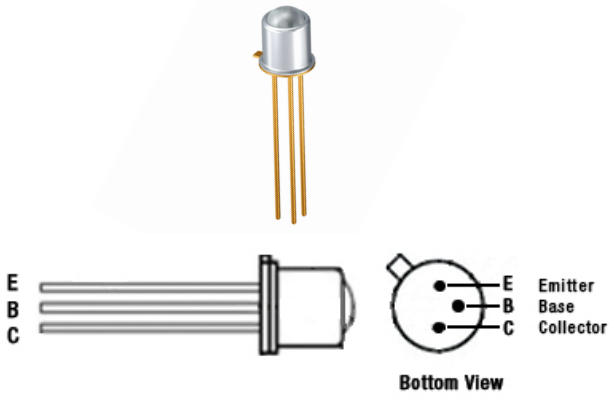
36532-OP

BPY 62-4 Silicon NPN Phototransistor



Features:

- **Spectral range of sensitivity:** (typ) 400 ... 1100 nm
- **Package:** Metal Can (TO-18), hermetically sealed
- **Special:** Base connection
- Suitable up to 125 °C
- HIgh photosensitivity
- Available in groups

Applications

- Photointerrupters
- Industrial electronics
- For control and drive circuits

Ordering Information

Type:	**Photocurrent** I_{PCE} [µA] **λ = 950 nm, E_e = 0.5 mW/cm², V_{CE} = 5 V**	**Ordering Code**
BPY 62	≥ 500	Q60215Y0062
BPY 62-3/4	800 ... 2500	Q62702P5198
BPY 62-4	1250 ... 2500	Q60215Y1113

Note: Only one bin within one packing unit (variation less than 2:1)

Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Operating and storage temperature range	T_{op}; T_{stg}	-40 ... 125	°C
Collector-emitter voltage	V_{CE}	35	V
Collector current	I_C	100	mA
Collector surge current (τ < 10 µs)	I_{CS}	200	mA
Emitter-collector voltage	V_{EC}	7	V
Total Power dissipation	P_{tot}	200	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
Wavelength of max. sensitivity	(typ)	$\lambda_{S\ max}$	830	nm
Spectral range of sensitivity	(typ)	$\lambda_{10\%}$	(typ) 400 ... 1100	nm
Radiant sensitive area	(typ)	A	0.11	mm^2
Dimensions of chip area	(typ)	L x W	(typ) 0.55 x 0.55	mm x mm
Half angle	(typ)	φ	± 8	°
Photocurrent of collector-base photodiode (λ = 950 nm, E_e = 0.5 mW/cm^2, V_{CB} = 5 V)	(typ)	I_{PCB}	5.5	µA
Photocurrent of collector-base photodiode (E_V = 1000 lx, Std. Light A, V_{CB} = 5 V)	(typ)	I_{PCB}	17	µA
Capacitance (V_{CE} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{CE}	7.5	pF
Capacitance (V_{CB} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{CB}	14	pF
Capacitance (V_{EB} = 0 V, f = 1 MHz, E = 0)	(typ)	C_{EB}	19	pF
Dark current (V_{CE} = 20 V, E = 0)	(typ (max))	I_{CE0}	1 (≤ 50)	nA

Grouping (T_A = 25 °C, λ = 950 nm)

