

Table 1. Median values and 68% confidence interval for OGLE-TR-1059.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$1.04^{+0.33}_{-0.21}$
R_*	Radius (R_\odot)	$1.47^{+0.13}_{-0.10}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$1.51^{+0.13}_{-0.12}$
L_*	Luminosity (L_\odot)	$4.2^{+2.1}_{-1.3}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000054^{+0.000000000023}_{-0.000000000015}$
ρ_*	Density (cgs)	$0.46^{+0.15}_{-0.11}$
$\log g$	Surface gravity (cgs)	$4.12^{+0.11}_{-0.10}$
T_{eff}	Effective Temperature (K)	6800^{+750}_{-640}
$T_{eff,SED}$	Effective Temperature ¹ (K)	6720^{+760}_{-640}
[Fe/H]	Metallicity (dex)	$-1.1^{+1.2}_{-2.2}$
[Fe/H] ₀	Initial Metallicity ²	$-0.8^{+1.0}_{-2.0}$
Age	Age (Gyr)	$5.5^{+4.8}_{-3.9}$
EEP	Equal Evolutionary Phase ³	433^{+14}_{-88}
A_V	V-band extinction (mag)	$2.37^{+0.41}_{-0.38}$
σ_{SED}	SED photometry error scaling	$12.2^{+2.0}_{-1.6}$
ϖ	Parallax (mas)	0.634 ± 0.048
d	Distance (pc)	1580^{+130}_{-110}
Planetary Parameters:		
		b
P	Period (days)	$7.208226^{+0.000029}_{-0.000035}$
R_P	Radius (R_J)	$1.151^{+0.098}_{-0.081}$
M_P	Mass ⁴ (M_J)	20^{+39}_{-17}
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455377.8499^{+0.0081}_{-0.0082}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455377.8497^{+0.0079}_{-0.0080}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	2456963.6591 ± 0.0039
a	Semi-major axis (AU)	$0.0746^{+0.0070}_{-0.0050}$
i	Inclination (Degrees)	88.3 ± 1.1
e	Eccentricity	$0.29^{+0.36}_{-0.22}$
ω_*	Argument of Periastron (Degrees)	-69^{+57}_{-82}
T_{eq}	Equilibrium temperature ⁸ (K)	1470^{+140}_{-160}
τ_{circ}	Tidal circularization timescale (Gyr)	31^{+230}_{-31}
K	RV semi-amplitude ⁴ (m/s)	2400^{+4500}_{-2000}
R_P/R_*	Radius of planet in stellar radii	$0.0804^{+0.0029}_{-0.0027}$
a/R_*	Semi-major axis in stellar radii	$10.94^{+1.1}_{-0.95}$
δ	$(R_P/R_*)^2$	$0.0064^{+0.00047}_{-0.00042}$
δ_I	Transit depth in I (fraction)	$0.00705^{+0.00044}_{-0.00043}$
δ_V	Transit depth in V (fraction)	$0.00752^{+0.00052}_{-0.00049}$

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Table 1 (continued)

