

**Table 1.** Median values and 68% confidence interval for OGLE-TR-1053.

Parameter	Units	Values
Stellar Parameters:		
$M_*$	Mass ( $M_\odot$ )	$1.11^{+0.41}_{-0.23}$
$R_*$	Radius ( $R_\odot$ )	$1.53^{+0.27}_{-0.24}$
$R_{*,SED}$	Radius <sup>1</sup> ( $R_\odot$ )	$1.60^{+0.26}_{-0.23}$
$L_*$	Luminosity ( $L_\odot$ )	$5.7^{+3.2}_{-1.8}$
$F_{Bol}$	Bolometric Flux (cgs)	$0.000000000438^{+0.000000000014}_{-0.0000000000090}$
$\rho_*$	Density (cgs)	$0.45^{+0.22}_{-0.13}$
$\log g$	Surface gravity (cgs)	$4.128^{+0.11}_{-0.098}$
$T_{eff}$	Effective Temperature (K)	$7250^{+650}_{-530}$
$T_{eff,SED}$	Effective Temperature <sup>1</sup> (K)	$7100^{+630}_{-520}$
[Fe/H]	Metallicity (dex)	$-1.10^{+0.86}_{-2.2}$
[Fe/H] <sub>0</sub>	Initial Metallicity <sup>2</sup>	$-0.78^{+0.72}_{-2.0}$
Age	Age (Gyr)	$3.8^{+4.3}_{-2.6}$
EEP	Equal Evolutionary Phase <sup>3</sup>	$419^{+24}_{-73}$
$A_V$	V-band extinction (mag)	$1.35^{+0.32}_{-0.28}$
$\sigma_{SED}$	SED photometry error scaling	$11.2^{+1.8}_{-1.4}$
$\varpi$	Parallax (mas)	$0.493^{+0.073}_{-0.074}$
$d$	Distance (pc)	$2030^{+360}_{-260}$
Planetary Parameters:		
		b
$P$	Period (days)	$3.6519106 \pm 0.0000044$
$R_P$	Radius ( $R_J$ )	$1.57^{+0.47}_{-0.31}$
$M_P$	Mass <sup>4</sup> ( $M_J$ )	$138^{+49}_{-140}$
$T_C$	Time of conjunction <sup>5</sup> (BJD <sub>TDB</sub> )	$2455273.7362 \pm 0.0022$
$T_T$	Time of minimum projected separation <sup>6</sup> (BJD <sub>TDB</sub> )	$2455273.7362 \pm 0.0022$
$T_0$	Optimal conjunction Time <sup>7</sup> (BJD <sub>TDB</sub> )	$2456840.4058 \pm 0.0011$
$a$	Semi-major axis (AU)	$0.0493^{+0.0057}_{-0.0040}$
$i$	Inclination (Degrees)	$82.8^{+1.2}_{-1.1}$
$T_{eq}$	Equilibrium temperature <sup>8</sup> (K)	$1930^{+170}_{-130}$
$\tau_{circ}$	Tidal circularization timescale (Gyr)	$7.2^{+8.5}_{-6.8}$
$K$	RV semi-amplitude <sup>4</sup> (m/s)	$14500^{+4400}_{-14000}$
$R_P/R_*$	Radius of planet in stellar radii	$0.1046^{+0.011}_{-0.0051}$
$a/R_*$	Semi-major axis in stellar radii	$6.96^{+0.85}_{-0.64}$
$\delta$	$(R_P/R_*)^2$	$0.0109^{+0.0025}_{-0.0011}$
$\delta_I$	Transit depth in I (fraction)	$0.01027^{+0.00083}_{-0.00067}$
$\delta_V$	Transit depth in V (fraction)	$0.00958^{+0.00055}_{-0.00046}$
$\tau$	Ingress/egress transit duration (days)	$0.041^{+0.018}_{-0.014}$
$T_{14}$	Total transit duration (days)	$0.1135^{+0.0051}_{-0.0047}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values	
$T_{FWHM}$ ..	FWHM transit duration (days) .....	0.0724 <sup>+0.0097</sup> <sub>-0.014</sub>	
$b$ .....	Transit Impact parameter .....	0.875 <sup>+0.042</sup> <sub>-0.052</sub>	
$\delta_{S,2.5\mu m}$ ..	Blackbody eclipse depth at 2.5 $\mu m$ (ppm) .....	730 <sup>+290</sup> <sub>-170</sub>	