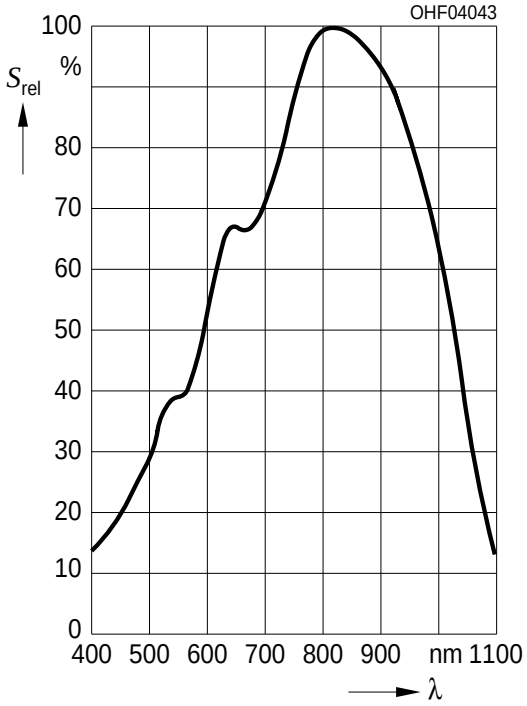
Group	**Min Photocurrent** E_e **= 0.5 mW/cm², ** V_{CE} **= 5 V** $I_{PCE, min}$ [µA]	**Max Photocurrent** E_e **= 0.5 mW/cm², ** V_{CE} **= 5 V** $I_{PCE, max}$ [µA]	**Typ Photocurrent** E_V **= 1000 lx, Std. Light A, ** V_{CE} **= 5 V** I_{PCE} [µA]	**Rise and fall time** I_C **= 1 mA, ** V_{CC} **= 5 V, ** R_L **= 1 kΩ** t_r, t_f [µs]
BPY 62-2	500	1000	2400	5
BPY 62-3	800	1600	3800	7
BPY 62-4	1250	2500	5800	9
BPY 62-5	2000		9600	12

Group	**Collector-emitter saturation voltage** $I_C = I_{PCEmin}$ **x 0.3, ** E_e**= 0.5 mW/cm²** V_{CEsat} [mV]	**Current gain** E_e **= 0.5 mW/cm², ** V_{CE} **= 5 V** I_{PCE} / I_{PCB}
BPY 62-2	150	140
BPY 62-3	150	220
BPY 62-4	160	340
BPY 62-5	180	550

Note.: I_{PCEmin} *is the min. photocurrent of the specified group.*

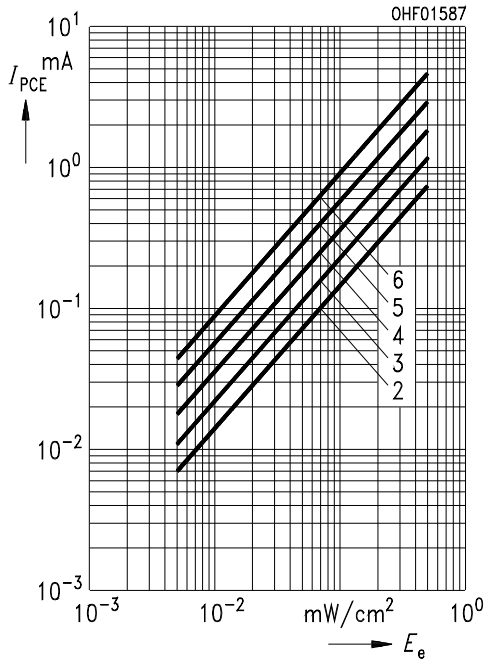
Relative Spectral Sensitivity 1) *page 9*

