

GaN

Archive of SID

GaN

κ

(u)

)

[]

(κ_{\max})

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

:

GaN

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

[]

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

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

$$k_B \quad \Theta_D$$

$$a \quad m \quad T$$

[] : [] []

[]

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

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

() []

($\kappa_{dis.}$) [] T [] T

$l (= v \tau)$ C_v

GaN

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

(,) []

() []

(bound.) (u)

()

K

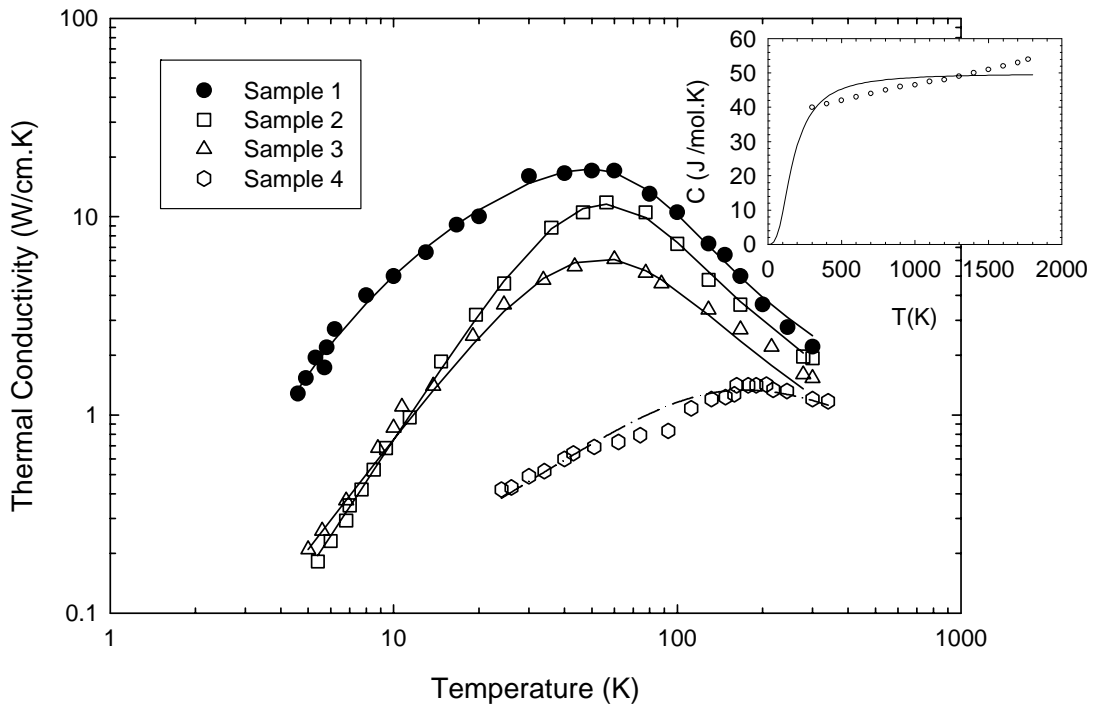
(dis.)

(imp.)

GaN

(T_{\max})

(κ_{\max})

