



TELEFUNKEN electronic
Creative Technologies

BPW 39

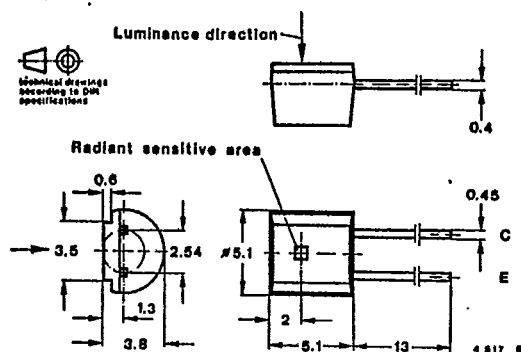
Silicon NPN Epitaxial Planar Phototransistor

Applications: Detector in electronic control and drive circuits

Features:

- Plastic case white clear
- Suitable for visible and near infrared radiation
- High sensitivity
- Wide angle of half sensitivity
- Flat window
- Irradiation direction vertical to mounting direction
- Compatible with CQX 18
- Selected in groups

Dimensions in mm



Angle of half sensitivity
 $\pm \varphi = 65^\circ$
Plastic case
~ 10 B 3 DIN 41868
~ JEDEC TO 92
Weight max. 0.4 g

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 $\frac{t_p}{T} = 0.5, t_p \leq 10 \text{ ms}$	I_{CM}	200	mA
Total power dissipation $T_{amb} \leq 25^\circ \text{C}$	P_{tot}	150	mW
Junction temperature	T_j	85	$^\circ \text{C}$
Storage temperature range	T_{stg}	-25...+85	$^\circ \text{C}$
Soldering temperature $t \leq 3 \text{ s}$	$T_{sd}^{1)}$	245	$^\circ \text{C}$

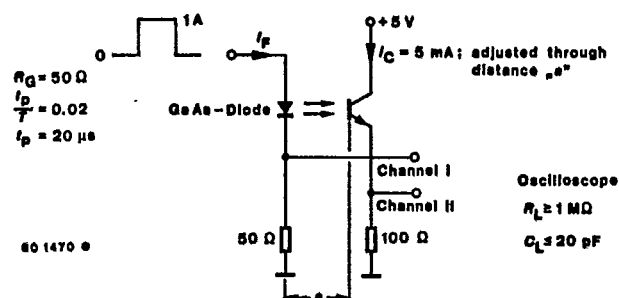
¹⁾ Distance from the touching border $\geq 2 \text{ mm}$

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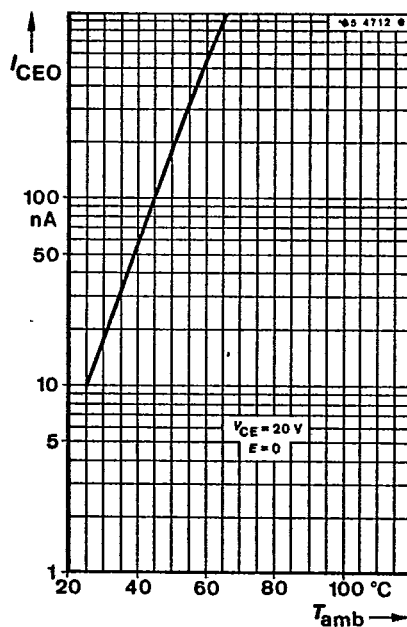
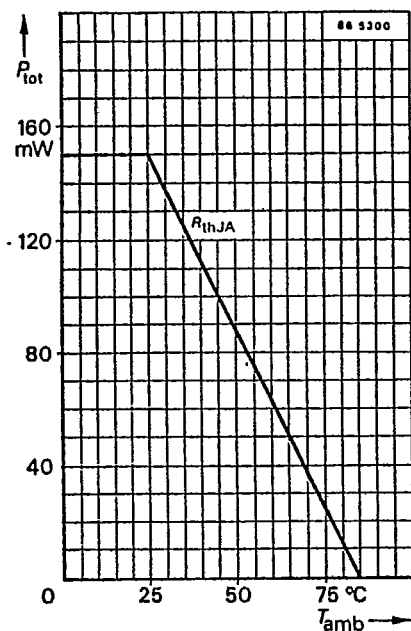
Thermal resistance		Min.	Typ.	Max.	
Junction ambient	R_{thJA}			400	K/W
Optical and electrical characteristics					
$T_{amb} = 25^\circ\text{C}$					
Collector dark current					
$V_{CE} = 20\text{ V}, E = 0$	$I_{CEO}^{*)}$		10	100	nA
Collector light current					
$V_{CE} = 5\text{ V}, E_A = \text{klx}^{1)}$					
Group A	I_{cs}		1		mA
Group B	I_{cs}		2		mA
$V_{CE} = 5\text{ V}, E_s = 1\text{ mW/cm}^2, \lambda_p = 950\text{ nm}$					
Group A	$I_{cs}^{*)}$	0.15	0.3	0.5	mA
Group B	$I_{cs}^{*)}$	0.4	0.6		mA
Peak wavelength sensitivity	λ_p		780		nm
Range of spectral bandwidth (50%)	$\lambda_{0.5}$		520...950		nm
Collector-emitter breakdown voltage					
$I_C = 1\text{ mA}$	$V_{(BR)CEO^{*)}}$	32			V
Collector-Emitter saturation voltage					
$I_C = 0.1\text{ mA}, E_s = 1\text{ mW/cm}^2, \lambda_p = 950\text{ nm}$	$V_{CEsat^{*)}}$			0.3	V
Cut-off frequency					
$V_S = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\ \Omega$	f_c		170		kHz
Switching characteristics					
$V_S = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\ \Omega$, see test circuit					
Delay time	t_d		1.8		μs
Rise time	t_r		1.6		μs
Turn-on time	t_{on}		3.4		μs
Storage time	t_s		0.3		μs
Fall time	t_f		3		μs
Turn-off time	t_{off}		4		μs