Parameter	Units	Values	
τ	Ingress/egress transit duration (days)	0.0189 ^{+0.0080} _{-0.0018}	
T_{14}	Total transit duration (days)	0.2331 ^{+0.010} _{-0.0090}	
T_{FWHM}	FWHM transit duration (days)	0.2120 ^{+0.0076} _{-0.0078}	
b	Transit Impact parameter	0.31 ^{+0.28} _{-0.21}	
b_S	Eclipse impact parameter	0.21 ± 0.13	
τ_S	Ingress/egress eclipse duration (days)	0.0142 ^{+0.0041} _{-0.0050}	
$T_{S,14}$	Total eclipse duration (days)	0.178 ^{+0.053} _{-0.060}	
$T_{S,FWHM}$	FWHM eclipse duration (days)	0.164 ^{+0.048} _{-0.056}	
$\delta_{S,2.5\mu m}$	Blackbody eclipse depth at 2.5 μm (ppm)	173 ⁺⁴⁹ ₋₅₁	
$\delta_{S,5.0\mu m}$	Blackbody eclipse depth at 5.0 μm (ppm)	551 ⁺⁷⁸ ₋₈₄	
$\delta_{S,7.5\mu m}$	Blackbody eclipse depth at 7.5 μm (ppm)	771 ⁺⁸⁵ ₋₈₆	
ρ_P	Density ⁴ (cgs)	17 ⁺³⁸ ₋₁₅	
$\log g_P$	Surface gravity ⁴	4.60 ^{+0.49} _{-0.80}	
Θ	Safronov Number	2.6 ^{+5.4} _{-2.2}	
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	0.89 ^{+0.47} _{-0.34}	
T_P	Time of Periastron (BJD _{TDB})	2455377.2 ^{+2.3} _{-2.0}	
T_S	Time of eclipse (BJD _{TDB})	2455374.3 ^{+1.7} _{-1.6}	
T_A	Time of Ascending Node (BJD _{TDB})	2455376.02 ^{+0.87} _{-1.2}	
T_D	Time of Descending Node (BJD _{TDB})	2455379.71 ^{+1.2} _{-0.88}	
V_c/V_e .....	.....	1.08 ^{+0.22} _{-0.10}	
$((1 - R_P/R_*)^2 - b^2)^{1/2}$ .....	.....	1.035 ^{+0.040} _{-0.13}	
$sign$ .....	.....	1.08 ^{+0.62} _{-0.72}	
$e \cos \omega_*$ .....	.....	0.01 ^{+0.36} _{-0.34}	
$e \sin \omega_*$ .....	.....	-0.15 ^{+0.15} _{-0.25}	
$M_P \sin i$	Minimum mass ⁴ (M_J)	20 ⁺³⁹ ₋₁₇	
M_P/M_*	Mass ratio ⁴	0.019 ^{+0.038} _{-0.016}	
d/R_*	Separation at mid transit	10.9 ^{+2.9} _{-2.2}	
P_T	A priori non-grazing transit prob	0.084 ^{+0.022} _{-0.018}	
$P_{T,G}$	A priori transit prob	0.099 ^{+0.026} _{-0.021}	
P_S	A priori non-grazing eclipse prob	0.104 ^{+0.091} _{-0.016}	
$P_{S,G}$	A priori eclipse prob	0.122 ^{+0.11} _{-0.019}	
Wavelength Parameters:		I	V
u_1	linear limb-darkening coeff	0.201 ^{+0.063} _{-0.061}	0.338 ^{+0.072} _{-0.059}
u_2	quadratic limb-darkening coeff	0.299 ^{+0.054} _{-0.056}	0.305 ^{+0.054} _{-0.057}
Transit Parameters:		OGLE UT 2010-06-30 (I)	OGLE UT 2010-06-30 (V)
σ^2	Added Variance	0.00003133 ± 0.00000060	0.0000325 ^{+0.0000054} _{-0.0000047}
F_0	Baseline flux	1.000121 ^{+0.000068} _{-0.000067}	1.00105 ^{+0.00048} _{-0.00044}

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Table 1 (*continued*)

Parameter	Units	Values
See Table 3 in Eastman, J. et al., 2019, arXiv:1907.09480 for a detailed description of all parameters		
¹	This value ignores the systematic error and is for reference only	
²	The metallicity of the star at birth	
³	Corresponds to static points in a star's evolutionary history. See §2 in Dotter, A., 2016, ApJS, 222, 8	
⁴	Uses measured radius and estimated mass from Chen, J., & Kipping, D. 2017, ApJ, 834, 17	
⁵	Time of conjunction is commonly reported as the "transit time"	
⁶	Time of minimum projected separation is a more correct "transit time"	
⁷	Optimal time of conjunction minimizes the covariance between T_C and Period	
⁸	Assumes no albedo and perfect redistribution	