

Table 1. Median values and 68% confidence interval for OGLE-TR-1058.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$1.82^{+0.16}_{-0.17}$
R_*	Radius (R_\odot)	$2.62^{+0.36}_{-0.23}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$2.72^{+0.33}_{-0.23}$
L_*	Luminosity (L_\odot)	$12.4^{+4.3}_{-2.9}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000641^{+0.000000000014}_{-0.0000000000099}$
ρ_*	Density (cgs)	$0.140^{+0.044}_{-0.043}$
$\log g$	Surface gravity (cgs)	$3.854^{+0.082}_{-0.11}$
T_{eff}	Effective Temperature (K)	6640^{+450}_{-360}
$T_{eff,SED}$	Effective Temperature ¹ (K)	6550^{+410}_{-350}
[Fe/H]	Metallicity (dex)	$0.26^{+0.14}_{-0.20}$
[Fe/H] ₀	Initial Metallicity ²	$0.32^{+0.13}_{-0.19}$
Age	Age (Gyr)	$1.30^{+0.56}_{-0.37}$
EEP	Equal Evolutionary Phase ³	383^{+20}_{-22}
A_V	V-band extinction (mag)	$2.29^{+0.23}_{-0.21}$
σ_{SED}	SED photometry error scaling	$9.3^{+1.3}_{-1.1}$
ϖ	Parallax (mas)	$0.406^{+0.036}_{-0.042}$
d	Distance (pc)	2460^{+280}_{-200}
Planetary Parameters:		
		b
P	Period (days)	$17.41082^{+0.00039}_{-0.00025}$
R_p	Radius (R_J)	$1.171^{+0.17}_{-0.089}$
M_p	Mass ⁴ (M_J)	29^{+80}_{-25}
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455382.036^{+0.026}_{-0.040}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455382.036^{+0.026}_{-0.040}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	$2456757.489^{+0.017}_{-0.018}$
a	Semi-major axis (AU)	$0.1615^{+0.0052}_{-0.0051}$
i	Inclination (Degrees)	$88.50^{+1.00}_{-1.1}$
T_{eq}	Equilibrium temperature ⁸ (K)	1299^{+81}_{-69}
τ_{circ}	Tidal circularization timescale (Gyr)	15000^{+24000}_{-14000}
K	RV semi-amplitude ⁴ (m/s)	1500^{+3900}_{-1300}
R_p/R_*	Radius of planet in stellar radii	0.0466 ± 0.0036
a/R_*	Semi-major axis in stellar radii	$13.2^{+1.3}_{-1.5}$
δ	$(R_p/R_*)^2$	$0.00217^{+0.00035}_{-0.00032}$
δ_I	Transit depth in I (fraction)	$0.00234^{+0.00035}_{-0.00033}$
δ_V	Transit depth in V (fraction)	$0.00253^{+0.00037}_{-0.00036}$
τ	Ingress/egress transit duration (days)	$0.0208^{+0.0051}_{-0.0023}$
T_{14}	Total transit duration (days)	$0.403^{+0.051}_{-0.033}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values	
T_{FWHM} ..	FWHM transit duration (days)	0.381 ^{+0.052} _{-0.034}	
b	Transit Impact parameter	0.35 ^{+0.22} _{-0.23}	
$\delta_{S,2.5\mu m}$..	Blackbody eclipse depth at 2.5 μm (ppm)	35.2 ^{+10.} _{-6.6}	
$\delta_{S,5.0\mu m}$..	Blackbody eclipse depth at 5.0 μm (ppm)	141 ⁺²⁸ ₋₁₉	
$\delta_{S,7.5\mu m}$..	Blackbody eclipse depth at 7.5 μm (ppm)	211 ⁺³⁸ ₋₂₇	
ρ_P	Density ⁴ (cgs)	25 ⁺³² ₋₂₂	
$\log g_P$	Surface gravity ⁴	4.76 ^{+0.41} _{-0.87}	
Θ	Safronov Number	4.7 ^{+10.0} _{-4.0}	
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	0.65 ^{+0.18} _{-0.13}	
T_P	Time of Periastron (BJD _{TDB})	2455382.036 ^{+0.026} _{-0.040}	
T_S	Time of eclipse (BJD _{TDB})	2455390.741 ^{+0.026} _{-0.040}	
T_A	Time of Ascending Node (BJD _{TDB})	2455395.094 ^{+0.026} _{-0.039}	
T_D	Time of Descending Node (BJD _{TDB})	2455386.389 ^{+0.026} _{-0.040}	
V_c/V_e	1.00	
$M_P \sin i$..	Minimum mass ⁴ (M_J)	29 ⁺⁸⁰ ₋₂₅	
M_P/M_*	Mass ratio ⁴	0.016 ^{+0.040} _{-0.013}	
d/R_*	Separation at mid transit	13.2 ^{+1.3} _{-1.5}	
P_T	A priori non-grazing transit prob	0.0724 ^{+0.0092} _{-0.0064}	
$P_{T,G}$	A priori transit prob	0.0794 ^{+0.0100} _{-0.0068}	
Wavelength Parameters:		I	V
u_1	linear limb-darkening coeff	0.181 ^{+0.062} _{-0.058}	0.342 ^{+0.067} _{-0.061}
u_2	quadratic limb-darkening coeff	0.330 ^{+0.051} _{-0.052}	0.322 ^{+0.053} _{-0.054}
Transit Parameters:		OGLE UT 2010-07-04 (I)	OGLE UT 2010-07-04 (V)
σ^2	Added Variance	0.00001248 \pm 0.00000029	0.0000262 ^{+0.0000036} _{-0.0000032}
F_0	Baseline flux	0.999773 ^{+0.000047} _{-0.000045}	1.00041 ^{+0.00040} _{-0.00041}

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