

GaN

GaN

κ

(*u*)

)

[]

(κ_{\max})

($W.cm^{-1}.K^{-1}$)

:

GaN

$$\kappa_{tot}^{-1} = \sum_i (\kappa_i)^{-1}$$

[]

:

$$\frac{1}{\kappa_{tot}} = \frac{1}{\kappa_u} + \frac{1}{\kappa_{bound.}} + \frac{1}{\kappa_{imp.}} + \frac{1}{\kappa_{dis.}}$$

$$\frac{1}{\kappa_{tot}} = \frac{1}{a \cdot \exp(\Theta_D / mk_B T)} + \frac{1}{b \cdot T^3} + \frac{1}{c \cdot T^{-1}} + \frac{1}{d \cdot T} \quad ()$$

$$\frac{1}{\kappa_{tot}} = \frac{1}{a \cdot \exp(\Theta_D / mk_B T)} + \frac{1}{b \cdot T^3} + \frac{1}{c \cdot T^{-1}} + \frac{1}{d \cdot T} \quad ()$$

[]

$$\dot{Q} = -\kappa \frac{dT}{dx} :$$

$$\kappa = \frac{1}{3} C_v l v$$

$$\kappa_{dis.} = \frac{1}{3} C_v l v$$

$$\kappa_{bound.} = \frac{1}{3} C_v l v$$

$$\kappa_{imp.} = \frac{1}{3} C_v l v$$

$$\kappa_u = \frac{1}{3} C_v l v$$

GaN

$$\langle \tau \rangle^{-1} = \sum_i (\tau_i)^{-1}$$

(,) []

() []

(bound.) (u)

()

K

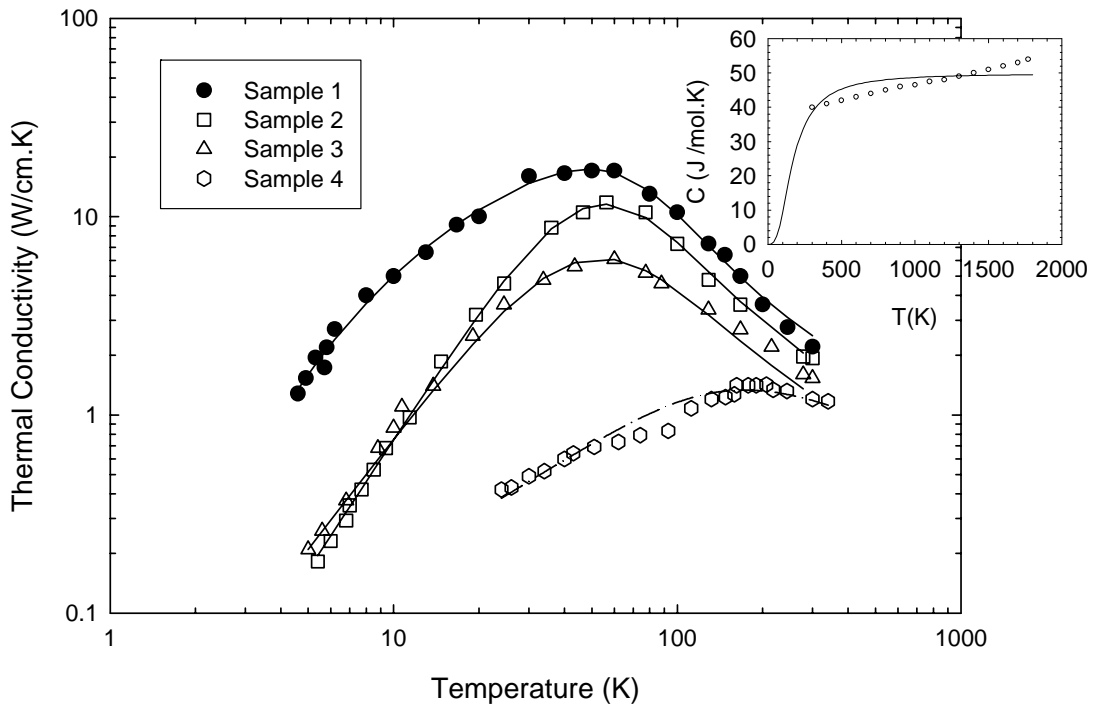
(dis.)

(imp.)

GaN

(T_{max})

(κ_{max})



[] GaN :

)

