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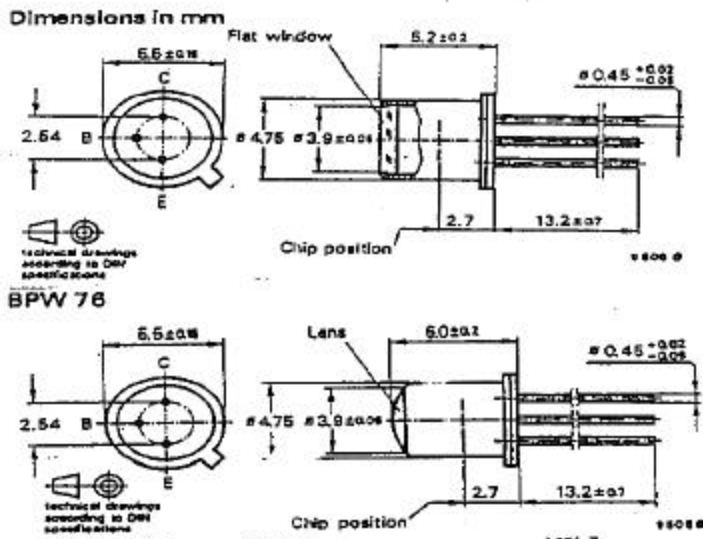
Jameco Part Number 120221

Silicon NPN Epitaxial Planar Phototransistors

Applications: Detector in electronic control and drive circuits

Features:

- Hermetically sealed case
- BPW 76 - flat window, BPW 77 - lens
- Suitable for visible and near infrared radiation
- Exact central chip alignment typ.: ±50 μm
- BPW 76-Long range light barrier with an additional optics
- Base terminet is available
- Selected in groups
- Higher IR sensitivity



Angle of half sensitivity
 BPW 76 ±φ = 40°
 BPW 77 ±φ = 7.5°
 Collector connected with case
 ~ JEDEC TO 18
 ~ 18A3 DIN 41876
 ~ JEDEC TO 18

BPW 77

Absolute maximum ratings

Collector-base voltage	V_{CB0}	80	V
Collector-emitter voltage	V_{CE0}	70	V
Emitter-base voltage	V_{EB0}	5	V
Collector current	I_C	50	mA
Peak collector current $t_p/T = 0.5, t_p \leq 10 \text{ ms}$	I_{CM}	100	mA
Total power dissipation $T_{amb} \leq 25 \text{ °C}$	P_{tot}	250	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55...+125	°C

