substance: gallium sulfide (GaS)
property: carrier mobilities, relaxation time, diffusion length

electron mobility

$\mu_{H,n}$	12 $cm^2/V\ s$	T = 300 K	p-type GaS, $i \perp c$, $B \parallel c$; Hall mobility of illuminated crystal	69K

For dependence on temperature; see Fig. 1.

hole mobility

$\mu_{H,p}$	16 $cm^2/V\ s$	T = 300 K	n-type GaS, $i \perp c$, $B \parallel c$; Hall mobility of illuminated crystal	69K
$\mu_{dr,p}$	80 $cm^2/V\ s$	T = 300 K	maximum drift mobility; time of flight technique, $i \parallel c$	76M

relaxation times
(in 10^{20} s)

τ_n	74,47	T = 300 K	thermoelectric power	92G
τ_p	149			

diffusion lengths
(in 10^{-10} cm)

L_n	12.62	T = 300 K	thermoelectric power	92G
L_p	17.26			

References:

68K Kipperman, A. H. M., Van der Leeden, G. A.: Solid State Commun. 6 (1968) 657.
69K Kipperman, A. H. M., Vermij, C. J.: Nuovo Cimento B 63 (1969) 29.
76M Minder, R., Ottaviani, G., Canali, C.: J. Phys. Chem. Solids 37 (1976) 417.
92G Gamal, G. A., Nassary, M, N., Hussein, S. A.: Cryst. Res. Technol. 27 (1992) 995.

Fig. 1.
GaS. Hall mobility vs. temperature of illuminated GaS platelets ($I \perp$ layers, $B \perp$ layers): iodine transported crystals, n-type (full triangles), sublimated crystal, n-type (full circles), sublimated crystal, p-type (open symbols) [68K, 69K].