^{*)} AQL = 0.65 % ¹⁾ Standard illuminant A (DIN 5033/IEC 306-1)

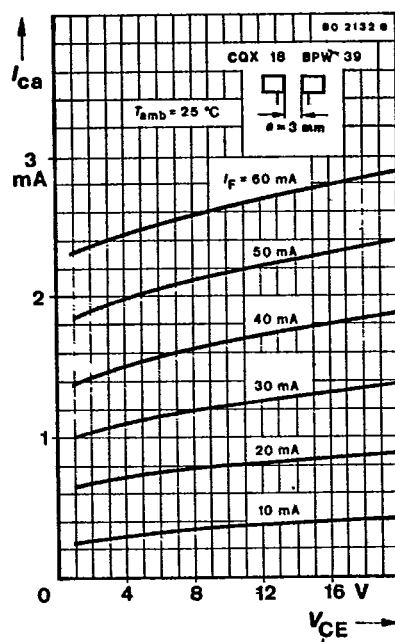
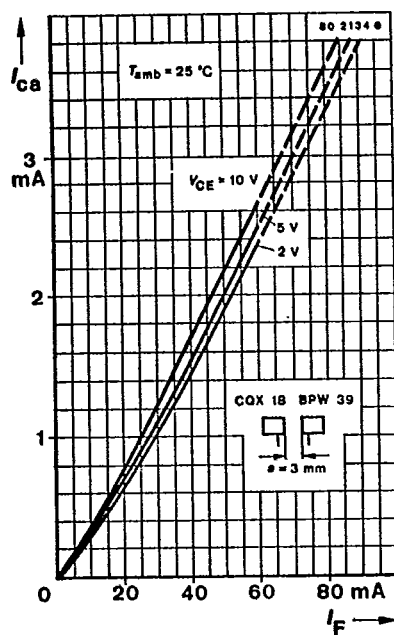
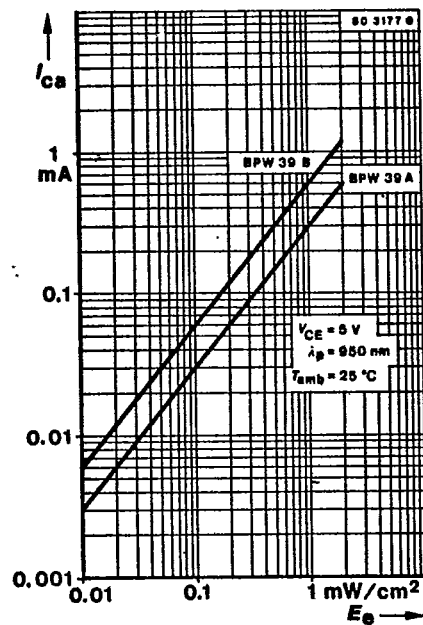
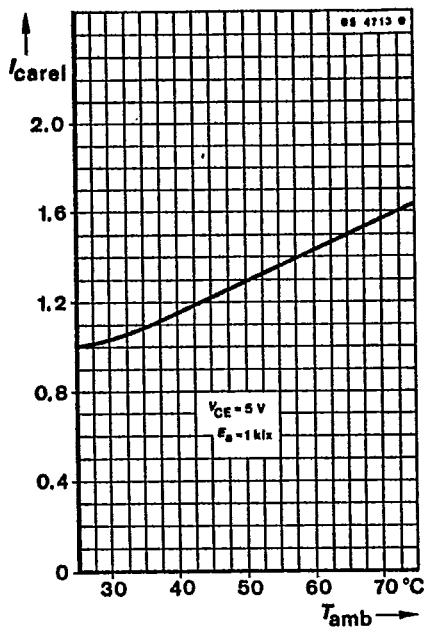
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Test circuit

