

Panasonic

DB2G40800L1

For rectification

■ Features

- Low forward voltage VF
- Forward current (Average) IF(AV) ≤ 1.0 A rectification is possible
- RoHS compliant
(EU RoHS / MSL:Level 1 compliant)

■ Marking Symbol: D4

■ Packaging

Embossed type (Thermo-compression sealing) : 1 000 pcs / reel (standard)

■ Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Reverse Voltage ^{*1}	VR	-	40	V
Maximum Peak Reverse Voltage ^{*1}	VRM	-	40	V
Average Forward Current ^{*2,3}	IF(AV)	-	1.0	A
Average Forward Current ^{*2,4}	IF(AV)	-	1.0	A
Non-repetitive Peak Surge Forward Current ^{*1,5}	IFSM	-	15	A
Operating Junction Temperature ^{*6}	Tj	-	150	°C
Ambient Temperature	Ta	-40	+150	°C
Storage Temperature	Tstg	-55	+150	°C

Note) *1: Ta = Tj = 25°C

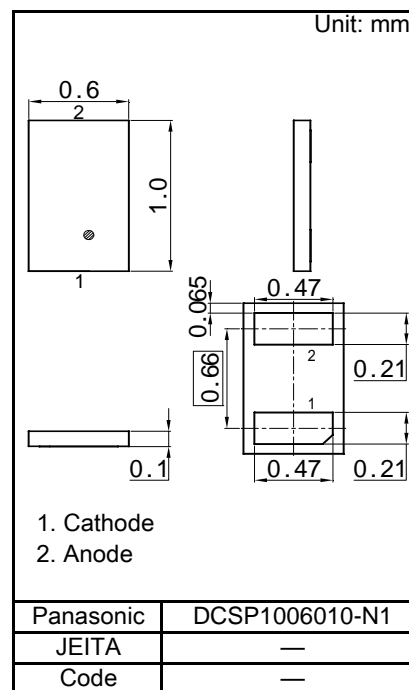
*2: Squire wave : $\sigma = 0.5$

*3: Ta ≤ 95°C, when device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

*4: Tsp ≤ 138°C

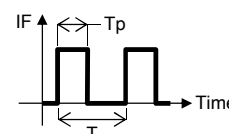
*5: Squire wave : Tp = 5 ms

*6: Power derating is necessary so that Tj < 150°C.



(Waveform definition)

$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$



■ Electrical Characteristics Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward Voltage	VF	IF = 1.0 A	-	0.37	0.46	V
Reverse Current	IR	VR = 40 V	-	400	1200	μA
Terminal Capacitance	Ct	VR = 10 V, f = 1 MHz	-	28	-	pF
Reverse Recovery Time ^{*1}	trr	IF = IR = 100 mA, I _{rr} = 10 mA	-	8.8	-	ns

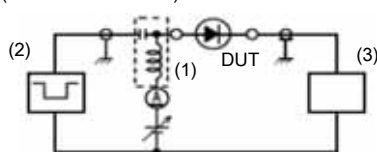
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. This product is sensitive to electric shock (static electricity, etc.).

Due attention must be paid on the charge of a human body and the leakage of current from the operating equipment.

3. *1: Measurement circuit, input pulse, output pulse for Reverse recovery time

(Measurement circuit)

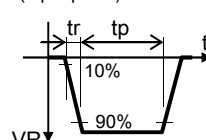


(1) Bias Insertion Unit (N-50BU)

(2) Pulse Generator (PG-10N), RS = 50 Ω

(3) Wave Form Analyzer (SAS-8130), Ri = 50 Ω

(Input pulse)

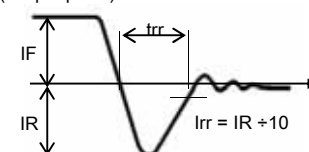


tp = 2 μs

tr = 0.35 ns

σ = 0.05

(Output pulse)



