

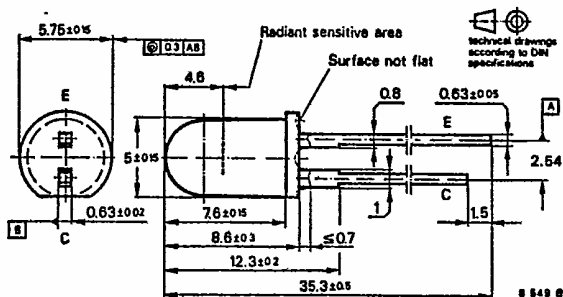
## Silicon NPN Epitaxial Planar Phototransistor

**Applications:** Detector in electronic control and drive circuits

### Features:

- Plastic case  $\varnothing$  5 mm (T-1 $\frac{1}{2}$ )
- Suitable for visible and near infrared radiation
- High sensitivity
- Wide angle of half sensitivity
- Axial terminals

### Dimensions in mm



Angle of half sensitivity  
 $\pm \varphi = 20^\circ$   
Special case  
Clear plastic  
Weight max. 0.4 g

### Accessories

Mounting clip Order No. 562136  
Retainer ring Order No. 562135

### Absolute maximum ratings

Collector-emitter voltage	$V_{CEO}$	32	V
Emitter-collector voltage	$V_{ECO}$	5	V
Collector current	$I_C$	100	mA
Peak collector current $t_p = 0.5$ , $t_p \leq 10$ ms	$I_{CM}$	200	mA
Total power dissipation $T_{amb} \leq 47^\circ\text{C}$	$P_{tot}$	150	mW
Junction temperature	$T_j$	100	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-25...+100	$^\circ\text{C}$
Soldering temperature $t \leq 3$ s	$T_{sd}^{1)}$	245	$^\circ\text{C}$

<sup>1)</sup> Distance from the touching border  $\geq 1.5$  mm with intermediate PC-board

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Thermal resistance		Min.	Typ.	Max.	
Junction ambient	$R_{thJA}$			350	K/W

## Optical and electrical characteristics

$T_{amb} = 25\text{ °C}$

Collector dark current

$V_{CE} = 20\text{ V}, E = 0$	$I_{CEO}^{*)}$	10	200	nA
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Collector light current

$V_{CE} = 5\text{ V}, E_A = 1\text{ klx}$	$I_{cs}^{*)}$	6		mA
$V_{CE} = 5\text{ V}, E_s = 1\text{ mW/cm}^2, \lambda_p = 950\text{ nm}$	$I_{cs}^{*)}$	1	2	mA

Peak wavelength sensitivity

$\lambda_p$	780	nm
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Range of spectral bandwidth (50%)

$\lambda_{0.5}$	520...950	nm
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Collector-emitter breakdown voltage

$I_C = 1\text{ mA}$	$V_{(BR)CEO^{*)}}$	32		V
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Collector-Emitter saturation voltage

$I_C = 1\text{ mA}, E_s = 1\text{ mW/cm}^2, \lambda_p = 950\text{ nm}$	$V_{CEsat^{*)}}$	0.3		V
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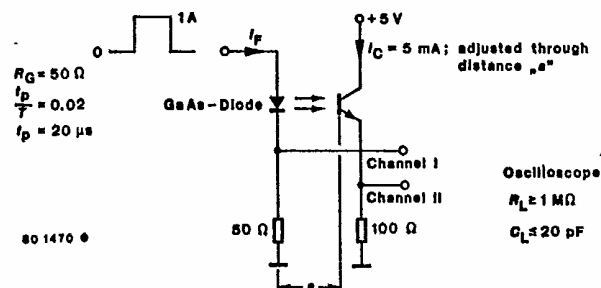
Cut-off frequency

$V_s = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\text{ }\Omega$	$f_c$	170		kHz
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## Switching characteristics

$V_s = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\text{ }\Omega$ , see test circuit

