SHINDENGEN

Sidac

K1V(A)12

OUTLINE DIMENSIONS

Case : AX06

(Unit : mm)
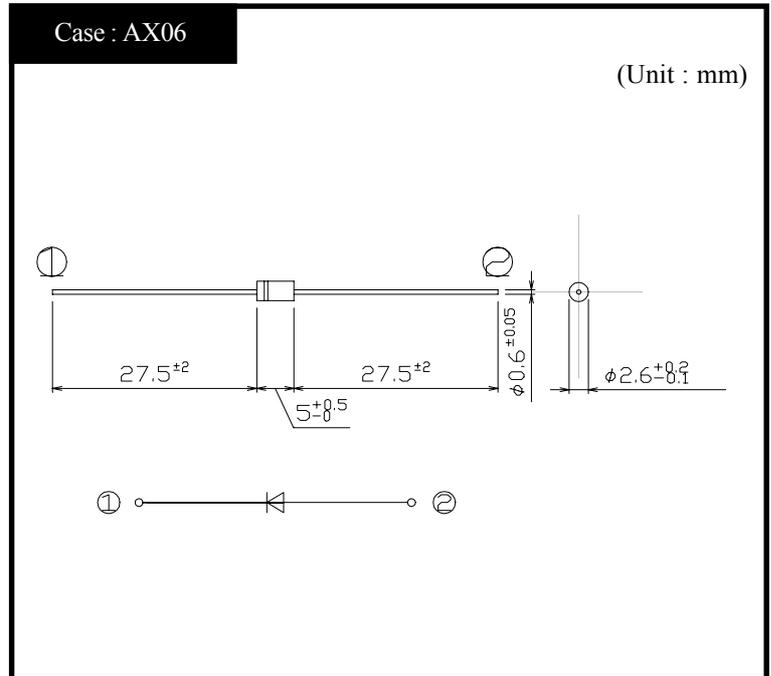
RATINGS

●Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		$-40 \sim 125$	℃
Operating Junction Temperature	Tj		125	℃
Maximum Off-state Voltage	V_{DRM}		90	V
RMS On-state Current	I_T	Tl = 98℃, 50Hz sine wave (θ = 180°)	1	A
Surge On-state Current	I_{TSM}	Tj = 25℃, 50Hz sine wave (θ = 180°), non-repetitive 1-cycle peak value	16	A
Pulse On-state Current	I_{TRM}	Ta =25 ℃, pulse width t_o = 10 μ s, sine wave, repetitive peak value f = 1 kHz	15	A
		Ta =25 ℃, pulse width t_o = 10 μ s, sine wave, repetitive peak value f = 60 Hz	60	
Critical Rate of Rise of On-state Current	di_T/dt		50	A/ μ s

●Electrical Characteristics (Tl=25℃)

Item	Symbol	Conditions	Ratings	Unit
Breakover Voltage	V_{BO}	I_B = 0, 50Hz sine wave	$110 \sim 125$	V
Off-state Current	I_{DRM}	$V_D = V_{DRM}$	Max 10	μ A
Breakover Current	I_{BO}		Max 0.5	mA
Holding Current	I_H		TYP 50	mA
On-state Voltage	V_T	I_T = 1A	Max 1.6	V
Switching Resistance	R_S		Min 0.1	k Ω
Thermal Resistance	θ jl	Junction to lead	Max 20	℃/W

●Standard Design with P.C.B.

Item	Symbol	Conditions	Standard	Unit
RMS On-state Current	I_T	Assembled in P.C.B., Ta = 25℃, soldering land 3mm ϕ	0.6	A

K1V(A)10
K1V(A)11
K1V(A)12 Typical On-State Voltage

Instantaneous On-State Current I_T [A]

TI=125°C [TYP]   TI=25°C [TYP]