IF = 100 mA

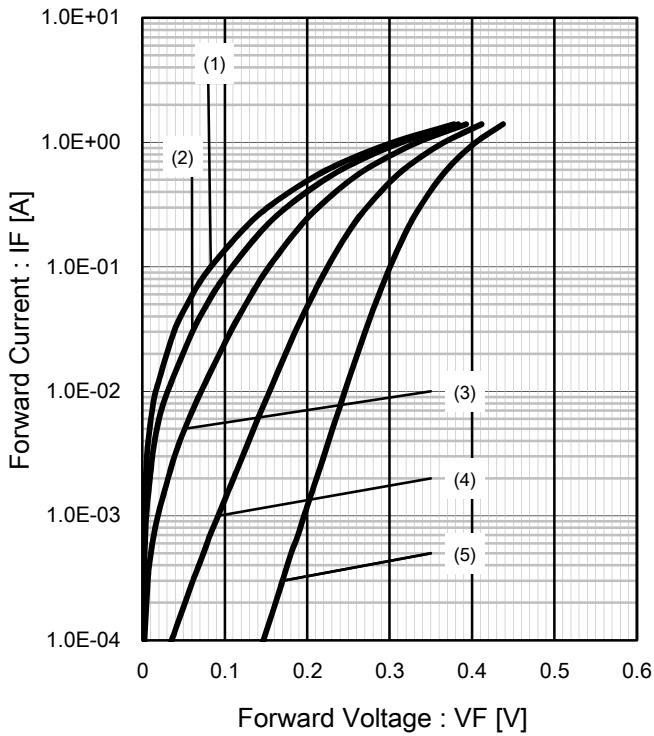
IR = 100 mA

I_{rr} = 10 mA

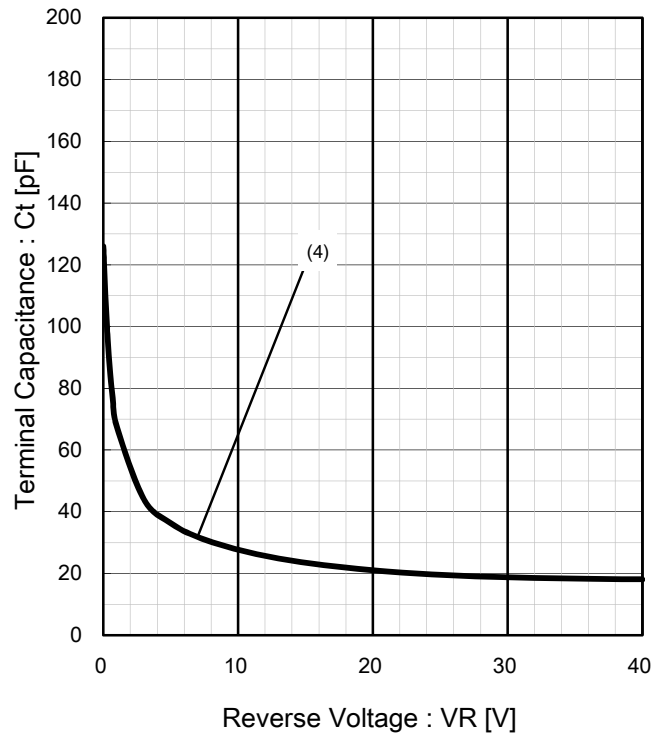


Electrical Characteristics Technical Data (Reference)

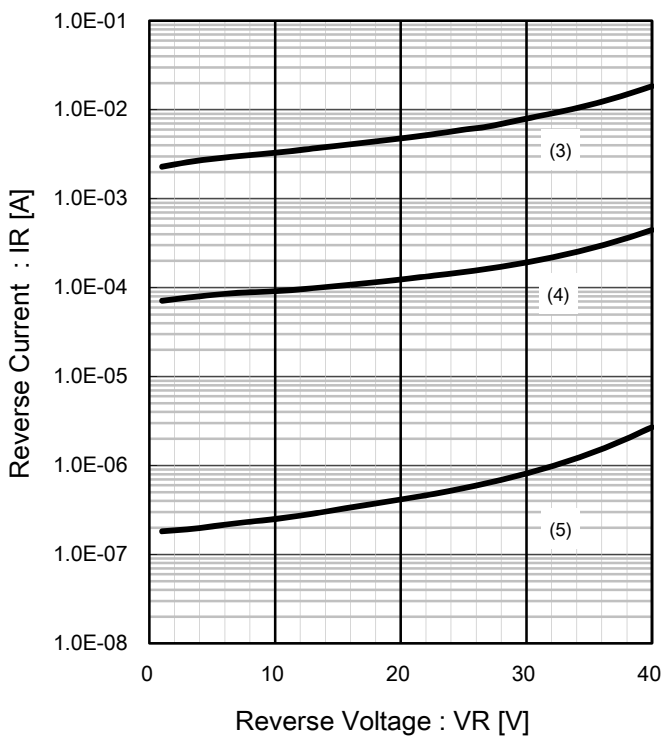
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data



