WHAT IS CLAIMED IS:

1. A wafer producing method of producing a wafer from a cylindrical single-crystal SiC ingot having a cylindrical peripheral surface including a first orientation flat and a second orientation flat shorter than said first orientation flat and perpendicular to said first orientation flat, and a circular upper surface, said cylindrical single-crystal SiC ingot having a c-axis inclined from a vertical axis perpendicular to said circular upper surface toward said second orientation flat and an off-angle formed between a c-plane perpendicular to said c-axis and said upper surface, said wafer producing method comprising:

a processing feed direction detecting step of confirming whether or not a direction in which said c-axis is inclined and said second orientation flat are perpendicular to each other, and detecting a processing feed direction perpendicular to the direction in which said c-axis is inclined;

a reduced strength area forming step of positioning the focused point of a laser beam in said cylindrical single-crystal SiC ingot at a depth from said circular upper surface, which depth corresponds to the thickness of a wafer to be produced, and while relatively moving said

cylindrical single-crystal SiC ingot and said focused point in said processing feed direction which has been detected in the processing feed direction detecting step, irradiating said cylindrical single-crystal SiC ingot with a laser beam having a wavelength that transmits through SiC, thereby forming a straight reduced strength area made up of a modified layer parallel to said circular upper surface and cracks extending from said modified layer along said c-plane at the depth corresponding to the thickness of the wafer to be produced;

a peeling plane forming step of forming a peeling plane in said cylindrical single-crystal SiC ingot by carrying out the reduced strength area forming step a plurality of times at predetermined intervals in a direction perpendicular to said processing feed direction; and

a wafer producing step of, after the peeling plane forming step, producing a wafer from said cylindrical single-crystal SiC ingot by peeling off a portion of said cylindrical single-crystal SiC ingot from said peeling plane that serves as a boundary face;

wherein the processing feed direction detecting step includes

a sampling step of performing sampling

irradiation for positioning the focused point of a laser beam in said cylindrical single-crystal SiC ingot at a predetermined depth from said circular upper surface and, while moving said cylindrical single-crystal SiC ingot and said focused point relatively to each other, irradiating said cylindrical single-crystal SiC ingot with a laser beam having a wavelength that transmits through SiC, along a direction parallel to said second orientation flat and a plurality of directions inclined clockwise and counterclockwise by respective predetermined angles from said second orientation flat, thereby forming a plurality of straight sampled reduced strength areas in said cylindrical single-crystal SiC ingot, each of said straight sampled reduced strength areas being made up of a modified layer parallel to said circular upper surface and cracks extending from said modified layer along said c-plane, and

a determining step of capturing respective images of said straight sampled reduced strength areas with imaging means, measuring the number of nodes which exist per unit length on each of said straight sampled reduced strength areas in one of the images thereof, and determining a direction in which the straight sampled reduced strength area where the measured number of nodes is zero extends as a processing feed direction.

2. A processing feed direction detecting method of detecting a processing feed direction in producing a wafer from a cylindrical single-crystal SiC ingot having a cylindrical peripheral surface including a first orientation flat and a second orientation flat shorter than said first orientation flat and perpendicular to said first orientation flat, and a circular upper surface, said cylindrical single-crystal SiC ingot having a c-axis inclined from a vertical axis perpendicular to said circular upper surface toward said second orientation flat and an off-angle formed between a c-plane perpendicular to said c-axis and said upper surface, said processing feed direction detecting method comprising:

a sampling step of performing sampling irradiation for positioning the focused point of a laser beam in said cylindrical single-crystal SiC ingot at a predetermined depth from said circular upper surface and, while moving said cylindrical single-crystal SiC ingot and said focused point relatively to each other, irradiating said cylindrical single-crystal SiC ingot with a laser beam having a wavelength that transmits through SiC, along a direction parallel to said second orientation flat and a plurality of directions inclined clockwise and counterclockwise by respective predetermined angles from

said second orientation flat, thereby forming a plurality of straight sampled reduced strength areas in said cylindrical single-crystal SiC ingot, each of said straight sampled reduced strength areas being made up of a modified layer parallel to said circular upper surface and cracks extending from said modified layer along said c-plane; and

a determining step of capturing respective images of said straight sampled reduced strength areas with imaging means, measuring the number of nodes which exist per unit length on each of said straight sampled reduced strength areas in one of the images thereof, and determining a direction in which the straight sampled reduced strength area where the measured number of nodes is zero extends as a processing feed direction.