H K

B fl

(DB) [36],

F . 2 . E DB -

,

- (“ ”),

.
-

:

$$n_2 = \frac{3\chi^{(3)}}{2n_0^2\epsilon_0 c} \quad (4)$$

, $\chi^{(3)}$ - ,
KE :

$$\Delta n = \frac{3\chi^{(3)}}{4n_0}|E|^2 \quad (5)$$

ν :

$$\frac{c}{\nu} = \frac{2}{M} \quad n_0 + \frac{3\chi^{(3)}}{4n_0}|E| \quad 4$$

$\chi^{(3)} = 2.09 \times 10^{-14}$ ^{2} · $^{-2}$,
. F ,
,
(
2), - -
0.63 H fi $\chi^{(3)}$ =
4.38×10^{-22} ^{2} · $^{-2}$. C ,
K .
A , KE -
, - ,
-
, - .
“ ”, -
- . , -
500 ,
DB 100 -
200 , F . 4
.
, 0.32 H

0.38 H , . ,
(200–500 J),
, F . 4 , ,
40 0.32 H
, 44 0.38 H .
F , fi
:
M_1

.

:

Δn

[39]:

$$P_{NL}(\Omega) = \int_{\omega_0-\Delta\omega/2}^{\omega_0+\Delta\omega/2} \epsilon_0 \chi^{(2)}(\Omega;\Omega+\omega,-\omega)E_p(\Omega+\omega)E_p{}^*(\omega)\ \omega \quad (12)$$

, $\chi^{(2)}$ - -

, ϵ_0

. ω_0 $\Delta\omega$

, Ω

H .

$E_p(\Omega+\omega)$ $E_p{}^*(\omega)$ fi

.

H

0.5 H

0.2–1.2 H .

I ,

10 2.4 . -

6.7 , .

Detection of THz waves

H ,

$\Delta n(x,z)$, . A ,

$\Delta\phi(x,z)$

.

H fi $E_{THz}(x,z)$

:

$$\Delta\phi(x,z) = 2\pi\frac{h}{\lambda_p}\Delta n(x,z) = 2\pi\frac{h}{\lambda_p}\frac{n_e^3 r_{33}}{2}E\ \ _H\ (x,z) \quad (13)$$

h λ_p

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Conflict of interest

The a h decla e c e i g i e e .

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