$\delta_{S,5.0\mu m}$ ..	Blackbody eclipse depth at 5.0 $\mu m$ (ppm) .....	1570 <sup>+500</sup> <sub>-280</sub>	
$\delta_{S,7.5\mu m}$ ..	Blackbody eclipse depth at 7.5 $\mu m$ (ppm) .....	1960 <sup>+600</sup> <sub>-320</sub>	
$\rho_P$ .....	Density <sup>4</sup> (cgs) .....	26 <sup>+16</sup> <sub>-25</sub>	
$\log g_P$ .....	Surface gravity <sup>4</sup> .....	5.03 <sup>+0.10</sup> <sub>-1.7</sub>	
$\Theta$ .....	Safronov Number .....	6.3 <sup>+2.3</sup> <sub>-6.2</sub>	
$\langle F \rangle$ .....	Incident Flux (10 <sup>9</sup> erg s <sup>-1</sup> cm <sup>-2</sup> ) .....	3.17 <sup>+1.2</sup> <sub>-0.79</sub>	
$T_P$ .....	Time of Periastron (BJD <sub>TDB</sub> ) .....	2455273.7362 $\pm$ 0.0022	
$T_S$ .....	Time of eclipse (BJD <sub>TDB</sub> ) .....	2455275.5621 $\pm$ 0.0022	
$T_A$ .....	Time of Ascending Node (BJD <sub>TDB</sub> ) .....	2455276.4751 $\pm$ 0.0022	
$T_D$ .....	Time of Descending Node (BJD <sub>TDB</sub> ) .....	2455274.6492 $\pm$ 0.0022	
$V_c/V_e$ .....	.....	1.00	
$M_P \sin i$ ..	Minimum mass <sup>4</sup> ( $M_J$ ) .....	137 <sup>+48</sup> <sub>-140</sub>	
$M_P/M_*$ .....	Mass ratio <sup>4</sup> .....	0.098 <sup>+0.048</sup> <sub>-0.096</sub>	
$d/R_*$ .....	Separation at mid transit .....	6.96 <sup>+0.85</sup> <sub>-0.64</sub>	
$P_T$ .....	A priori non-grazing transit prob .....	0.129 <sup>+0.011</sup> <sub>-0.013</sub>	
$P_{T,G}$ .....	A priori transit prob .....	0.159 $\pm$ 0.018	
Wavelength Parameters:		I	V
$u_1$ .....	linear limb-darkening coeff .....	0.174 <sup>+0.055</sup> <sub>-0.054</sub>	0.316 <sup>+0.055</sup> <sub>-0.054</sub>
$u_2$ .....	quadratic limb-darkening coeff .....	0.292 <sup>+0.055</sup> <sub>-0.056</sub>	0.314 $\pm$ 0.052
Transit Parameters:		OGLE UT 2010-03-18 (I)	OGLE UT 2010-03-18 (V)
$\sigma^2$ .....	Added Variance .....	0.00001549 <sup>+0.00000028</sup> <sub>-0.00000026</sub>	0.0000199 <sup>+0.00000028</sup> <sub>-0.00000025</sub>
$F_0$ .....	Baseline flux .....	1.000015 <sup>+0.000039</sup> <sub>-0.000041</sub>	1.00021 $\pm$ 0.00036

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

<sup>1</sup>This value ignores the systematic error and is for reference only

<sup>2</sup>The metallicity of the star at birth

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

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

<sup>5</sup>Time of conjunction is commonly reported as the "transit time"

<sup>6</sup>Time of minimum projected separation is a more correct "transit time"

<sup>7</sup>Optimal time of conjunction minimizes the covariance between  $T_C$  and Period

<sup>8</sup>Assumes no albedo and perfect redistribution