We study evolution and distribution of surface and near-surface temperature on tidally locked extrasolar terrestrial planets without atmosphere. In order to determine the temperature, insolation patterns depending on eccentricity, obliquity and spin-orbit resonance are computed and thermal diffusion equation is solved in a spherical shell. We discuss the dependence of temperature distribution on physical and geometrical parameters including orbit eccentricity, obliquity of rotational axis, type of spin-orbital resonance, thermal inertia and irradiance incident on the planetary surface (the extrasolar constant). The mean annual temperature is driven especially by the extrasolar constant and may rise up to thousand of kelvins in the most irradiated regions. Effect of eccentricity, obliquity and thermal inertia, in some cases, is on the scale of hundreds of kelvins.