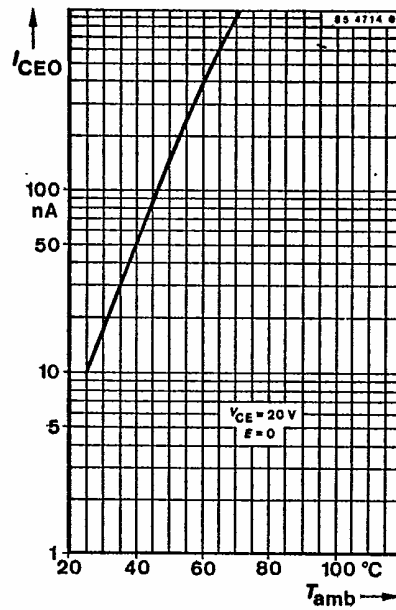
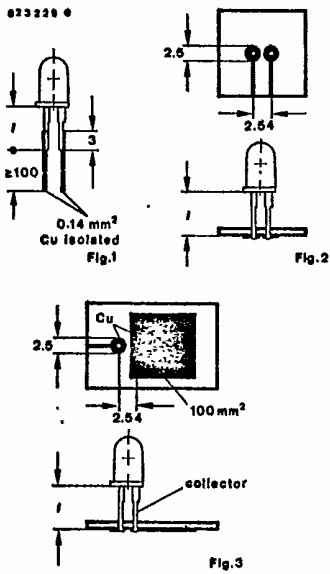
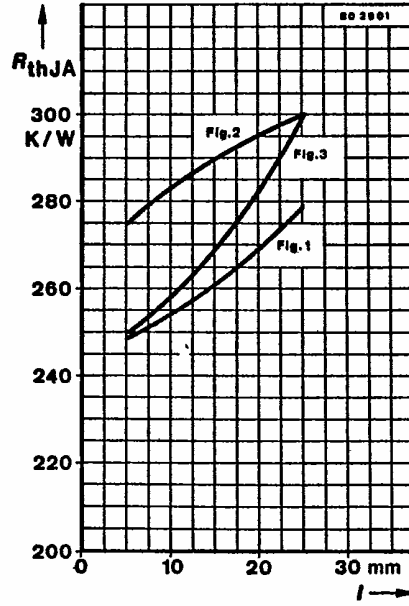
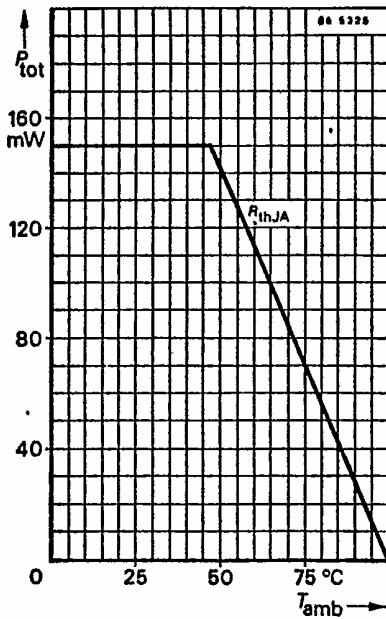
Delay time	$t_d$	1.8		$\mu\text{s}$
Rise time	$t_r$	1.6		$\mu\text{s}$
Turn-on time	$t_{on}$	3.4		$\mu\text{s}$
Storage time	$t_s$	0.3		$\mu\text{s}$
Fall time	$t_f$	1.7		$\mu\text{s}$
Turn-off time	$t_{off}$	2.0		$\mu\text{s}$



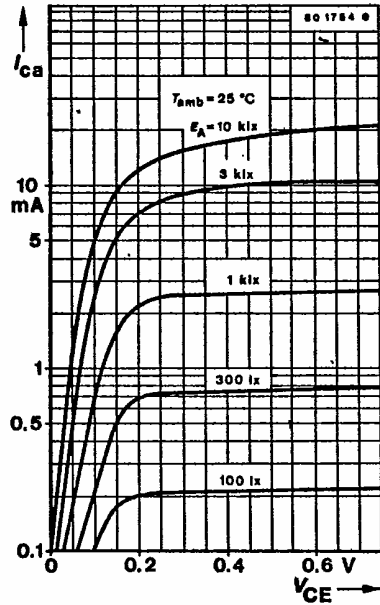
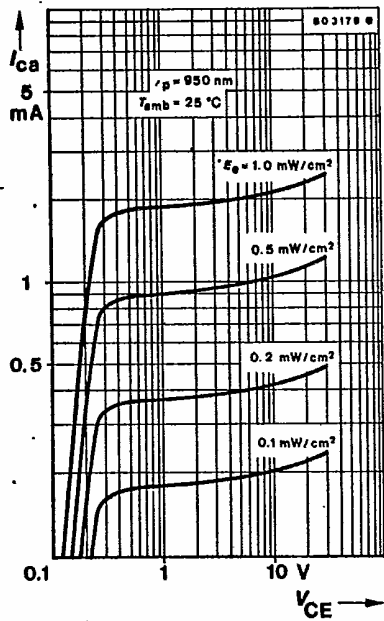
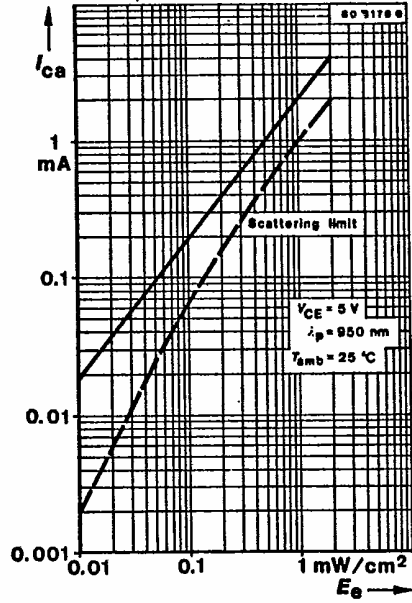
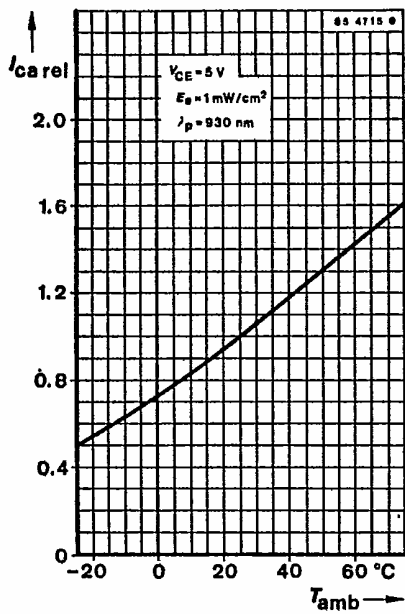
## Test circuit

<sup>\*)</sup> AQL = 0.65 % <sup>1)</sup> Standard illuminant A (DIN 5033/IEC 306-1)

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