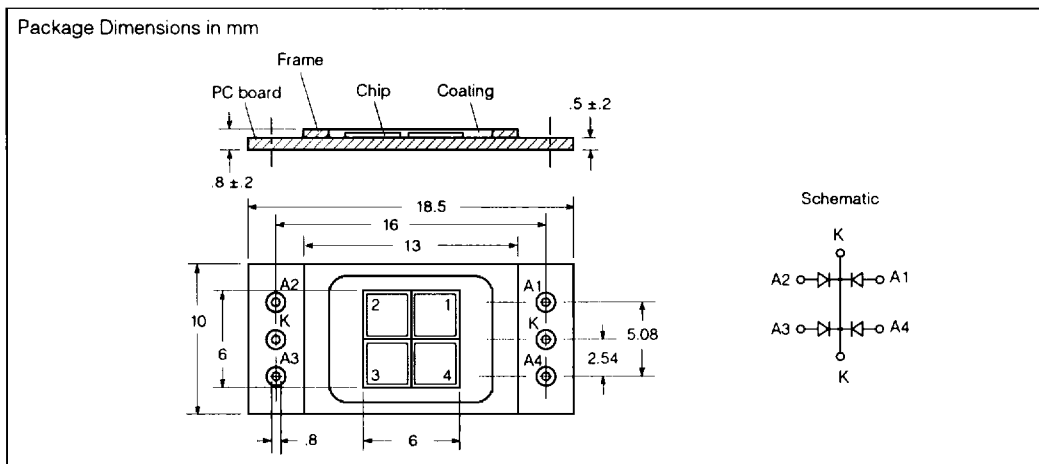


4-CHIP SILICON PIN PHOTODIODE ARRAY



FEATURES

- Silicon Photodiode in Planar Technology
- N-Si Material
 - Anode, Front Contact
 - Cathode, Back Contact
- High Reliability
- Low Noise
- No Testable Degradation
- Short Switching Time
- Low Capacitance
- High Spectral Sensitivity
- Wide Temperature Range
- Visible Light and Near Infrared Range Usage
- Package: PC Board with Solder Lugs, with Clear Epoxy Seal
- Applications
 - Edge Detection
 - Position Detection
 - Measurement and Control

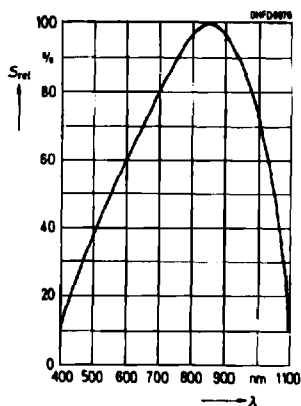
Maximum Ratings

Operating and Storage Temperature
 Range (T_{OP} , T_{STG}) $-40 + 80^{\circ}\text{C}$
 Reverse Voltage (V_R) 32 V
 Power Dissipation (P_{TOT}) $T_A=25^{\circ}\text{C}$ 150 mW

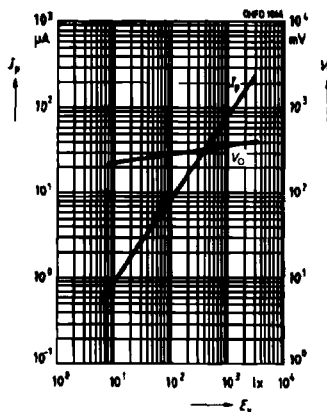
Characteristics, Single Segment ($T_A=25^{\circ}\text{C}$, std. light A, $T=2856\text{ K}$)