Pulse measurement

Instantaneous On-State Voltage V_T [V]
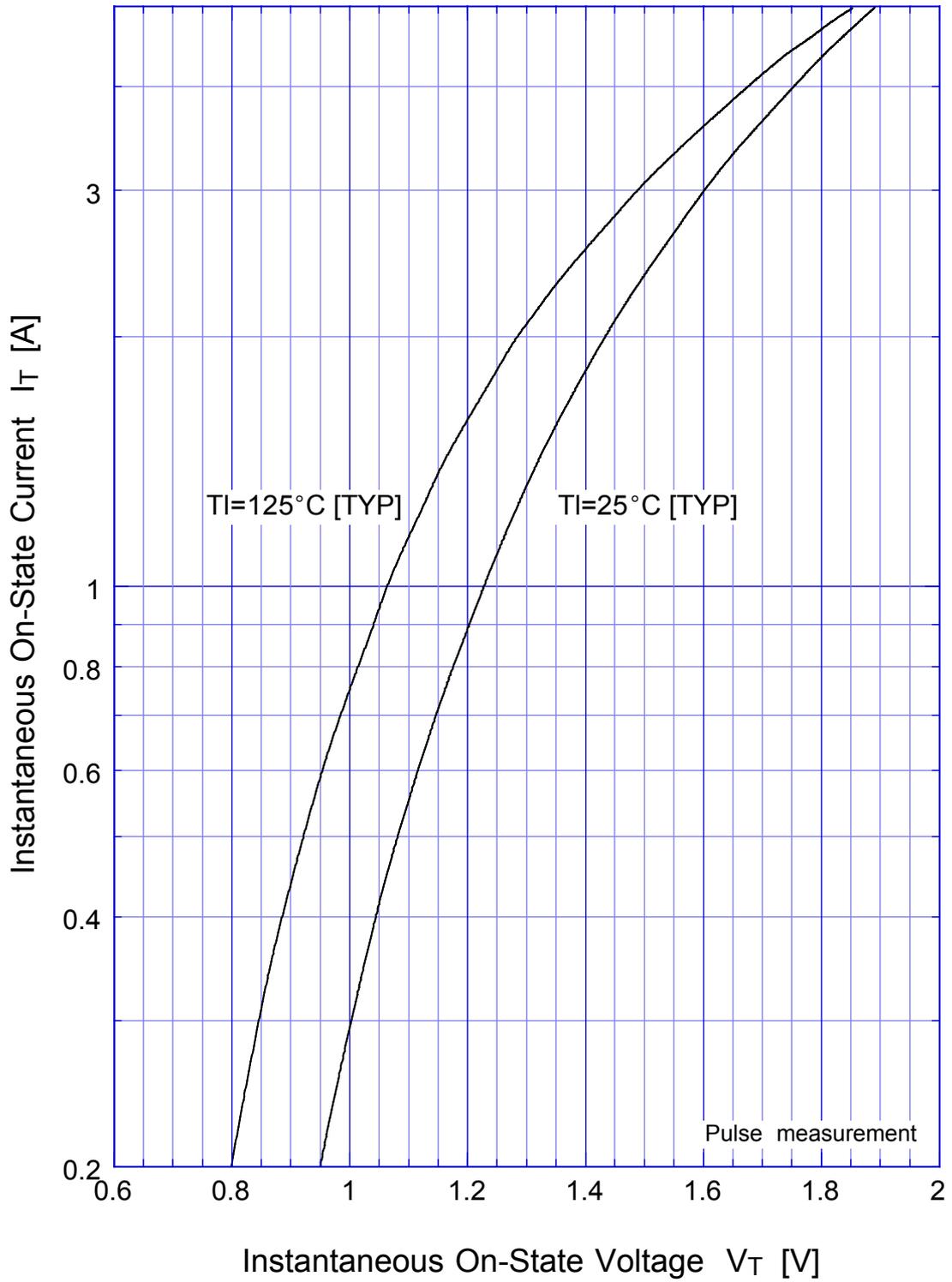
K1V(A)10
K1V(A)11
K1V(A)12 Power Dissipation

Power Dissipation P [W]

On-State Current I_T (rms) [A]

