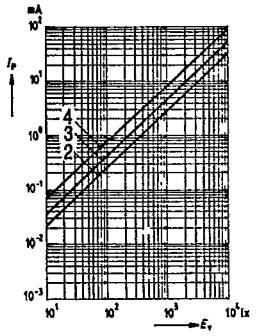
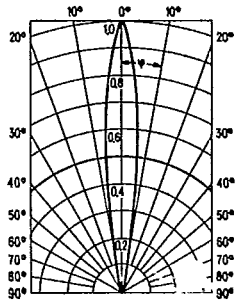
Relative spectral sensitivity
$S_{rel} = f(\varphi)$



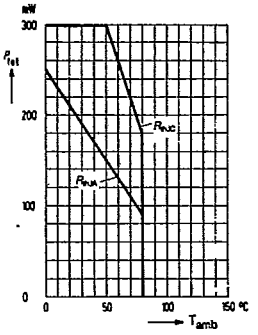
Photocurrent as a function of
E_V or E_e; $IP = f(E_V)$



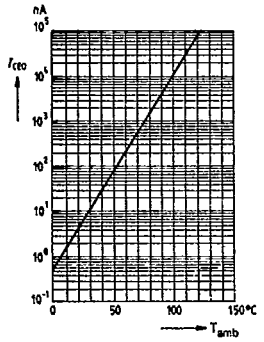
Directional characteristic
$S_{rel} = f(\varphi)$



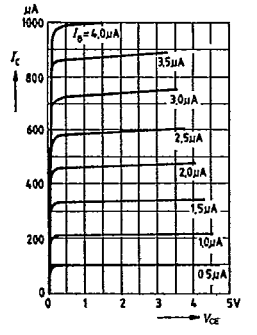
Power dissipation $P_{tot} = f(T_{amb})$
R_{th} = parameter



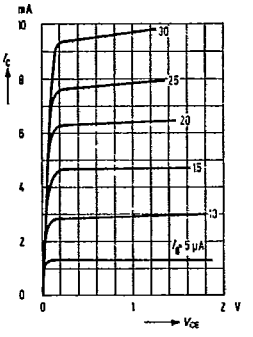
Leakage current (CEO = $f(T_{amb})$
V_{CE} = 25 V, E = 0



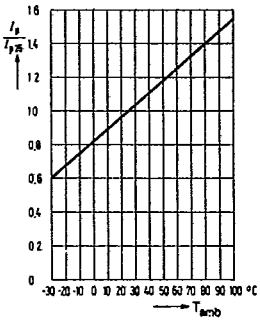
Output characteristics $I_C = f(V_{CE})$
I_B = parameter



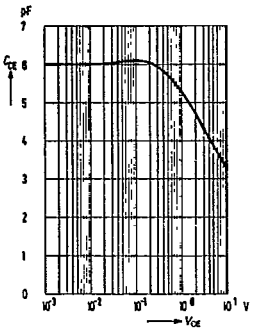
Output characteristics $I_C = f(V_{CE})$
I_R = parameter (emitter circuit)



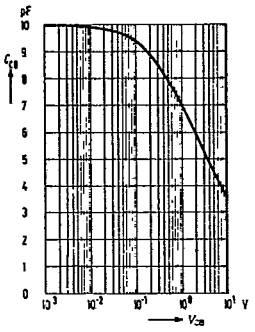
Photocurrent $\frac{I_P}{I_{P25°}} = f(T_{amb})$



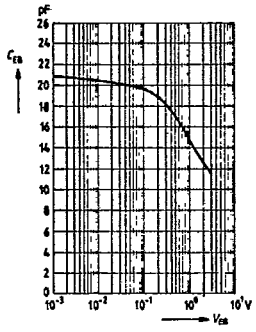
Collector-emitter capacitance
$C_{CE} = f(V_{CE})$



Collector-base capacitance
$C_{CB} = f(V_{CB})$



Emitter-base capacitance
$C_{EB} = f(V_{EB})$



Phototransistors/
Photodarlington

BPY 62