BPW 76 · BPW 77

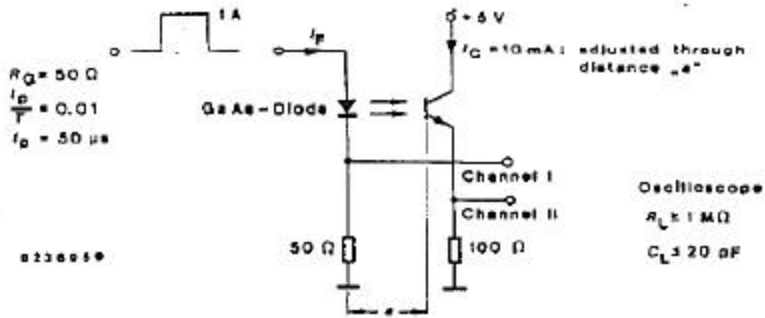


		Min.	Typ.	Max.	
Thermal resistance					
Junction ambient	R_{thJA}			400	K/W
Junction case	R_{thJC}			150	K/W
Optical and electrical characteristics					
$T_{amb} = 25\text{ °C}$					
Collector dark current					
$V_{CE} = 20\text{ V}, E = 0$	I_{CEO}		10	100	nA
Collector light current					
$V_{CE} = 5\text{ V}, E_A = 1\text{ klx}^{*)}$					
	BPW 76 A	I_{ce}	1.0		mA
	BPW 76 B	I_{ce}	2.0		mA
	BPW 77 A	I_{ce}	15		mA
	BPW 77 B	I_{ce}	30		mA
$V_{CE} = 5\text{ V}, E_s = 1\text{ mW/cm}^2, \lambda_p = 950\text{ nm}$					
	BPW 76 A	$I_{ce}^{*)}$	0.4	0.6	0.8
	BPW 76 B	$I_{ce}^{*)}$	0.6	1.2	mA
	BPW 77 A	$I_{ce}^{*)}$	7.5	10	15
	BPW 77 B	$I_{ce}^{*)}$	10	20	mA
Peak wavelength sensitivity	λ_p		800		nm
Range of spectral bandwidth (50%)	$\lambda_{0.5}$		600 ... 1050		nm
Collector-emitter breakdown voltage					
$I_C = 1\text{ mA}$	$V_{(BR)CEO^{*)}$	70			V
Collector-emitter saturation voltage					
$E_s = 1\text{ mW/cm}^2, I_C = 0.1\text{ mA}$ BPW 76	$V_{CEsat}^{*)}$		0.15	0.3	V
$I_C = 1\text{ mA}$ BPW 77	$V_{CEsat}^{*)}$		0.15	0.3	V
Cut-off frequency					
$I_C = 5\text{ mA}, V_S = 5\text{ V}, R_L = 100\ \Omega$	f_c		110		kHz
Capacitance, collector-emitter					
$V_{CE} = 5\text{ V}, f = 1\text{ MHz}, E = 0$	C_{CEO}		7.5		pF
Switching characteristics					
$V_S = 5\text{ V}, I_C = 10\text{ mA}, R_L = 100\ \Omega$, see test circuit					
Delay time	t_d		2.5		μs
Rise time	t_r		3.5		μs
Turn-on time	t_{on}		6.0		μs
Storage time	t_s		0.3		μs
Fall time	t_f		3.2		μs
Turn-off time	t_{off}		3.5		μs

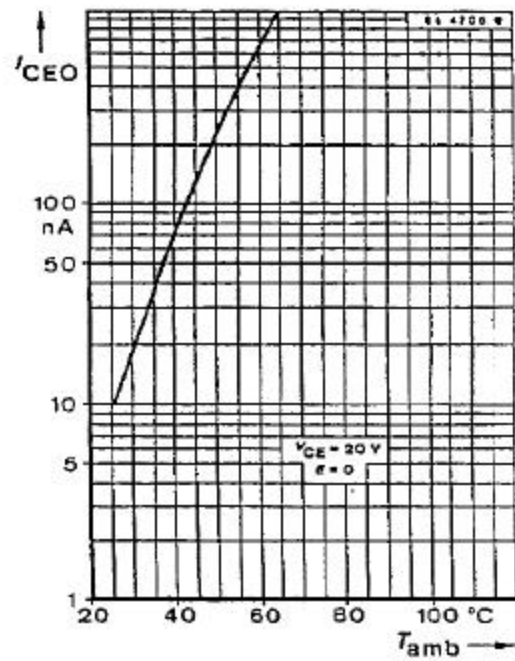
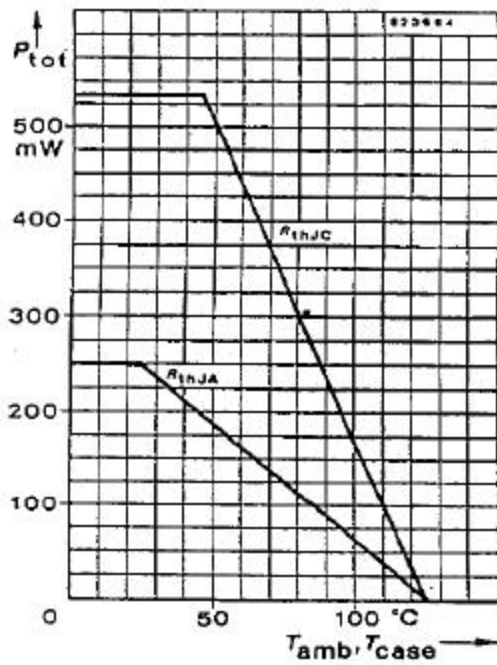
^{*)} AQL = 0.65 %