Tj=125°C
Sine Wave
Conduction Angle 180°
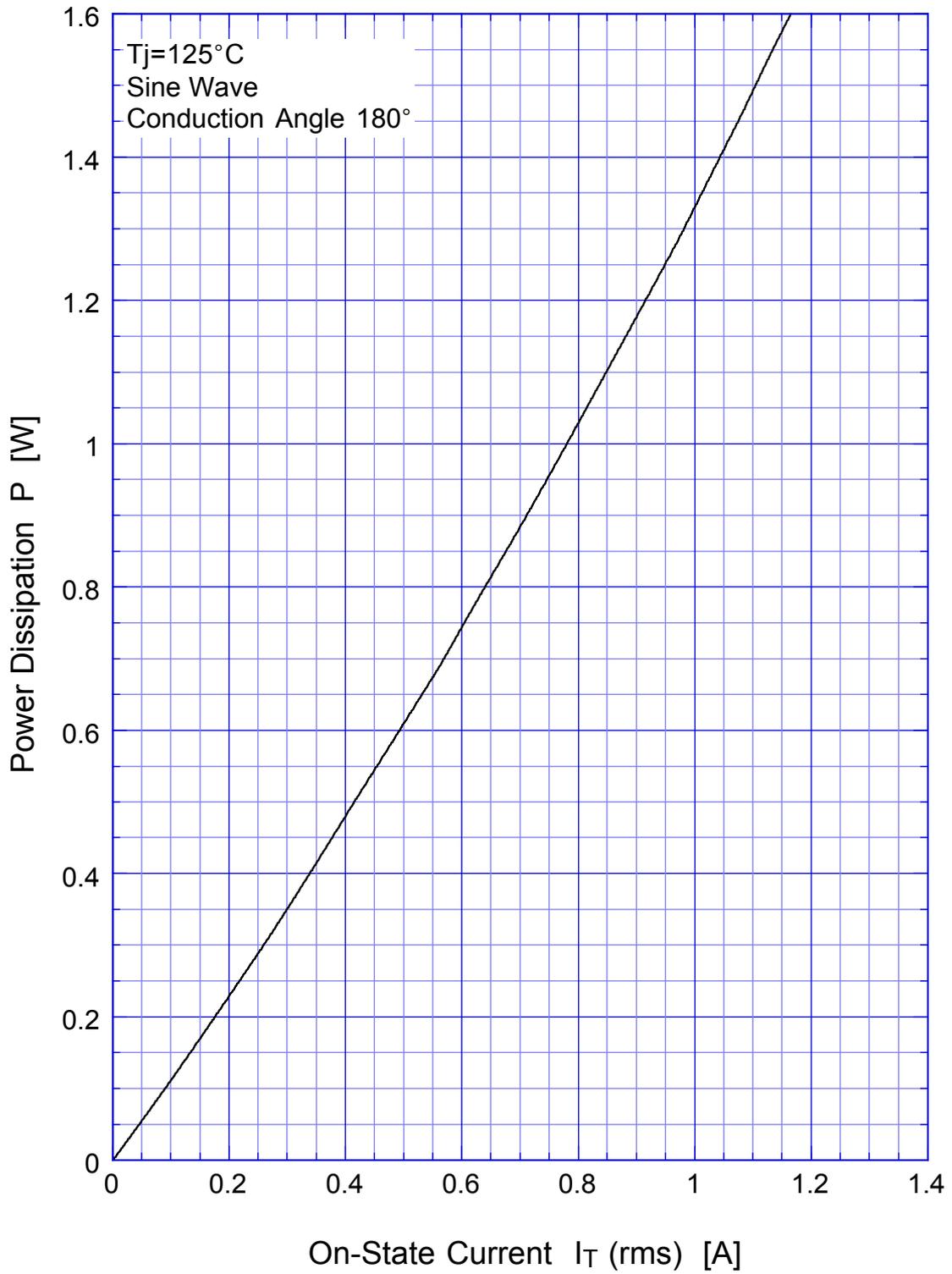
K1V(A)10
K1V(A)11
K1V(A)12 Maximum Lead Temperature

Tj=125°C
Sine Wave
Conduction Angle 180°

On-State Current I_T (rms) [A]