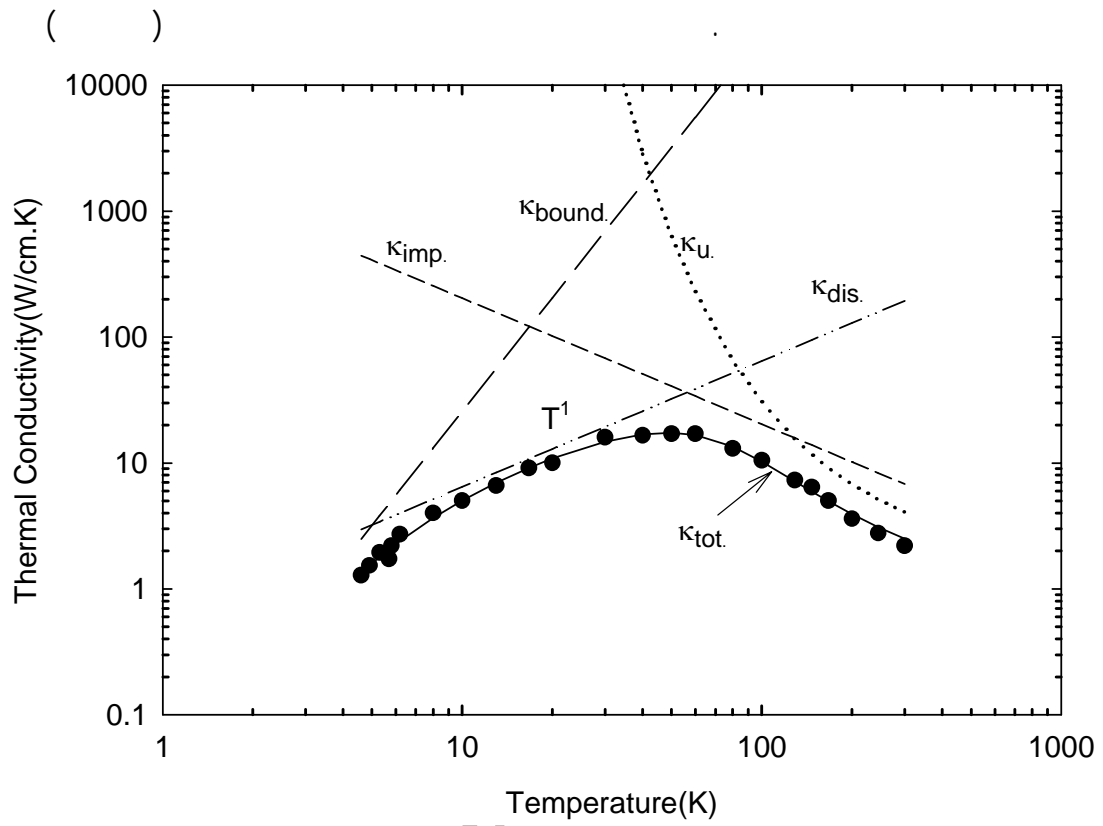


[] GaN

	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}



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

Archive

()

K

()

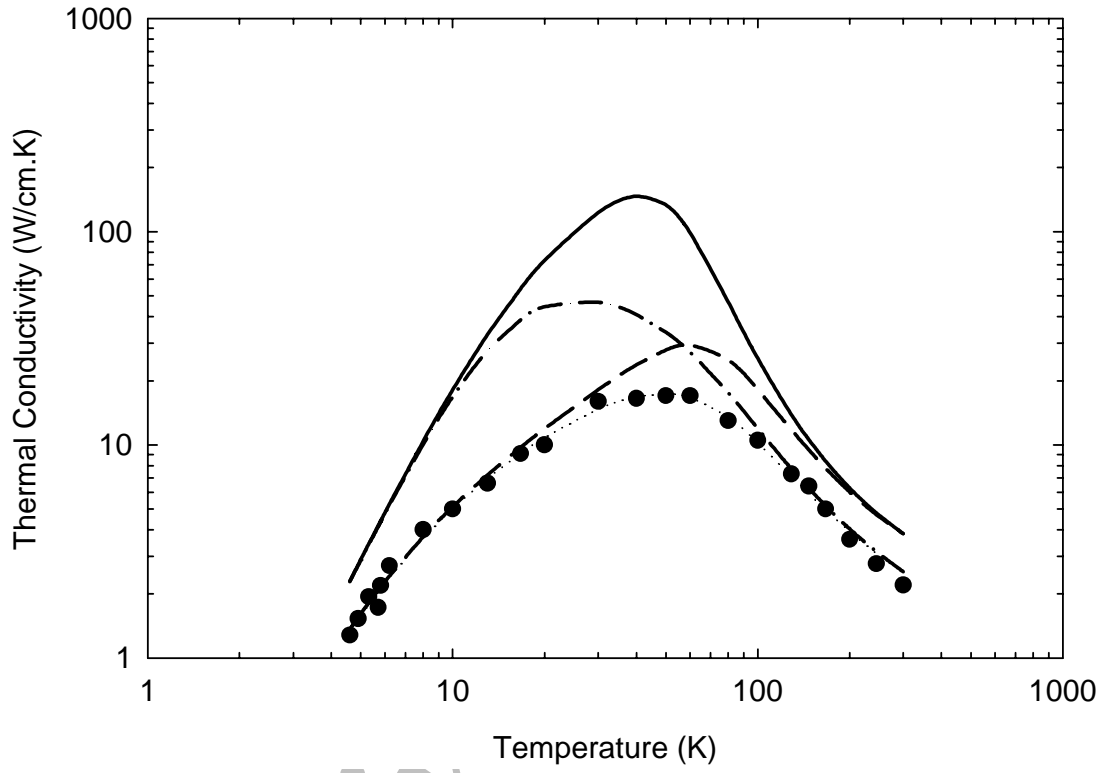
K

K

()

K

GaN



() :
(--)()
() ()
()
n ()
d c Θ_D m b a
() n

() /

	d	n	c
	/	/	
	/	/	
	/	/	

():
().

$$(T \geq K)$$

().

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