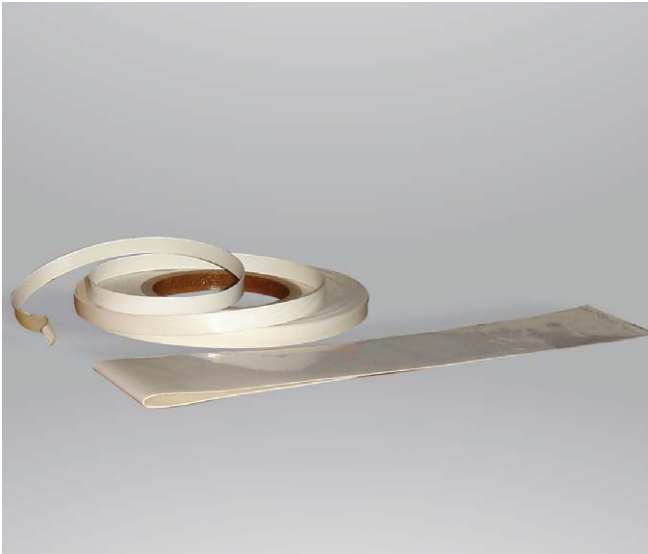


# GLASS TRANSFER TAPES



**Glass Transfer Tapes are designed for coating or bonding a desired surface with a glass layer of a precisely known thickness and density. Glass transfer tapes consist of a highly flexible glass frit layer attached to a plastic carrier film.**

**Some of the many applications for these tapes are; glass to glass or glass to metal seals, package sealing, protective coatings, assembly of optical cells, lasers, lamps, transducers, microwave components, vacuum devices, scientific glassware, and other optical and electronic systems. Glass Transfer Tapes not only replace liquid suspension techniques, direct fusing, and epoxies but also open the way for many new applications which might not be possible because of limitations with the old techniques.**

Vitta Corporation pioneered the use of Glass Transfer Tapes more than 35 years ago. Over the years, Vitta has developed a series of Standard Glass Transfer Tapes designed to satisfy a wide range of applications. In addition to the standard tapes shown in the table below, we can also manufacture custom tapes from any glass frit available in the market today. All of our standard and custom tapes are available as preforms.

By having the glass tape made to the exact size and shape needed, preforms can help speed up the production process and reduce waste. Vitta has the experience and expertise to help you select the glass frit that is best suited for your application. Please contact HTK HAMBURG for further information.

Tape Code	Type	Applications	Working Temp °C	Thermal Expansion 10-7in/in/oC (0-300oC)	Most Common Thickness (mils)	Adhesive Backing Available
G-1001	V	Glazing & sealing ceramics, ferrites, glass and certain metals	500-600	84	1 & 3.5	Yes
G-1002	V	Glazing & sealing ceramics, especially Alumina and Beryllia	800-850	70	3.5	Yes
G-1003	V	Glazing & sealing ceramics, yeilding a very smooth surface	1200-1250	70	3 to 6	Yes
G-1004	V	Glazing & sealing, fires green in color	1000-1150	46	4.5	Yes
G-1005	V	Glazing & sealing, fires green in color	580-620	45-55	4.5	Yes
G-1009	D	Sealing ceramics and certain metals, fires black in color	400-440	90	5	No
G-1010	D	Sealing ceramics and certain metals, fires gray in color	400-440	96	5	No
G-1011	D	Sealing ceramics, glass, and low expansion metals, fires gray	400-440	70-90	5	No
G-1012	D	Sealing & glazing ceramics, glass, low expansion metals, fires black	400-440	82	5	No
G-1013	D	Glazing & sealing metals, ceramics & natural quartz, fires gray	400-440	95	5	No
G-1014	D	Glazing & sealing Beryllia & Allumina-Kovar packages, fires black	400-440	75	5	No
G-1015	V	Sealing Quartz-to-Quartz	900	32	1	Yes
G-1017	D	Sealing Pyrex-to-Pyrex	490-540	40-50	2 and 4	Yes
G-1018	V	Glazing & sealing metals and ferrites	460	104	1	No
G-15557	V	Sealing soda lime (window) glass, suitable for liquid crystal display	450	89	4 to 6	No
G-2571	V	Low temp. sealing and glazing in given thermal expansion range	410	70-75	5	No
GPR-10	V	Silicon Wafer Glazing	552-600	65	1	Yes