Allowable Lead Temperature Tl [°C]
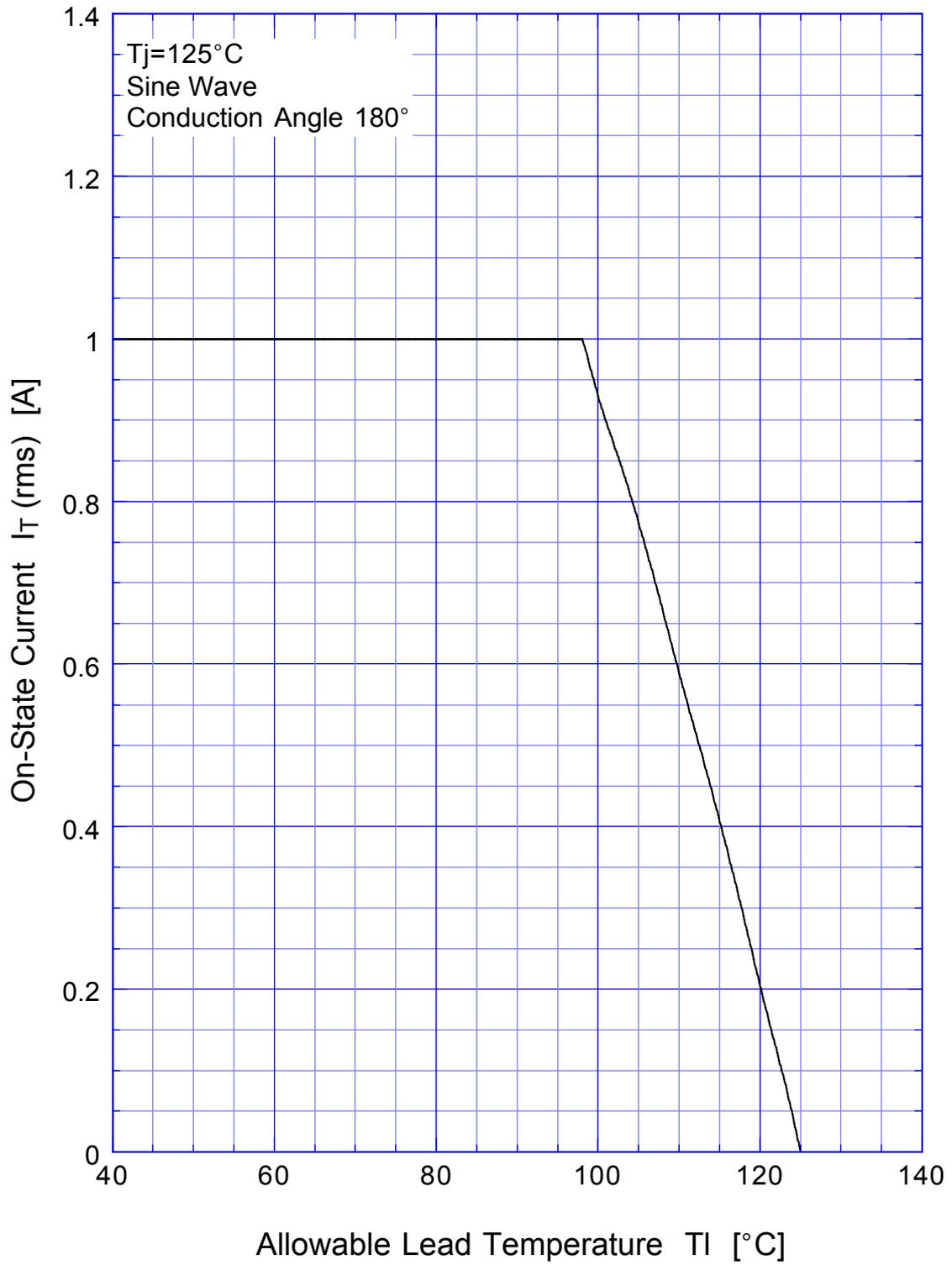
K1V(A)10
K1V(A)11
K1V(A)12 Maximum Ambient Temperature

Tj=125°C
Sine Wave
Conduction Angle 180°

Mounted on PCB
20mm
l