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



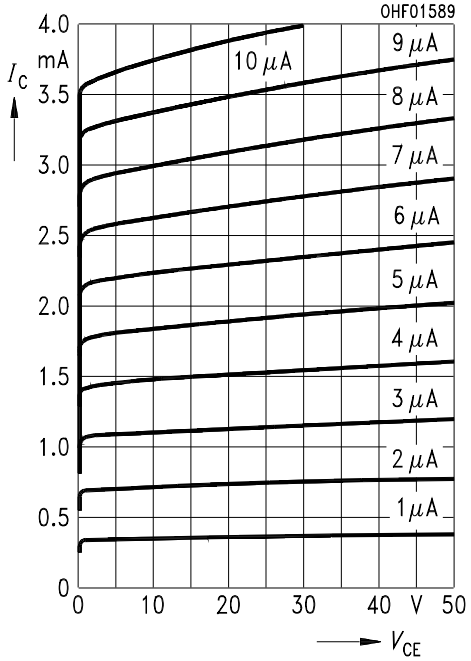
Photocurrent 1) *page 9*

$I_{PCE} = f(E_e)$, V_{CE} = 5 V



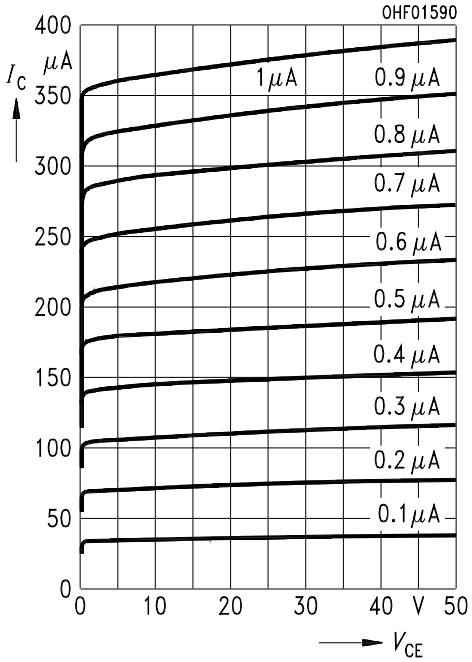
Collector Current 1) *page 9*

$I_C = f(V_{CE})$, I_B = Parameter



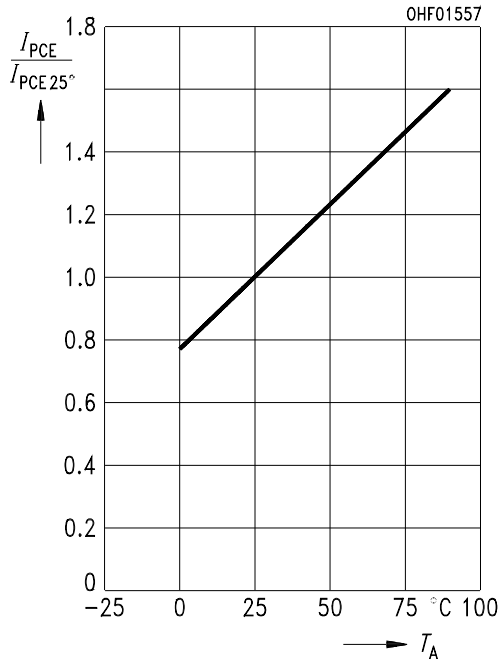
Collector Current 1) *page 9*

$I_C = f(V_{CE})$, I_B = Parameter



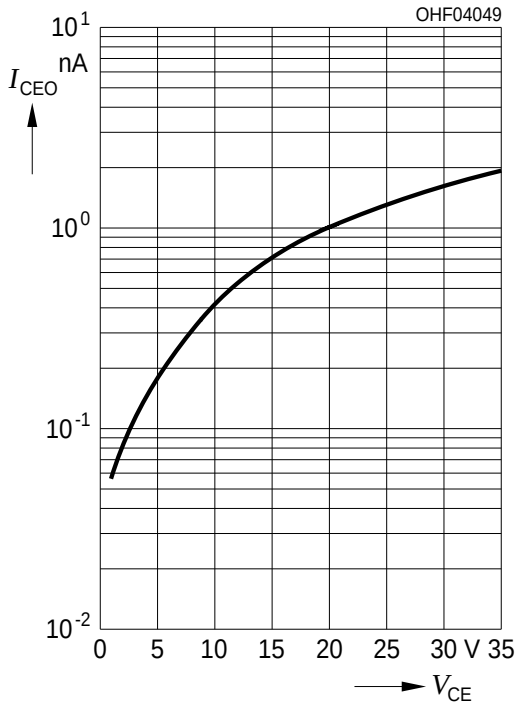
Photocurrent [1] *page 9*

