

Table 1. Median values and 68% confidence interval for OGLE-TR-1028.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$1.11^{+0.19}_{-0.14}$
R_*	Radius (R_\odot)	$2.06^{+0.23}_{-0.16}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$2.13^{+0.24}_{-0.20}$
L_*	Luminosity (L_\odot)	$3.01^{+1.5}_{-0.73}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000076^{+0.0000000000021}_{-0.0000000000013}$
ρ_*	Density (cgs)	$0.177^{+0.055}_{-0.046}$
$\log g$	Surface gravity (cgs)	$3.854^{+0.085}_{-0.095}$
T_{eff}	Effective Temperature (K)	5290^{+510}_{-330}
$T_{eff,SED}$	Effective Temperature ¹ (K)	5230^{+490}_{-350}
[Fe/H]	Metallicity (dex)	$0.22^{+0.23}_{-0.26}$
[Fe/H] ₀	Initial Metallicity ²	$0.21^{+0.21}_{-0.25}$
Age	Age (Gyr)	$8.2^{+3.9}_{-3.4}$
EEP	Equal Evolutionary Phase ³	$466.3^{+6.7}_{-11}$
A_V	V-band extinction (mag)	$1.16^{+0.38}_{-0.33}$
σ_{SED}	SED photometry error scaling	$14.5^{+2.5}_{-1.8}$
ϖ	Parallax (mas)	$0.884^{+0.085}_{-0.091}$
d	Distance (pc)	1130^{+130}_{-99}
Planetary Parameters:		
		b
P	Period (days)	$0.74714108^{+0.00000073}_{-0.00000077}$
R_P	Radius (R_J)	$1.40^{+0.22}_{-0.14}$
M_P	Mass ⁴ (M_J)	$1.07^{+1.5}_{-0.67}$
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455376.7574^{+0.0018}_{-0.0019}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455376.7574^{+0.0018}_{-0.0019}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	2456831.4411 ± 0.0011
a	Semi-major axis (AU)	$0.01676^{+0.00090}_{-0.00074}$
i	Inclination (Degrees)	$60.3^{+4.1}_{-5.2}$
T_{eq}	Equilibrium temperature ⁸ (K)	2830^{+240}_{-160}
τ_{circ}	Tidal circularization timescale (Gyr)	$0.00020^{+0.0051}_{-0.00017}$
K	RV semi-amplitude ⁴ (m/s)	200^{+2700}_{-130}
R_P/R_*	Radius of planet in stellar radii	$0.0699^{+0.0032}_{-0.0025}$
a/R_*	Semi-major axis in stellar radii	1.74 ± 0.17
δ	$(R_P/R_*)^2$	$0.00489^{+0.00045}_{-0.00034}$
δ_I	Transit depth in I (fraction)	$0.00432^{+0.00020}_{-0.00021}$
δ_V	Transit depth in V (fraction)	$0.00390^{+0.00037}_{-0.00060}$
τ	Ingress/egress transit duration (days)	$0.0239^{+0.012}_{-0.0060}$
T_{14}	Total transit duration (days)	$0.1027^{+0.0084}_{-0.0064}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values		
T_{FWHM} . . .	FWHM transit duration (days)	0.0777 ^{+0.0037} _{-0.0046}		
b	Transit Impact parameter	0.864 ^{+0.039} _{-0.041}		
$\delta_{S,2.5\mu m}$. . .	Blackbody eclipse depth at 2.5 μm (ppm)	1450 ⁺³¹⁰ ₋₂₀₀		
$\delta_{S,5.0\mu m}$. . .	Blackbody eclipse depth at 5.0 μm (ppm)	2000 ⁺³³⁰ ₋₂₃₀		
$\delta_{S,7.5\mu m}$. . .	Blackbody eclipse depth at 7.5 μm (ppm)	2200 ⁺³⁴⁰ ₋₂₄₀		
ρ_P	Density ⁴ (cgs)	0.51 ^{+9.9} _{-0.39}		
$\log g_P$	Surface gravity ⁴	3.15 ^{+1.3} _{-0.56}		
Θ	Safronov Number	0.024 ^{+0.36} _{-0.016}		
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	14.5 ^{+5.7} _{-3.0}		
T_P	Time of Periastron (BJD _{TDB})	2455376.7574 ^{+0.0018} _{-0.0019}		
T_S	Time of eclipse (BJD _{TDB})	2455376.3839 ^{+0.0018} _{-0.0019}		
T_A	Time of Ascending Node (BJD _{TDB})	2455377.3178 ^{+0.0018} _{-0.0019}		
T_D	Time of Descending Node (BJD _{TDB})	2455376.9442 ^{+0.0018} _{-0.0019}		
V_c/V_e	1.00		
$M_P \sin i$	Minimum mass ⁴ (M_J)	0.93 ⁺¹³ _{-0.61}		
M_P/M_*	Mass ratio ⁴	0.00093 ^{+0.013} _{-0.00060}		
d/R_*	Separation at mid transit	1.74 \pm 0.17		
P_T	A priori non-grazing transit prob	0.534 ^{+0.055} _{-0.045}		
$P_{T,G}$	A priori transit prob	0.615 ^{+0.067} _{-0.054}		
Wavelength Parameters:		I	V	
u_1	linear limb-darkening coeff	0.372 ^{+0.074} _{-0.092}	0.58 ^{+0.10} _{-0.12}	
u_2	quadratic limb-darkening coeff	0.256 ^{+0.066} _{-0.061}	0.173 ^{+0.090} _{-0.084}	
Transit Parameters:		OGLE UT 2010-06-29 (I)	OGLE UT 2010-06-29 (V)	
σ^2	Added Variance	0.00001970 ^{+0.00000029} _{-0.00000031}	0.000112 ^{+0.000012} _{-0.000011}	
F_0	Baseline flux	1.000142 ^{+0.000045} _{-0.000047}	0.99959 \pm 0.00075	

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