Soldering land 3mm
l = 2~15mm

On-State Current I_T (rms) [A]

Allowable Ambient Temperature Ta [°C]
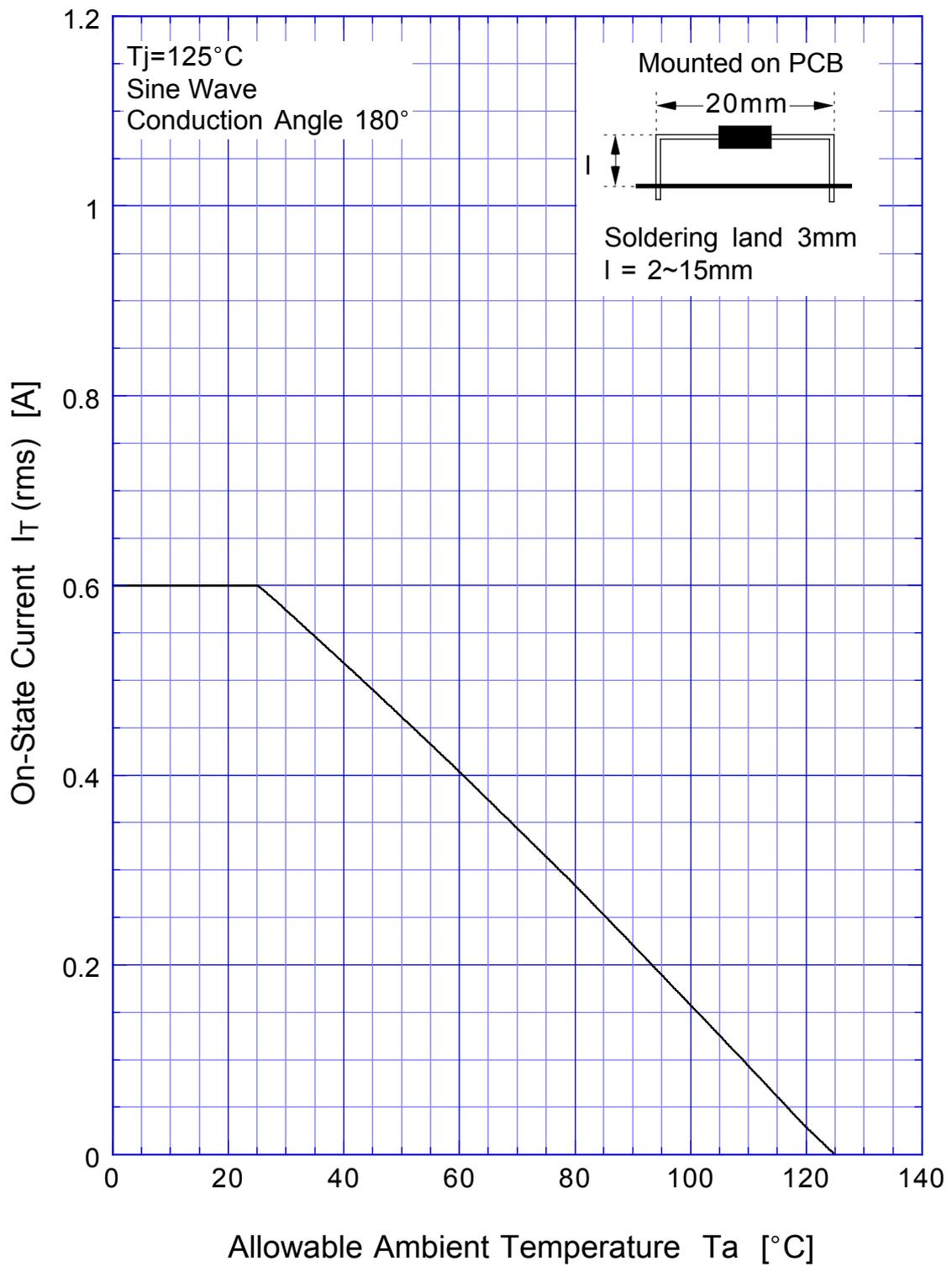
K1V(A)10
K1V(A)11
K1V(A)12   Maximum Surge On-State Current