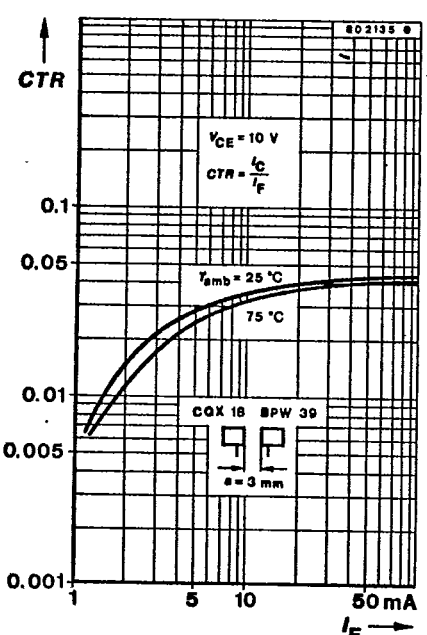
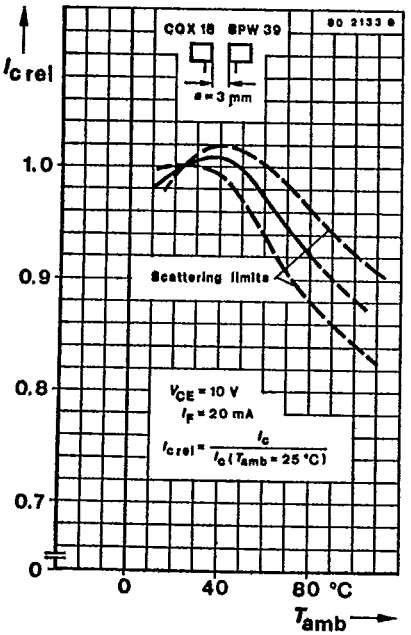
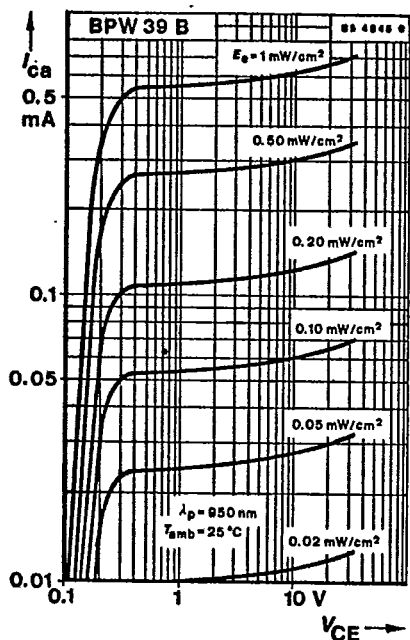
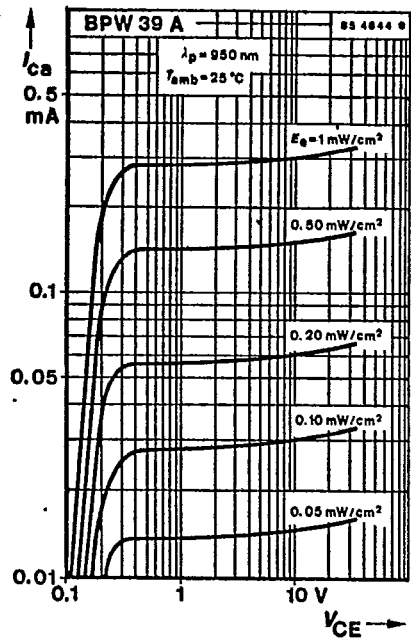


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