



مَعَامِلُ الْفِيزِيَاءِ
PHY-LAB

Solar Cell Analysis Report

Parameter Extraction & Temperature Prediction

Document & Setup Specifications:

Attached Sample File:	RTC-France-Monocrystalline-Silicon-Cell (1).txt
Measured Temperature:	33.0 C
Cells in Series (Ns):	1

1. Extracted Parameters (Optimal Solution)

Series Resistance (R_s):	0.037146 Ohms
Shunt Resistance (R_{sh}):	49.27 Ohms
Ideality Factor (n):	1.46050
Saturation Current (I_0):	2.6244e-07 A
Photo-generated Current (I_{ph}):	0.76085 A
Fitting Error (RMSE):	8.327071e-04 A

2. Experimental Figures of Merit (at 33.0 C)

Short-Circuit Current (I_{sc}):	0.7640 A
Open-Circuit Voltage (V_{oc}):	0.5727 V
Maximum Power (P_{max}):	0.3101 W
Fill Factor (FF):	0.7086

3. Predicted Figures of Merit Summary

Temp (C)	I_{sc} (A)	V_{oc} (V)	P_{max} (W)	Fill Factor
25	0.7573	0.5926	0.3248	0.7238
33	0.7603	0.5746	0.3109	0.7117
45	0.7648	0.5464	0.2900	0.6940
60	0.7704	0.5079	0.2637	0.6740

4. Derived Temperature Coefficients

dV_{oc}/dT :	-2.42 mV/C
dI_{sc}/dT :	0.38 mA/C
dP_{max}/dT :	-0.0017 W/C

5. Characteristic Curves (I-V and P-V)