Non-repetitive
Sine Wave 50Hz
Conduction Angle 180°
Free In Air
Tj = 25°C

Surge On-State Current I_{TSM} [A]

Number of Cycles [cycles]
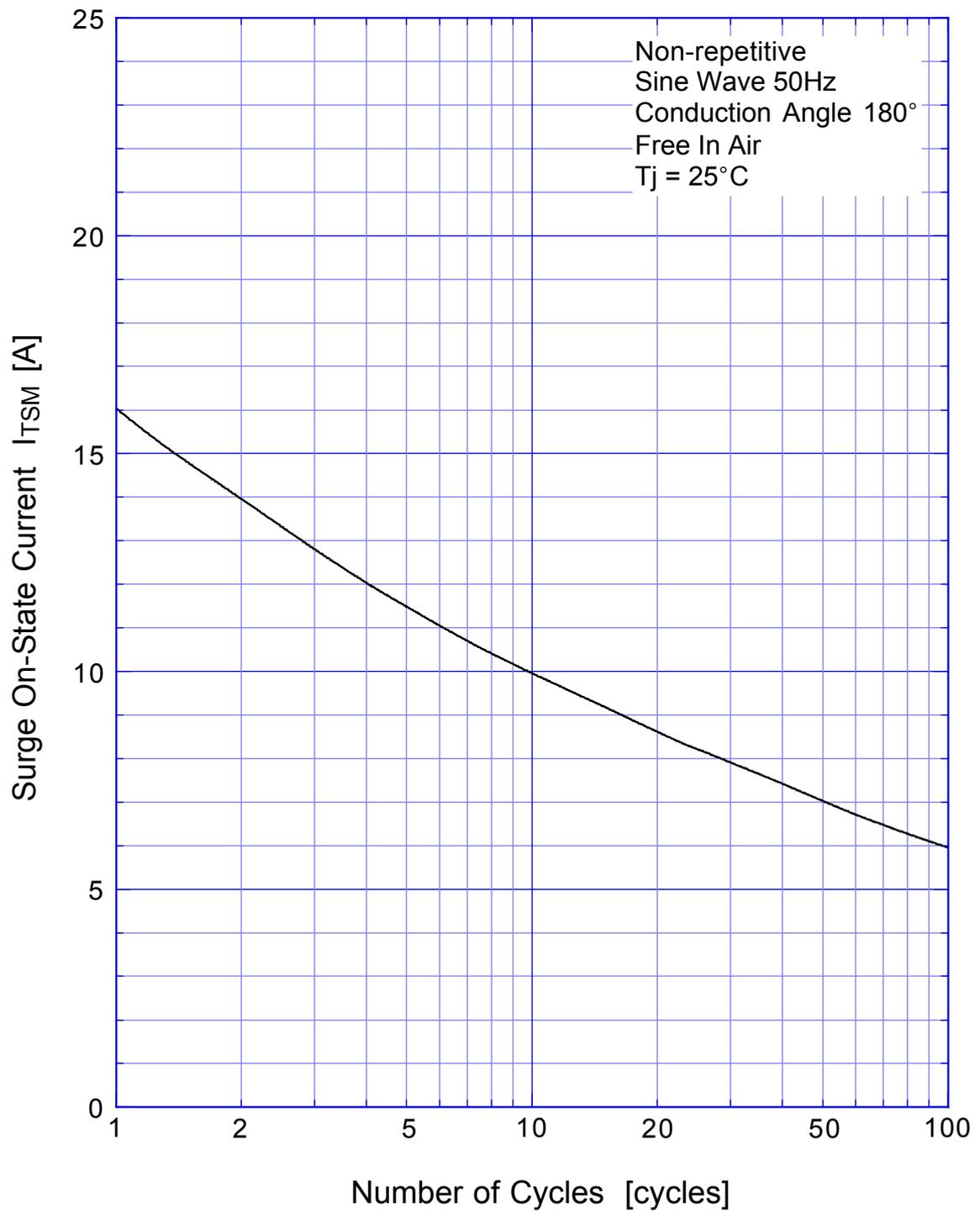
K1V(A)10
K1V(A)11
K1V(A)12 Pulse On-State Current Rating