Parameter	Symbol	Value	Unit
Spectral Sensitivity ($V_R=5\text{ V}$, standard light A)	S	80(≥ 50)	nA/lx
Maximum Sensitivity Wavelength	λ_{Smax}	880	nm
Sensitivity, Spectral Range ($S=10\%$, S_{max})	λ	400 – 1100	nm
Radiant Sensitive Area	A	7	mm ²
Radiant Sensitive Area Dimension	LxW	2.65x2.65	mm
Chip Surface to Seal Surface Distance	H	0.4–0.6	mm
Half Angle	ϕ	± 60	Deg.
Dark Current ($V_R=10\text{ V}$)	I_R	2 (≤ 30)	nA
Spectral Sensitivity ($\lambda=850\text{ nm}$)	S_{λ}	0.62	A/W
Quantum Yield	η	0.9	Electrons/Photons
Maximum Spectral Sensitivity Tolerance	ΔS	± 10	%
Short Circuit Current ($E_V=1000\text{ lx}$)	I_{SC}	75	μA
Open-Circuit Voltage ($E_V=1000\text{ lx}$)	V_O	365 (≥ 310)	mV
Rise and Fall Time, Photocurrent ($V_R=5\text{ V}$, $\lambda=850\text{ nm}$)	t_R , t_F	20	ns
($R_L=50\text{ k}\Omega$, $I_P=800\text{ }\mu\text{A}$)	t_R , t_F	350	ns
($R_L=1\text{ k}\Omega$, $I_P=150\text{ }\mu\text{A}$)	t_R , t_F	350	ns
Forward Voltage ($I_F=100\text{ mA}$, $E=0$)	V_F	1.3	V
Capacitance ($V_R=0\text{ V}$, $f=1\text{ MHz}$, $E=0$)	C_O	72	pF
Temperature Coefficient, V_O	TC_V	-2.6	mV/K
Temperature Coefficient, I_{SC}	TC_I	0.15	%/K
Noise Equivalent Power ($V_R=10\text{ V}$, $\lambda=850\text{ nm}$)	NEP	4.1×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Detection Limit ($V_R=10\text{ V}$, $\lambda=850\text{ nm}$)	D^*	6.6×10^{13}	$\frac{\text{cm}^2 \sqrt{\text{Hz}}}{\text{W}}$

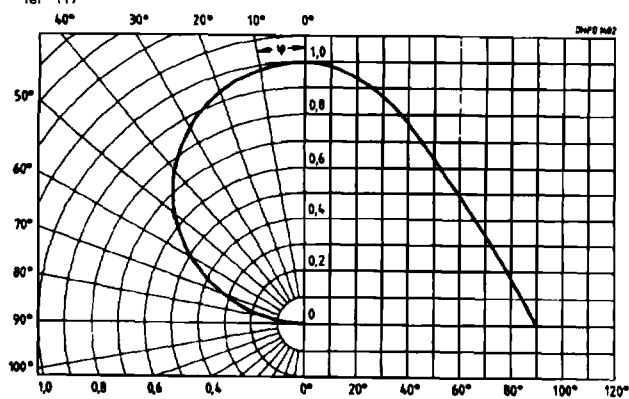
Relative spectral sensitivity
 $S_{rel}=f(\lambda)$



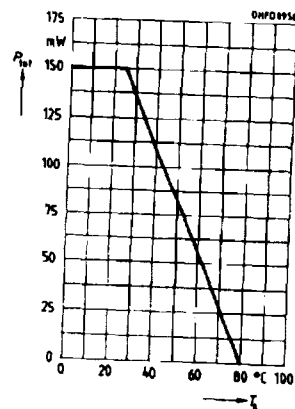
Photocurrent, $I_p=f(E_g)$, $V_R=5$ V
Open circuit voltage, $V_O=f(I_x)$



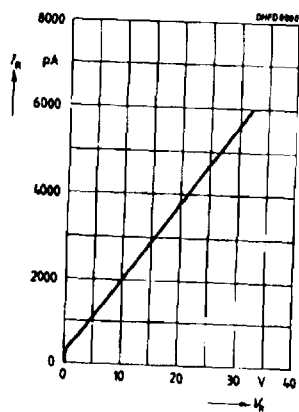
Directional characteristics
 $S_{rel}=f(\varphi)$



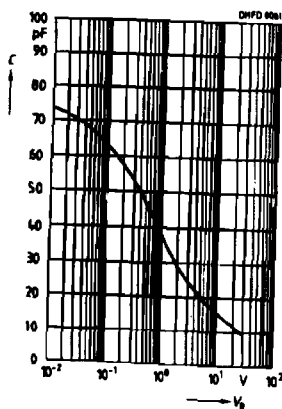
Power dissipation
 $P_{TOT}=f(T_A)$



Dark current, $I_R=f(V_R)$, $E=0$



Capacitance, $C=f(V_R)$, $f=1$ MHz, $E=0$



Dark current, $I_R=f(T_A)$, $V_R=1$ V, $E=0$

