

Table 1. Median values and 68% confidence interval for OGLE-TR-1099.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$1.01^{+0.81}_{-0.40}$
R_*	Radius (R_\odot)	$8.1^{+2.2}_{-1.8}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$8.4^{+2.5}_{-1.8}$
L_*	Luminosity (L_\odot)	$23.1^{+18}_{-9.9}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000251^{+0.0000000000022}_{-0.0000000000036}$
ρ_*	Density (cgs)	$0.0027^{+0.0023}_{-0.0012}$
$\log g$	Surface gravity (cgs)	$2.63^{+0.23}_{-0.20}$
T_{eff}	Effective Temperature (K)	4460^{+180}_{-200}
$T_{eff,SED}$	Effective Temperature ¹ (K)	4390^{+120}_{-180}
[Fe/H]	Metallicity (dex)	$-0.26^{+0.18}_{-0.47}$
[Fe/H] ₀	Initial Metallicity ²	$-0.29^{+0.18}_{-0.46}$
Age	Age (Gyr)	$0.000023^{+0.000058}_{-0.000015}$
EEP	Equal Evolutionary Phase ³	55^{+34}_{-28}
A_V	V-band extinction (mag)	$1.67^{+0.17}_{-0.29}$
σ_{SED}	SED photometry error scaling	$8.9^{+1.4}_{-1.0}$
ϖ	Parallax (mas)	$0.182^{+0.054}_{-0.042}$
d	Distance (pc)	5500^{+1700}_{-1300}
Planetary Parameters:		
		b
P	Period (days)	$10.46173^{+0.00025}_{-0.00028}$
R_P	Radius (R_J)	$4.2^{+2.0}_{-1.1}$
M_P	Mass ⁴ (M_J)	420^{+240}_{-120}
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455376.945^{+0.041}_{-0.038}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455376.945^{+0.041}_{-0.038}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	$2456653.275^{+0.023}_{-0.020}$
a	Semi-major axis (AU)	$0.107^{+0.017}_{-0.015}$
i	Inclination (Degrees)	$70.9^{+3.8}_{-4.1}$
T_{eq}	Equilibrium temperature ⁸ (K)	1870^{+170}_{-150}
τ_{circ}	Tidal circularization timescale (Gyr)	57^{+90}_{-41}
K	RV semi-amplitude ⁴ (m/s)	29200^{+9100}_{-7200}
R_P/R_*	Radius of planet in stellar radii	$0.0528^{+0.0074}_{-0.0045}$
a/R_*	Semi-major axis in stellar radii	$2.82^{+0.54}_{-0.39}$
δ	$(R_P/R_*)^2$	$0.00279^{+0.00084}_{-0.00046}$
δ_I	Transit depth in I (fraction)	$0.00188^{+0.00027}_{-0.00029}$
δ_V	Transit depth in V (fraction)	$0.00099^{+0.00060}_{-0.00085}$
τ	Ingress/egress transit duration (days)	$0.190^{+0.14}_{-0.076}$
T_{14}	Total transit duration (days)	$0.630^{+0.073}_{-0.063}$

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Table 1 (continued)

Parameter	Units	Values	
T_{FWHM} ..	FWHM transit duration (days)	0.430 ^{+0.069} _{-0.098}	
b	Transit Impact parameter	0.926 ^{+0.035} _{-0.042}	
$\delta_{S,2.5\mu m}$..	Blackbody eclipse depth at 2.5 μm (ppm)	350 ⁺²³⁰ ₋₁₂₀	
$\delta_{S,5.0\mu m}$..	Blackbody eclipse depth at 5.0 μm (ppm)	680 ⁺³⁶⁰ ₋₁₇₀	
$\delta_{S,7.5\mu m}$..	Blackbody eclipse depth at 7.5 μm (ppm)	830 ⁺³⁹⁰ ₋₁₉₀	
ρ_P	Density ⁴ (cgs)	7.2 ^{+5.5} _{-3.7}	
$\log g_P$	Surface gravity ⁴	4.78 ^{+0.11} _{-0.15}	
Θ	Safronov Number	21.3 ^{+9.5} _{-7.4}	
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	2.76 ^{+1.1} _{-0.79}	
T_P	Time of Periastron (BJD _{TDB})	2455376.945 ^{+0.041} _{-0.038}	
T_S	Time of eclipse (BJD _{TDB})	2455371.715 ^{+0.041} _{-0.038}	
T_A	Time of Ascending Node (BJD _{TDB})	2455384.792 ^{+0.041} _{-0.038}	
T_D	Time of Descending Node (BJD _{TDB})	2455379.561 ^{+0.041} _{-0.038}	
V_c/V_e	1.00	
$M_P \sin i$..	Minimum mass ⁴ (M_J)	400 ⁺²⁰⁰ ₋₁₁₀	
M_P/M_*	Mass ratio ⁴	0.41 ^{+0.27} _{-0.17}	
d/R_*	Separation at mid transit	2.82 ^{+0.54} _{-0.39}	
P_T	A priori non-grazing transit prob	0.336 ^{+0.050} _{-0.053}	
$P_{T,G}$	A priori transit prob	0.373 ^{+0.064} _{-0.060}	
Wavelength Parameters:		I	V
u_1	linear limb-darkening coeff	0.461 \pm 0.059	0.765 ^{+0.081} _{-0.087}
u_2	quadratic limb-darkening coeff	0.187 ^{+0.056} _{-0.053}	0.034 ^{+0.072} _{-0.073}
Transit Parameters:		OGLE UT 2010-06-29 (I)	OGLE UT 2010-06-29 (V)
σ^2	Added Variance	0.00002233 ^{+0.00000036} _{-0.00000038}	0.0000442 ^{+0.00000074} _{-0.00000062}
F_0	Baseline flux	0.999993 ^{+0.000050} _{-0.000051}	1.00035 ^{+0.00061} _{-0.00058}

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