Peak Pulse On-State Current I_P [A]

1000

di_T/dt limit line

100

$f = 1 \sim 120Hz$

$f = 1kHz$

10

$f = 5kHz$

1

1   2   5   10   20   50   100   200

Pulse Base Width t_0 [μs]

I_P

0

t_0

$1/f$

Current Wave Form
Free in air
Sine Wave
Ta = 25°C
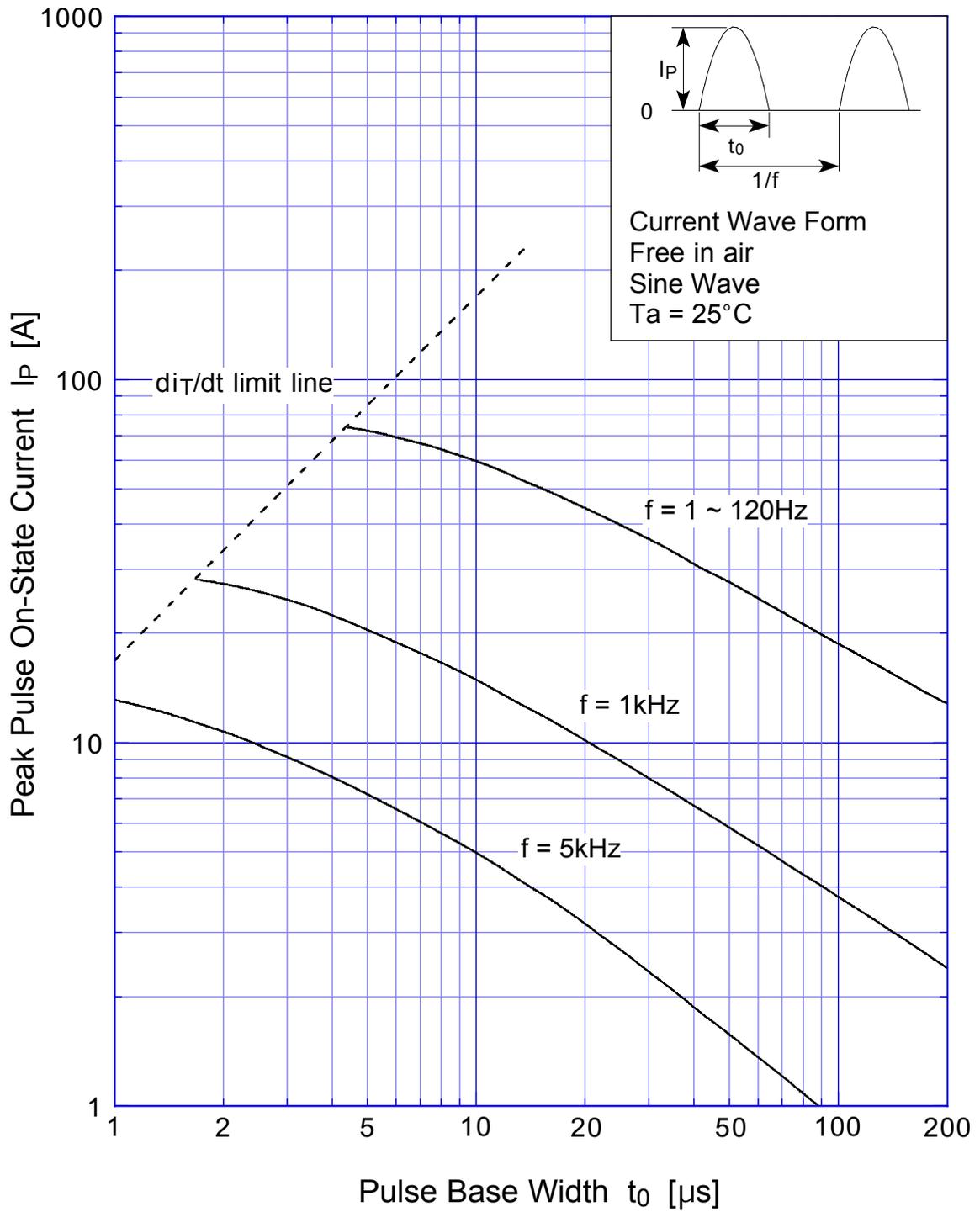
K1V(A)10
K1V(A)11
K1V(A)12   Pulse On-State Current Derating
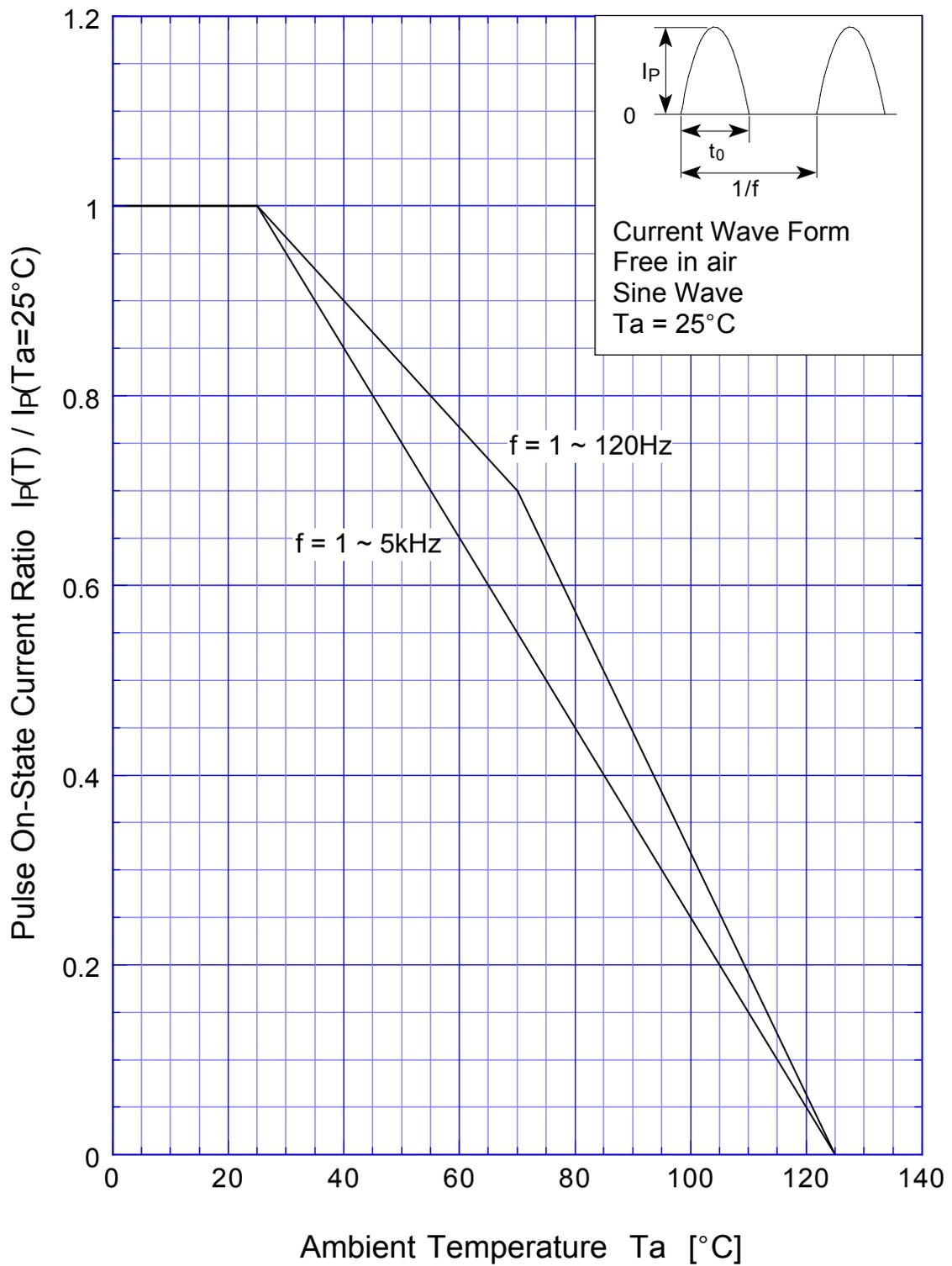
Transient Thermal Resistance