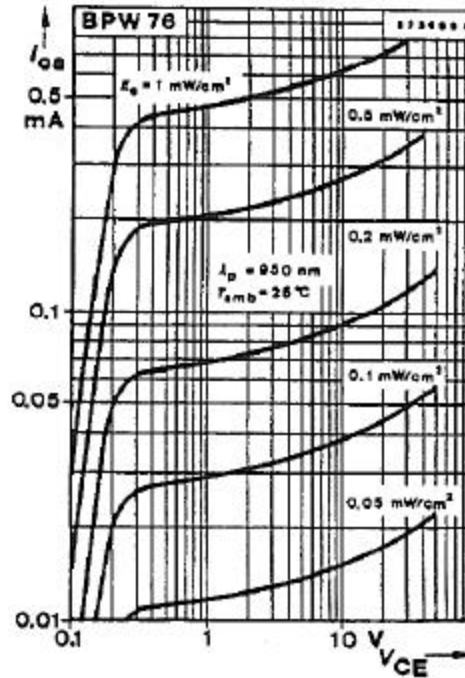
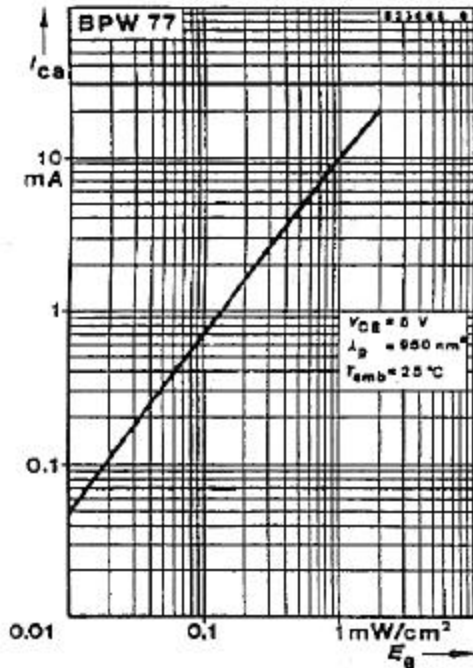
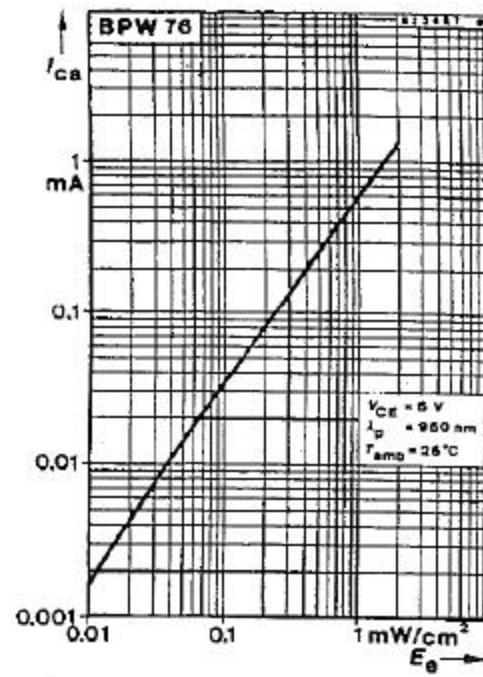
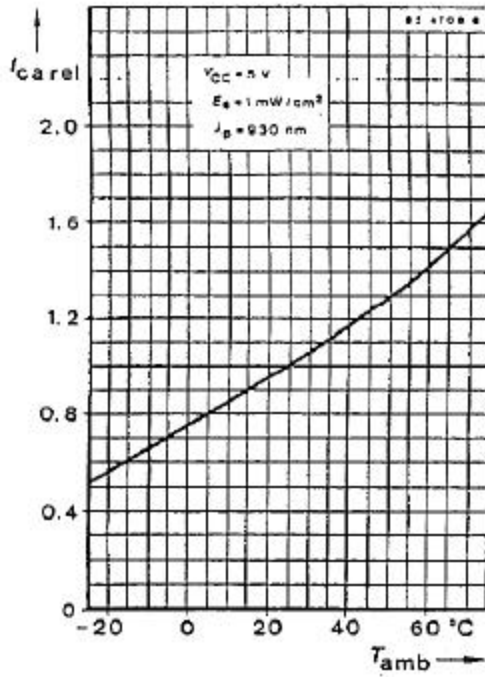
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Test circuit