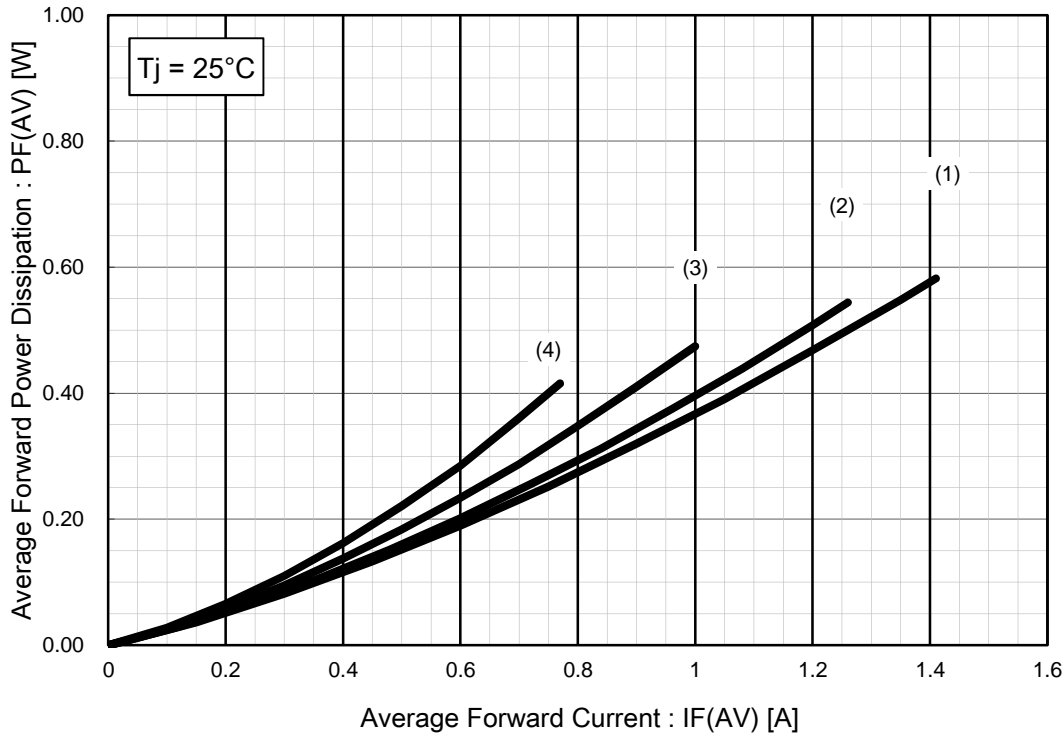
(Graph legends)

(1)	Ta = 150 °C
(2)	Ta = 125 °C
(3)	Ta = 85 °C
(4)	Ta = 25 °C
(5)	Ta = -40 °C

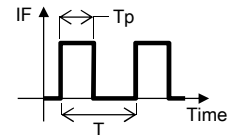


Electrical Characteristics Technical Data (Reference)

PF(AV) - IF(AV) / Typical Data



(Waveform definition)