K1V(A)10
K1V(A)11
K1V(A)12

Duration t [s]

Transient Thermal Resistance   ja   jl [°C/W]

ja

jl

Mounted on PCB

20mm

l

Soldering land 3mm
l = 2~15mm
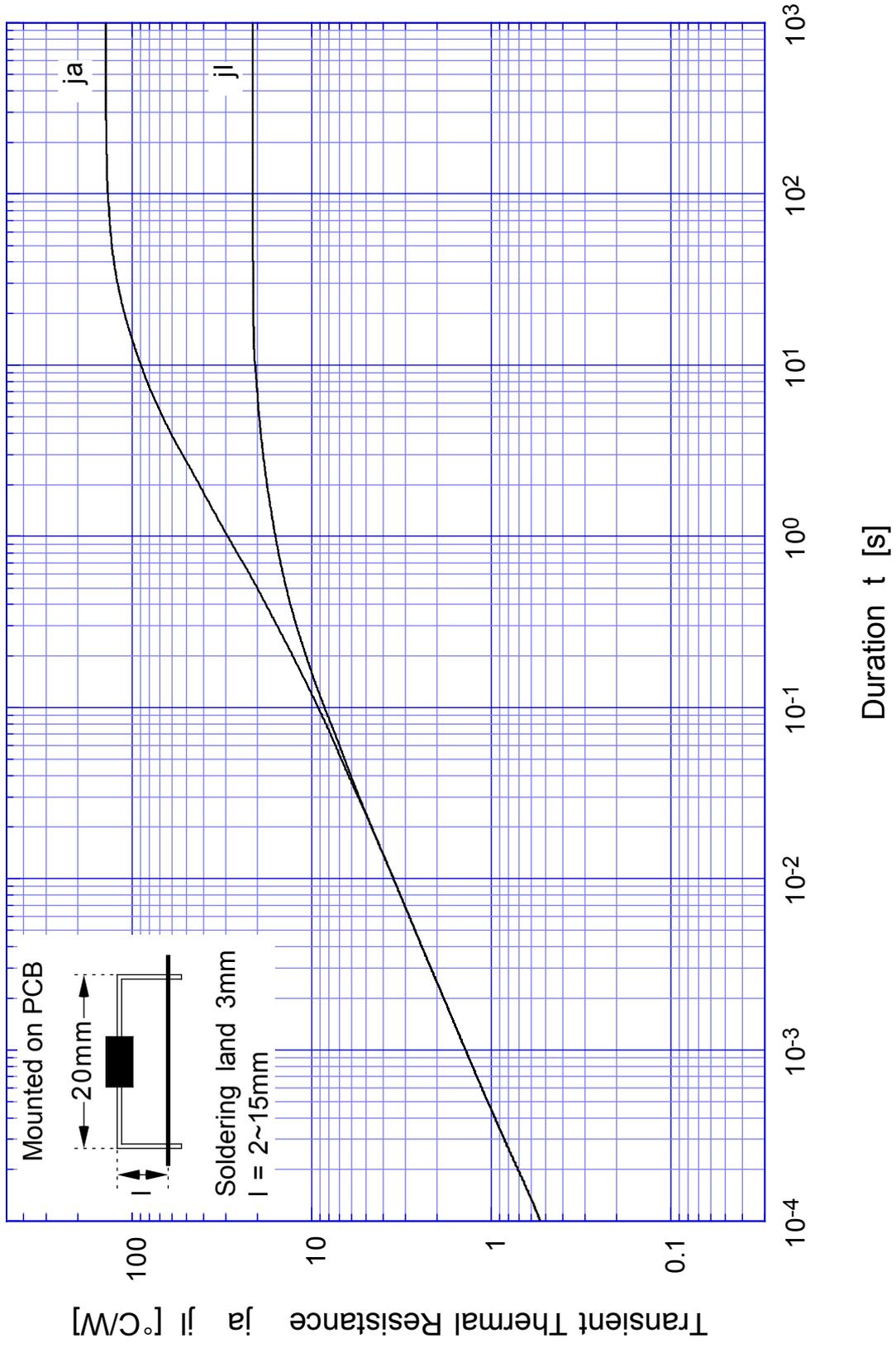
K1V(A)10
K1V(A)11
K1V(A)12 Breakover Voltage – Junction Temperature

Junction Temperature Tj [°C]

Breakover Voltage Ratio $V_{BO}(T) / V_{BO}(Tj=25°C)$