Problem 2.4

Continuing with Problem 2.3, explain how the rule of Eq. (2.32) can be satisfied by the signal $g(t)$ described therein.

Solution

Since $g(t)$ is real valued, it follows that the integral $\int_{-\infty}^{\infty} G(f)df$ must likewise be real valued. For this condition to be satisfied, the imaginary part of $G(f)$ must be an odd function of f.