

Table 1. Median values and 68% confidence interval for OGLE-TR-1023.

| Parameter | Units | Values |
|-------------------------------|---|--|
| Stellar Parameters: | | |
| M_* | Mass (M_\odot) | $1.331^{+0.091}_{-0.11}$ |
| R_* | Radius (R_\odot) | $1.386^{+0.071}_{-0.073}$ |
| $R_{*,SED}$ | Radius ¹ (R_\odot) | $1.487^{+0.089}_{-0.085}$ |
| L_* | Luminosity (L_\odot) | $2.69^{+0.60}_{-0.48}$ |
| F_{Bol} | Bolometric Flux (cgs) | $0.000000000392^{+0.000000000057}_{-0.000000000046}$ |
| ρ_* | Density (cgs) | $0.703^{+0.11}_{-0.092}$ |
| $\log g$ | Surface gravity (cgs) | $4.279^{+0.040}_{-0.046}$ |
| T_{eff} | Effective Temperature (K) | 6290^{+250}_{-240} |
| $T_{eff,SED}$ | Effective Temperature ¹ (K) | 6080^{+260}_{-250} |
| [Fe/H] | Metallicity (dex) | $0.34^{+0.14}_{-0.21}$ |
| [Fe/H] ₀ | Initial Metallicity ² | $0.34^{+0.11}_{-0.16}$ |
| Age | Age (Gyr) | $1.26^{+2.1}_{-0.95}$ |
| EEP | Equal Evolutionary Phase ³ | 331^{+46}_{-42} |
| A_V | V-band extinction (mag) | 2.27 ± 0.16 |
| σ_{SED} | SED photometry error scaling | $12.1^{+1.7}_{-1.4}$ |
| ϖ | Parallax (mas) | $0.675^{+0.042}_{-0.040}$ |
| d | Distance (pc) | 1481^{+93}_{-87} |
| Planetary Parameters: | | |
| | | b |
| P | Period (days) | 6.598261 ± 0.000010 |
| R_p | Radius (R_J) | $1.71^{+0.11}_{-0.12}$ |
| M_p | Mass ⁴ (M_J) | $0.399^{+0.012}_{-0.024}$ |
| T_C | Time of conjunction ⁵ (BJD _{TDB}) | 2455378.3482 ± 0.0025 |
| T_T | Time of minimum projected separation ⁶ (BJD _{TDB}) | 2455378.3482 ± 0.0025 |
| T_0 | Optimal conjunction Time ⁷ (BJD _{TDB}) | 2456665.0091 ± 0.0015 |
| a | Semi-major axis (AU) | $0.0757^{+0.0017}_{-0.0021}$ |
| i | Inclination (Degrees) | $85.92^{+0.29}_{-0.28}$ |
| T_{eq} | Equilibrium temperature ⁸ (K) | 1296^{+56}_{-51} |
| τ_{circ} | Tidal circularization timescale (Gyr) | $0.346^{+0.14}_{-0.090}$ |
| K | RV semi-amplitude ⁴ (m/s) | $35.3^{+2.8}_{-2.3}$ |
| R_p/R_* | Radius of planet in stellar radii | $0.1268^{+0.0042}_{-0.0040}$ |
| a/R_* | Semi-major axis in stellar radii | $11.74^{+0.57}_{-0.54}$ |
| δ | $(R_p/R_*)^2$ | $0.0161^{+0.0011}_{-0.0010}$ |
| δ_I | Transit depth in I (fraction) | $0.01528^{+0.00080}_{-0.00076}$ |
| δ_V | Transit depth in V (fraction) | $0.01449^{+0.00074}_{-0.00072}$ |
| τ | Ingress/egress transit duration (days) | $0.0454^{+0.0086}_{-0.0067}$ |
| T_{14} | Total transit duration (days) | $0.1358^{+0.0045}_{-0.0042}$ |

Table 1 continued on next page

Table 1 (continued)

| Parameter | Units | Values | |
|---------------------------|---|--|--|
| T_{FWHM} .. | FWHM transit duration (days) | 0.0904 ^{+0.0065} _{-0.0081} | |
| b | Transit Impact parameter | 0.836 ^{+0.020} _{-0.025} | |
| $\delta_{S,2.5\mu m}$.. | Blackbody eclipse depth at 2.5 μm (ppm) | 290 ⁺⁴⁸ ₋₄₄ | |
| $\delta_{S,5.0\mu m}$.. | Blackbody eclipse depth at 5.0 μm (ppm) | 1140 ⁺¹²⁰ ₋₁₁₀ | |
| $\delta_{S,7.5\mu m}$.. | Blackbody eclipse depth at 7.5 μm (ppm) | 1700 \pm 150 | |
| ρ_P | Density ⁴ (cgs) | 0.097 ^{+0.023} _{-0.016} | |
| $\log g_P$.. | Surface gravity ⁴ | 2.520 ^{+0.062} _{-0.055} | |
| Θ | Safronov Number | 0.0262 ^{+0.0030} _{-0.0024} | |
| $\langle F \rangle$ | Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²) | 0.642 ^{+0.12} _{-0.095} | |
| T_P | Time of Periastron (BJD _{TDB}) | 2455378.3482 \pm 0.0025 | |
| T_S | Time of eclipse (BJD _{TDB}) | 2455381.6473 \pm 0.0025 | |
| T_A | Time of Ascending Node (BJD _{TDB}) | 2455383.2969 \pm 0.0025 | |
| T_D | Time of Descending Node (BJD _{TDB}) | 2455379.9977 \pm 0.0025 | |
| V_c/V_e .. | | 1.00 | |
| $M_P \sin i$.. | Minimum mass ⁴ (M_J) | 0.398 ^{+0.012} _{-0.024} | |
| M_P/M_* .. | Mass ratio ⁴ | 0.000283 ^{+0.000032} _{-0.000023} | |
| d/R_* .. | Separation at mid transit | 11.74 ^{+0.57} _{-0.54} | |
| P_T | A priori non-grazing transit prob | 0.0743 ^{+0.0035} _{-0.0033} | |
| $P_{T,G}$ | A priori transit prob | 0.0960 ^{+0.0047} _{-0.0046} | |
| Wavelength Parameters: | | I | V |
| u_1 | linear limb-darkening coeff | 0.222 ^{+0.059} _{-0.058} | 0.393 ^{+0.065} _{-0.063} |
| u_2 | quadratic limb-darkening coeff | 0.310 \pm 0.052 | 0.299 ^{+0.054} _{-0.055} |
| Transit Parameters: | | OGLE UT 2010-06-30 (I) | OGLE UT 2010-06-30 (V) |
| σ^2 | Added Variance | 0.00002497 ^{+0.00000047} _{-0.00000046} | 0.000106 ^{+0.000013} _{-0.000011} |
| F_0 | Baseline flux | 1.000121 \pm 0.000057 | 0.99959 \pm 0.00076 |

See Table 3 in Eastman, J. et al., 2019, arXiv:1907.09480 for a detailed description of all parameters

¹This value ignores the systematic error and is for reference only

²The metallicity of the star at birth

³Corresponds to static points in a star's evolutionary history. See §2 in Dotter, A., 2016, ApJS, 222, 8

⁴Uses measured radius and estimated mass from Chen, J., & Kipping, D. 2017, ApJ, 834, 17

⁵Time of conjunction is commonly reported as the "transit time"

⁶Time of minimum projected separation is a more correct "transit time"

⁷Optimal time of conjunction minimizes the covariance between T_C and Period

⁸Assumes no albedo and perfect redistribution