$I_{PCE} / I_{PCE}(25°C) = f(T_A)$, V_{CE} = 5 V



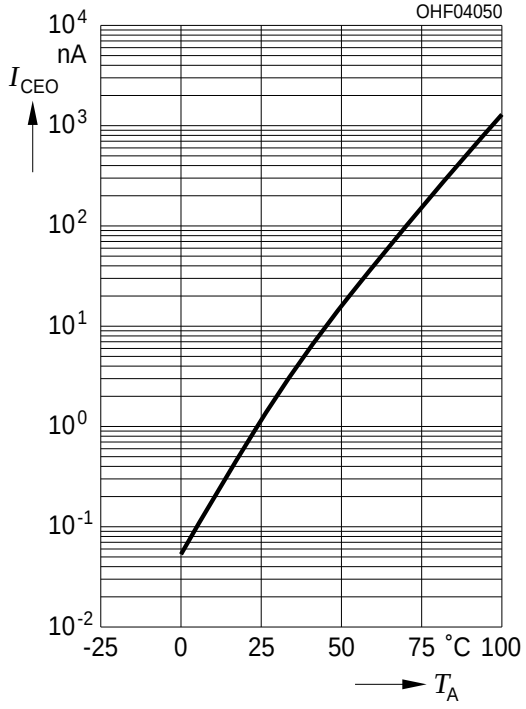
Dark Current [1] *page 9*

$I_{CEO} = f(V_{CE})$, E = 0



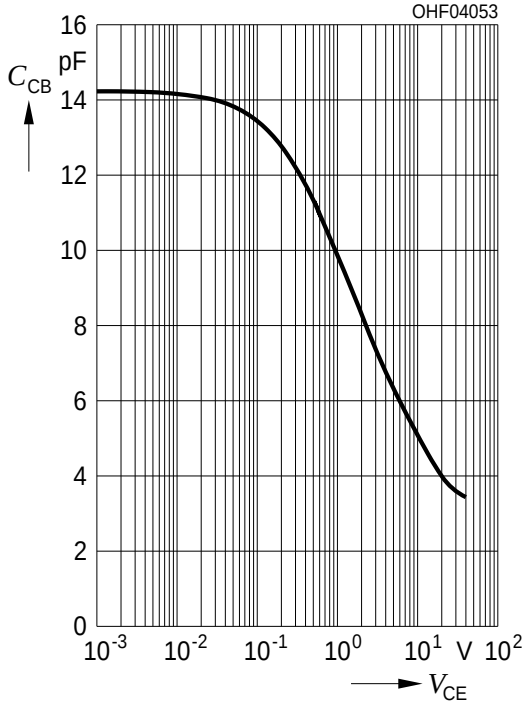
Dark Current [1] *page 9*

$I_{CEO} = f(T_A)$, E = 0



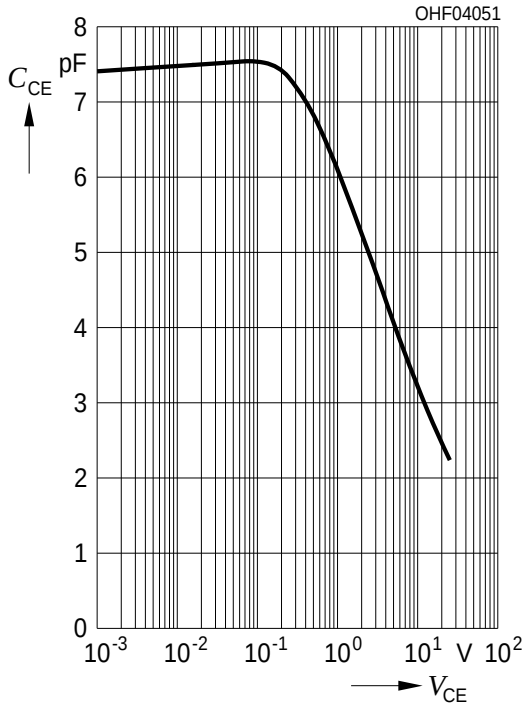
Collector-Base Capacitance [1] *page 9*

$C_{CB} = f(V_{CB})$, f = 1 MHz, E = 0



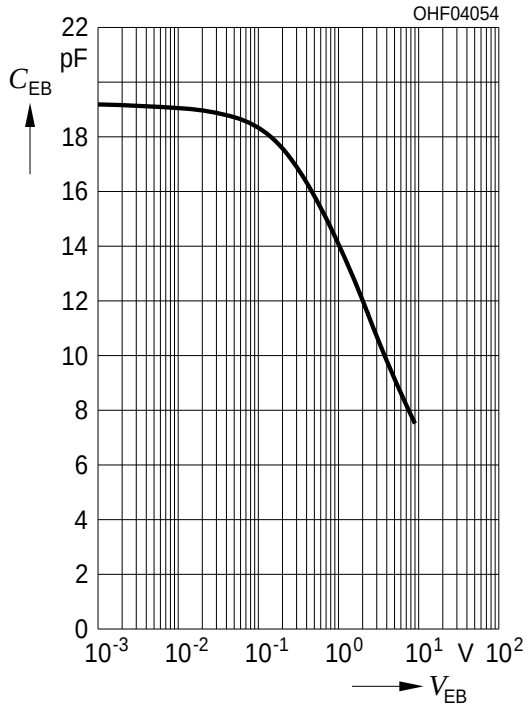
Collector-Emitter Capacitance [1] *page 9*