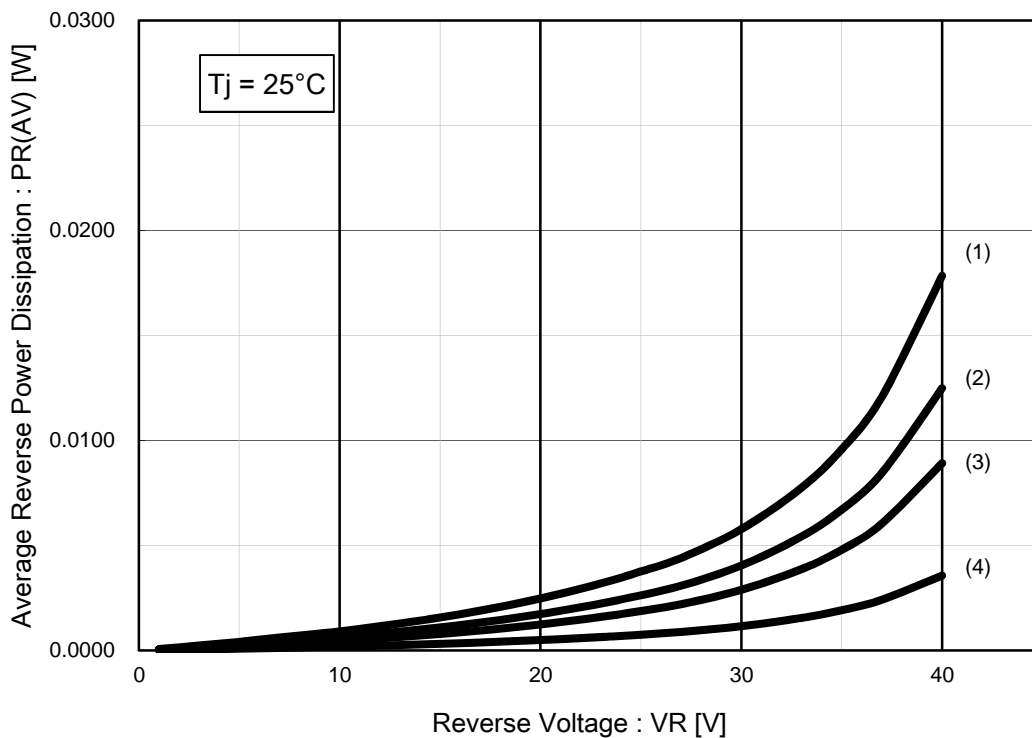


$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

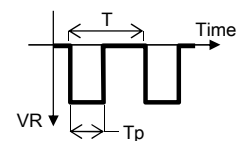
(Graph legends)

(1)	$\sigma = 1.0$
(2)	$\sigma = 0.8$
(3)	$\sigma = 0.5$
(4)	$\sigma = 0.3$

PR(AV) - VR / Typical Data



(Waveform definition)



$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

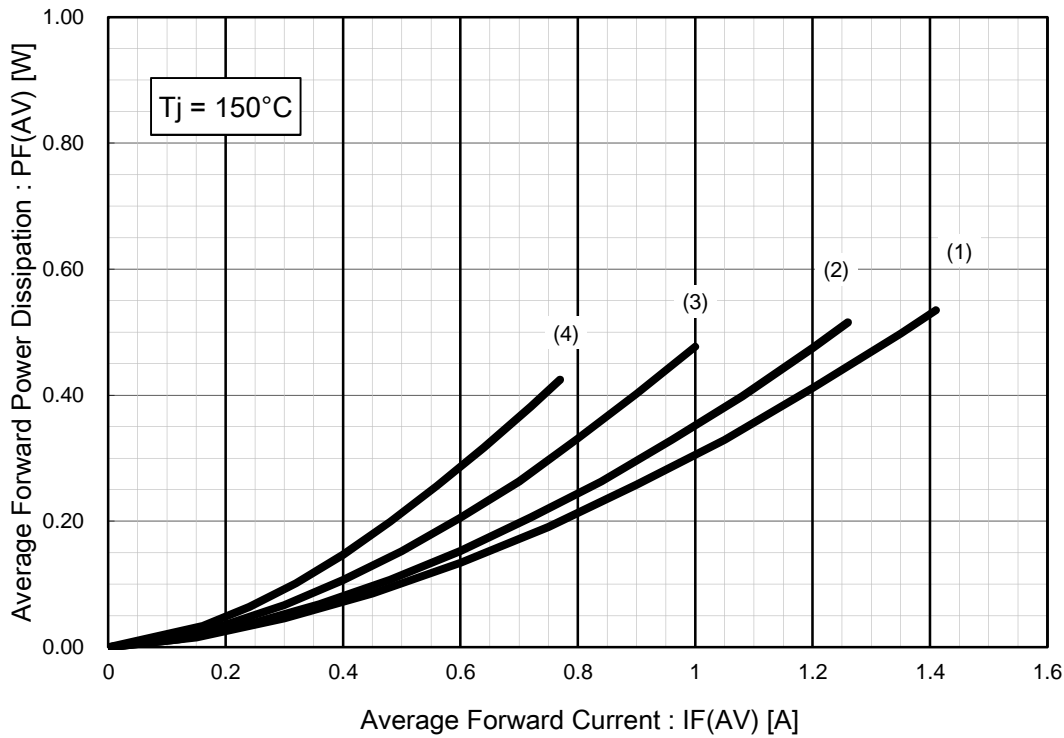
(Graph legends)

(1)	$\sigma = 1.0$
(2)	$\sigma = 0.7$
(3)	$\sigma = 0.5$
(4)	$\sigma = 0.2$

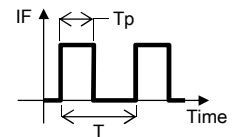


Electrical Characteristics Technical Data (Reference)