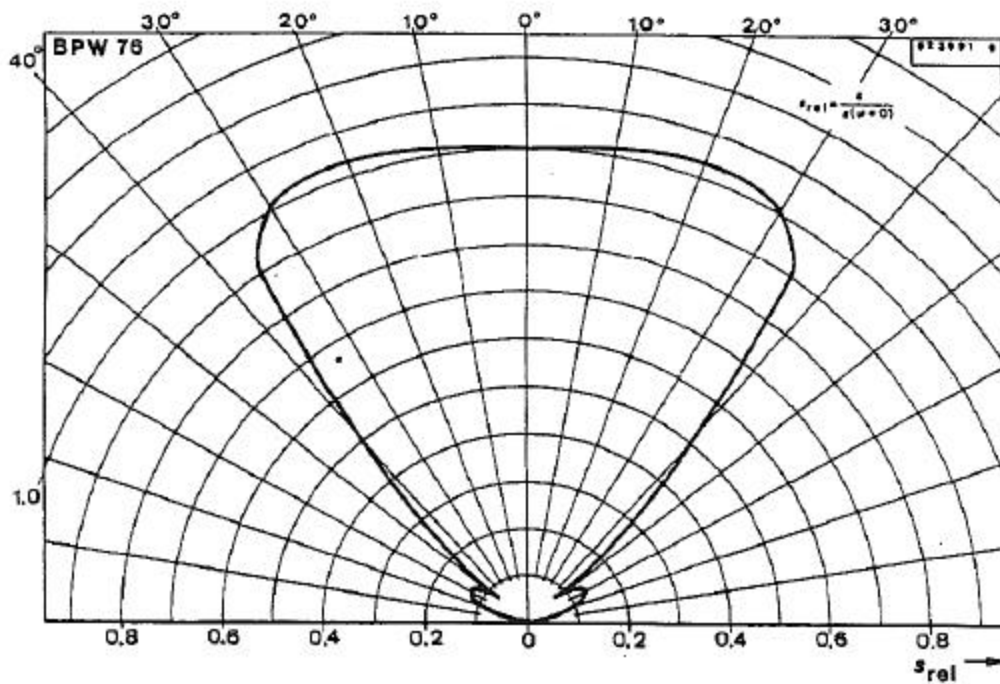
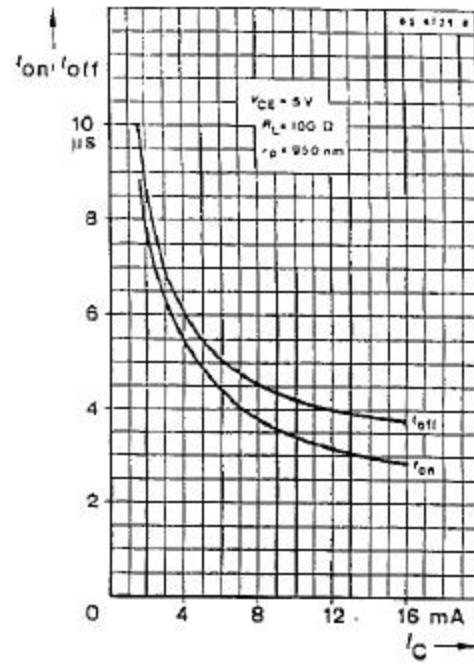
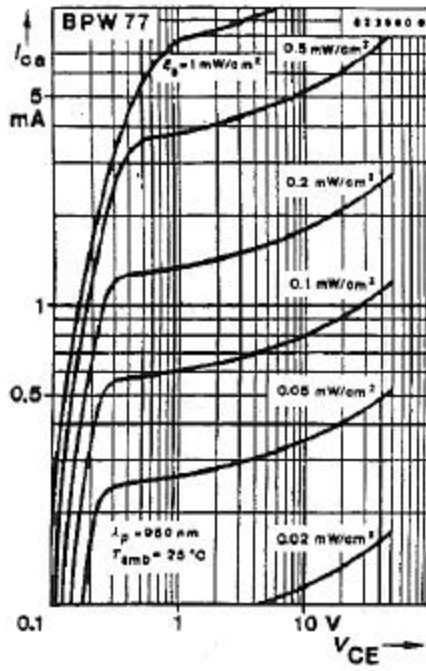


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