$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



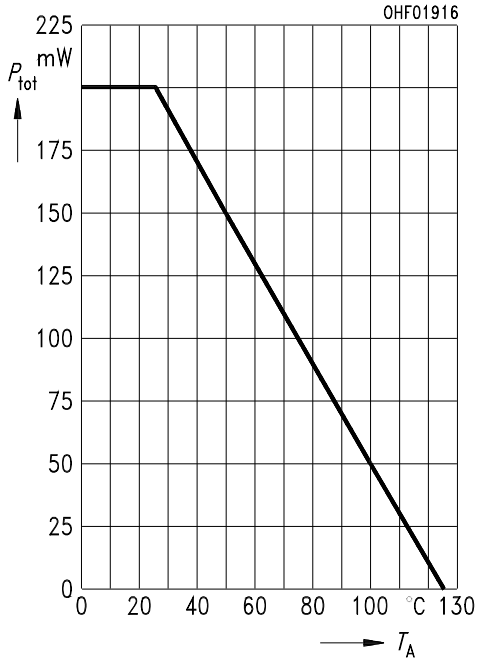
Emitter-Base Capacitance [1] *page 9*

$C_{EB} = f(V_{EB})$, f = 1 MHz, E = 0



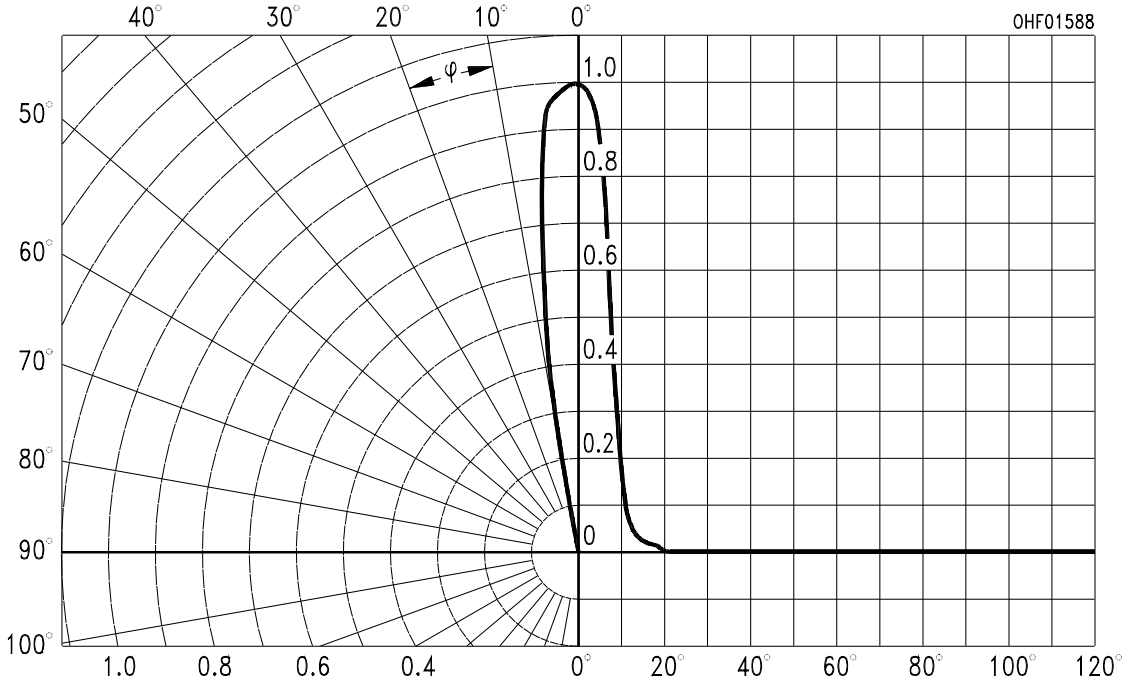
Power Consumption

$P_{tot} = f(T_A)$

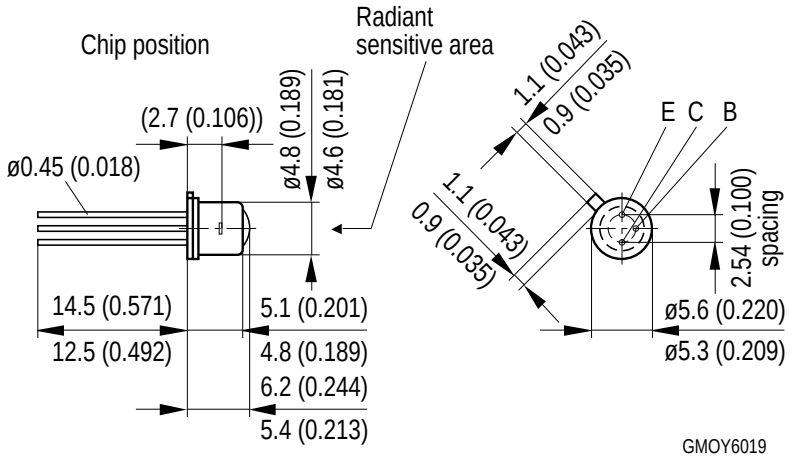


Directional Characteristics 1) *page 9*

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



Package Outline



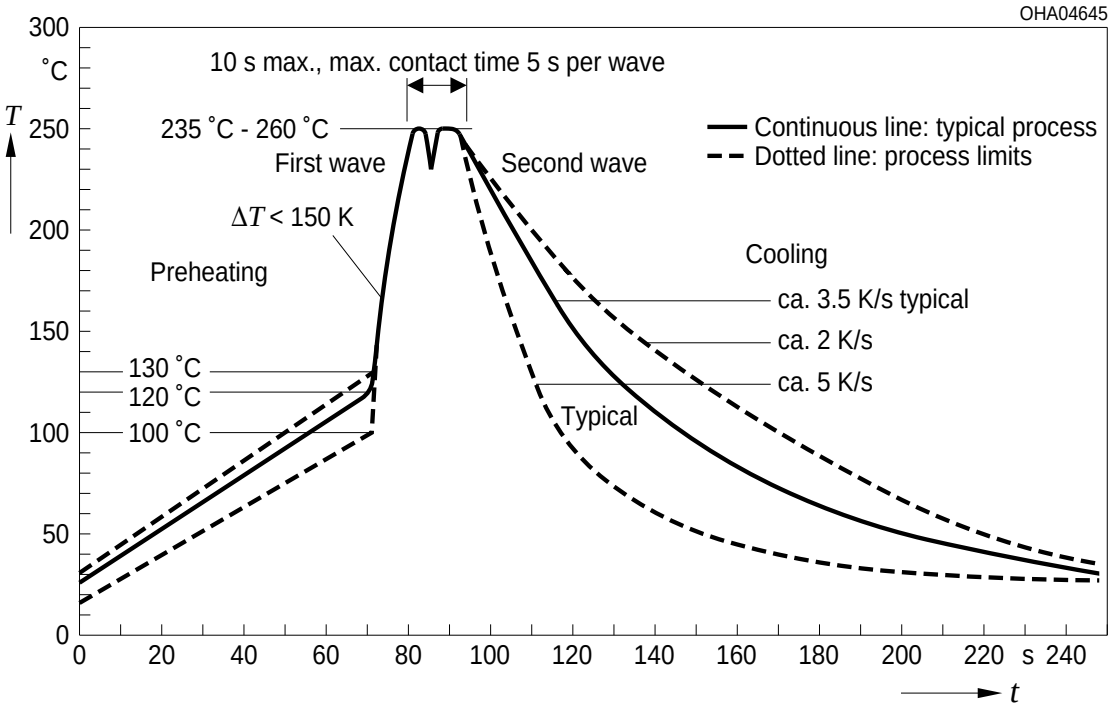
Dimensions in mm (inch).

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.

Attention please!
The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances.
For information on the types in question please contact our Sales Organization.
If printed or downloaded, please find the latest version in the Internet.
Packing
Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.
Components used in life-support devices or systems must be expressly authorized for such purpose!

*) A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.
**) Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.