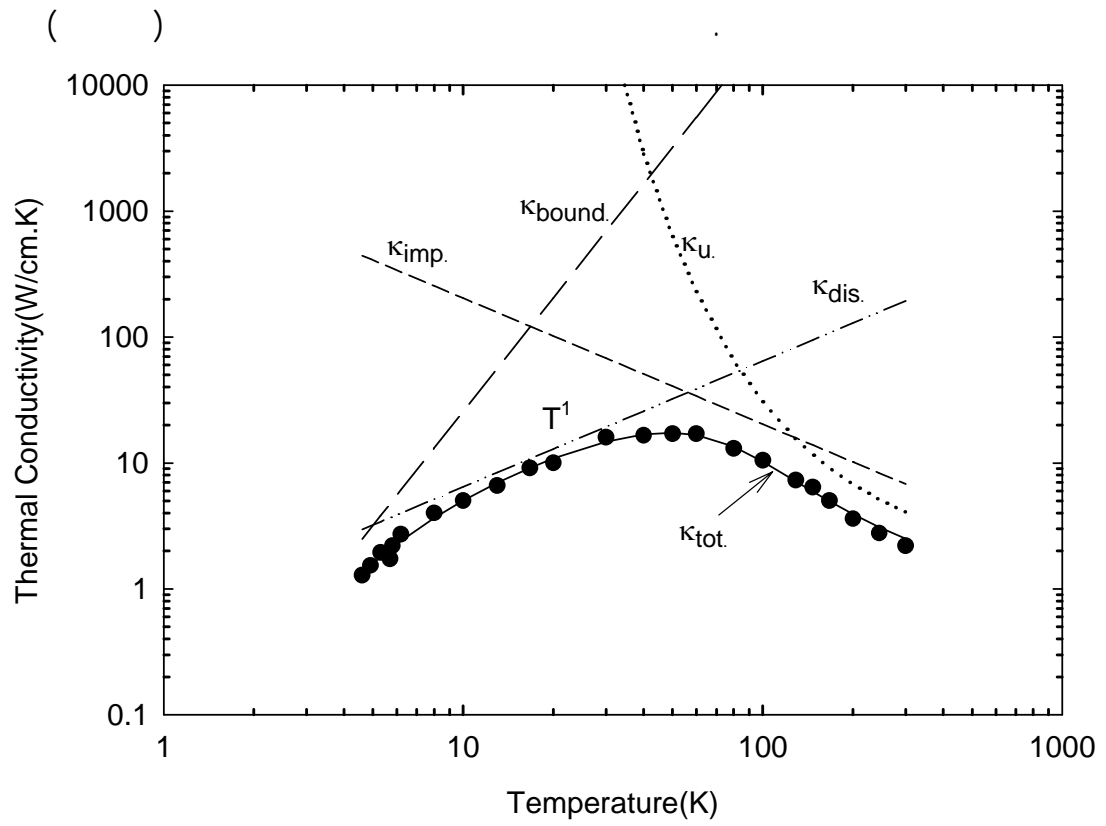
.(

:

	κ_{300} ($W.cm^{-1}.K^{-1}$)	κ_{77} ($W.cm^{-1}.K^{-1}$)	κ_{max} ($W.cm^{-1}.K^{-1}$)	T_{max} (K)
	/		/	
	/	/	/	
	/	/	/	
	/	/	/	

T_{max}

T_{max}



$\times \quad b = l \quad , \quad a = l$
 $\quad \quad \quad \quad \quad \quad m = l \quad d = l \quad c = l$

κ

()

K

()

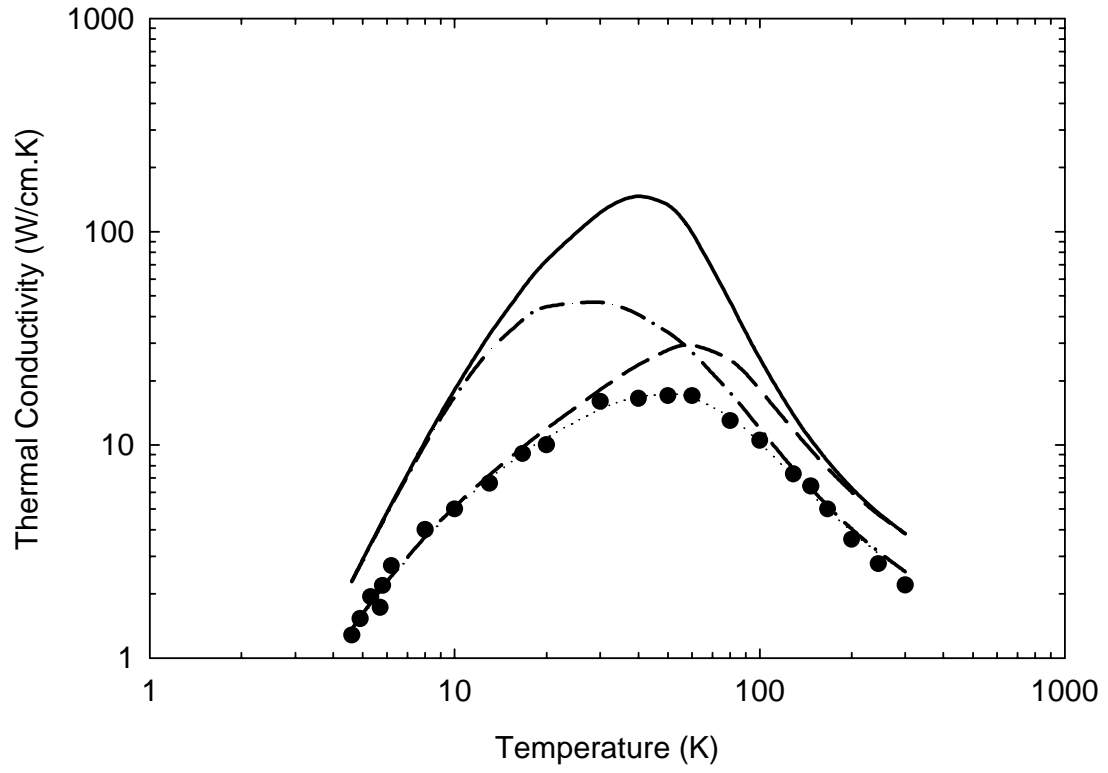
K

K

()

K

GaN



() :
(_ _) ()
() (_ _) ()
(_)
()

d d c Θ_D m b a
() n

() . /

	d	n	c
	/	/	
	/	/	
	/	/	

c

():
().

$$(T \geq K)$$

().

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