

Table 1. Median values and 68% confidence interval for OGLE-TR-1051.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$0.946^{+0.12}_{-0.073}$
R_*	Radius (R_\odot)	$4.00^{+0.21}_{-0.15}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$4.12^{+0.28}_{-0.24}$
L_*	Luminosity (L_\odot)	$7.49^{+1.2}_{-0.99}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000291^{+0.0000000000030}_{-0.0000000000034}$
ρ_*	Density (cgs)	$0.02059^{+0.0015}_{-0.00048}$
$\log g$	Surface gravity (cgs)	$3.210^{+0.031}_{-0.018}$
T_{eff}	Effective Temperature (K)	4770^{+140}_{-150}
$T_{eff,SED}$	Effective Temperature ¹ (K)	4720^{+130}_{-160}
[Fe/H]	Metallicity (dex)	$-0.20^{+0.23}_{-0.38}$
[Fe/H] ₀	Initial Metallicity ²	$-0.24^{+0.22}_{-0.36}$
Age	Age (Gyr)	$11.3^{+1.9}_{-3.5}$
EEP	Equal Evolutionary Phase ³	$491.8^{+1.9}_{-1.7}$
A_V	V-band extinction (mag)	$1.83^{+0.14}_{-0.21}$
σ_{SED}	SED photometry error scaling	$11.7^{+1.8}_{-1.5}$
ϖ	Parallax (mas)	$0.347^{+0.023}_{-0.025}$
d	Distance (pc)	2880^{+220}_{-180}
Planetary Parameters:		
		b
P	Period (days)	$1.0213727^{+0.000084}_{-0.000097}$
R_P	Radius (R_J)	$1.407^{+0.10}_{-0.069}$
M_P	Mass ⁴ (M_J)	$1.16^{+14}_{-0.75}$
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455376.673^{+0.014}_{-0.013}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455376.673^{+0.014}_{-0.013}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	$2456398.0454^{+0.0094}_{-0.0095}$
a	Semi-major axis (AU)	$0.01956^{+0.00098}_{-0.00055}$
i	Inclination (Degrees)	$78.8^{+7.8}_{-12}$
T_{eq}	Equilibrium temperature ⁸ (K)	3280^{+100}_{-110}
τ_{circ}	Tidal circularization timescale (Gyr)	$0.00072^{+0.013}_{-0.00050}$
K	RV semi-amplitude ⁴ (m/s)	240^{+3000}_{-160}
R_P/R_*	Radius of planet in stellar radii	$0.0362^{+0.0013}_{-0.0012}$
a/R_*	Semi-major axis in stellar radii	$1.0456^{+0.025}_{-0.0071}$
δ	$(R_P/R_*)^2$	$0.001312^{+0.000095}_{-0.000083}$
δ_I	Transit depth in I (fraction)	$0.00165^{+0.00011}_{-0.00010}$
δ_V	Transit depth in V (fraction)	$0.00192^{+0.00016}_{-0.00015}$
τ	Ingress/egress transit duration (days)	$0.045^{+0.010}_{-0.012}$
T_{14}	Total transit duration (days)	$0.465^{+0.024}_{-0.040}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values		
T_{FWHM} . . .	FWHM transit duration (days)	0.420 ^{+0.016} _{-0.031}		
b	Transit Impact parameter	0.21 ^{+0.21} _{-0.14}		
$\delta_{S,2.5\mu m}$. . .	Blackbody eclipse depth at 2.5 μm (ppm)	642 ⁺⁵⁰ ₋₄₄		
$\delta_{S,5.0\mu m}$. . .	Blackbody eclipse depth at 5.0 μm (ppm)	773 ⁺⁵⁷ ₋₅₀		
$\delta_{S,7.5\mu m}$. . .	Blackbody eclipse depth at 7.5 μm (ppm)	816 ⁺⁶⁰ ₋₅₂		
ρ_P	Density ⁴ (cgs)	0.54 ^{+8.2} _{-0.36}		
$\log g_P$	Surface gravity ⁴	3.17 ^{+1.2} _{-0.48}		
Θ	Safronov Number	0.035 ^{+0.48} _{-0.023}		
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	26.3 ^{+3.5} _{-3.3}		
T_P	Time of Periastron (BJD _{TDB})	2455376.673 ^{+0.014} _{-0.013}		
T_S	Time of eclipse (BJD _{TDB})	2455377.183 ^{+0.014} _{-0.013}		
T_A	Time of Ascending Node (BJD _{TDB})	2455377.439 ^{+0.014} _{-0.013}		
T_D	Time of Descending Node (BJD _{TDB})	2455376.928 ^{+0.014} _{-0.013}		
V_c/V_e		1.00		
$M_P \sin i$	Minimum mass ⁴ (M_J)	1.12 ⁺¹⁴ _{-0.73}		
M_P/M_*	Mass ratio ⁴	0.00118 ^{+0.015} _{-0.00077}		
d/R_*	Separation at mid transit	1.0456 ^{+0.025} _{-0.0071}		
P_T	A priori non-grazing transit prob	0.9214 ^{+0.0067} _{-0.021}		
$P_{T,G}$	A priori transit prob	0.9912 ^{+0.0068} _{-0.023}		
Wavelength Parameters:		I	V	
u_1	linear limb-darkening coeff	0.440 ^{+0.046} _{-0.053}	0.683 ^{+0.068} _{-0.080}	
u_2	quadratic limb-darkening coeff	0.212 ^{+0.043} _{-0.040}	0.105 ^{+0.066} _{-0.058}	
Transit Parameters:		OGLE UT 2010-03-06 (I)	OGLE UT 2010-03-06 (V)	OGLE UT 2010-06-29
σ^2	Added Variance	0.00003065 ^{+0.00000047} _{-0.00000046}	0.0000319 ^{+0.00000060} _{-0.00000052}	0.00003064 ^{+0.00000047} _{-0.00000046}
F_0	Baseline flux	1.000628 ^{+0.000063} _{-0.000064}	1.00049 ± 0.00052	1.000629 ^{+0.000063} _{-0.000064}

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