Rev.1\_072007\_Glass Transfer Tapes\_engl. - subject to alterations

# GLASS TRANSFER TAPES

## G-1001 Glas Transfer Tape

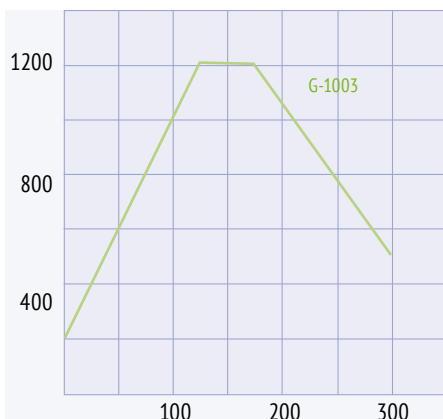
contains a high lead-borosilicate glass frit with a thermal expansion of  $84 \times 10^{-7}$  in/in/°C. This Glass Transfer Tape generally applicable for low temperature glazing and sealing of ceramics, glass and certain metals. It is adaptable for glazing ferrite materials because of its excellent thermal expansion match. It can also be used satisfactorily for protective glazing of sensitive devices. The produced glaze will be readily attacked by acids. The glazing step should be performed in air.

## G-1002 Glas Transfer Tape

contains a lead-borosilicate glass frit with a thermal expansion of  $70 \times 10^{-7}$  in/in/°C. It is ideally suited for glazing alumina and beryllia materials because of its excellent thermal expansion match. The produced glaze will be readily attacked by acids due to the characteristics of the glass frit. The glazing step should be performed in air.

## G-1003 Glas Transfer Tape

contains a lead-alumina-silicate glass frit with a thermal expansion of  $70 \times 10^{-7}$  in/in/°C, which provides an excellent match to alumina and beryllia. No alkaline is present in the glaze composition. The few alkaline ions present are tied up. In this way migration is not possible. The surface finish of the glaze is as low or lower than 1 microinch. The surface roughness is in the range of 45-50 Angstroms. This can be considered as an optically flat surface. The main use of this Glass be considered as an optically flat surface. The main use of this Glass Tape is in the glazing of substrates for thin film circuitry where good acid resistance and ultra smooth surface finish is required. The glazing should be performed in neutral or air atmosphere; reducing atmosphere cannot be used because of the presence of lead oxide in the glass.



In addition to these Glass Tapes, see our Glass Transfer Tapes - G-1000 Series.

## G-1004 Glas Transfer Tape

contains a borosilicate glass frit with a thermal expansion of  $46 \times 10^{-7}$  in/in/°C, which provides an excellent match to Kovar. This Glass Transfer Tape is generally used for sealing and glazing Kovar materials. The produced glaze has an excellent acid resistance. Both air and reducing atmosphere can be used: there is no lead oxide present in the glass frit composition.

## G-1005 Glas Transfer Tape

contains a lead-zinc-borosilicate glass frit with a thermal expansion of approximately  $50 \times 10^{-7}$  in/in/°C. It is a green colored glass material due to the copper content in its composition. This Glass Transfer Tape is used for low temperature sealing and glazing of Kovar. The produced glaze is readily attacked by acids. The glazing of Kovar. The produced glaze is readily attacked by acids. The glazing step should be performed in neutral atmosphere or air.

## G-1009 Glas Transfer Tape

contains a high lead oxide glass frit with a considerable amount of zinc-oxide as the second largest constituent. Its thermal expansion is between  $80 - 90 \times 10^{-7}$  in/in/°C. This glass frit is a devitrifying type material: crystallization will start rapidly over 440°C. It is suggested to preglaze the parts to be sealed at 400°C following the curve as indicated below. The sealing step should be performed at 440°C for a short period (approximately 5-8 minutes). The preglazing step should be performed in air; the sealing step can be performed in air or neutral atmosphere.