PF(AV) - IF(AV) / Typical Data



(Waveform definition)

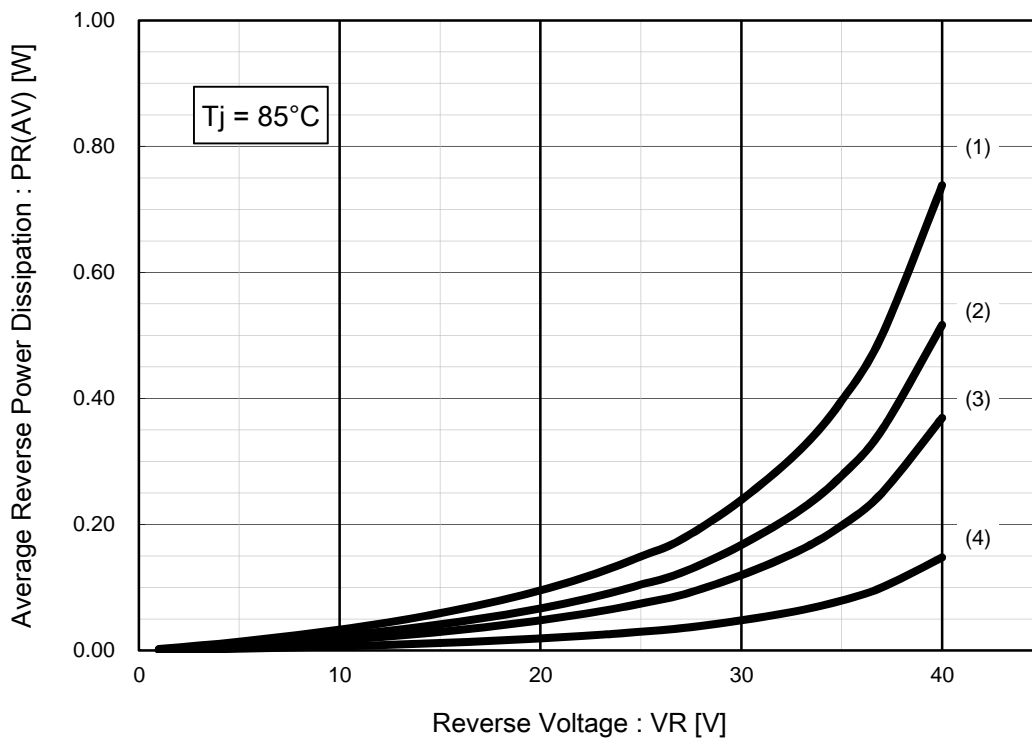


$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

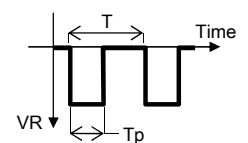
(Graph legends)

(1)	$\sigma = 1.0$
(2)	$\sigma = 0.8$
(3)	$\sigma = 0.5$
(4)	$\sigma = 0.3$

PR(AV) - VR / Typical Data



(Waveform definition)



$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

(Graph legends)

(1)	$\sigma = 1.0$
(2)	$\sigma = 0.7$
(3)	$\sigma = 0.5$
(4)	$\sigma = 0.2$

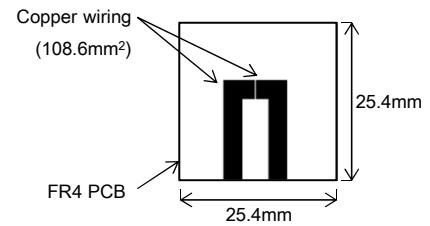
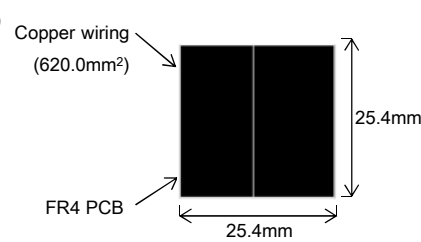


■ Thermal Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal Resistance, Junction to Solder Point	$R_{th(j-sp)}$	Ta = 25°C, in free air	-	20	-	°C/W
Thermal Resistance, Junction to Ambient *1	$R_{th(j-a)}$	Ta = 25°C, in free air	-	92	-	°C/W
Thermal Resistance, Junction to Ambient *2	$R_{th(j-a)}$	Ta = 25°C, in free air	-	170	-	°C/W

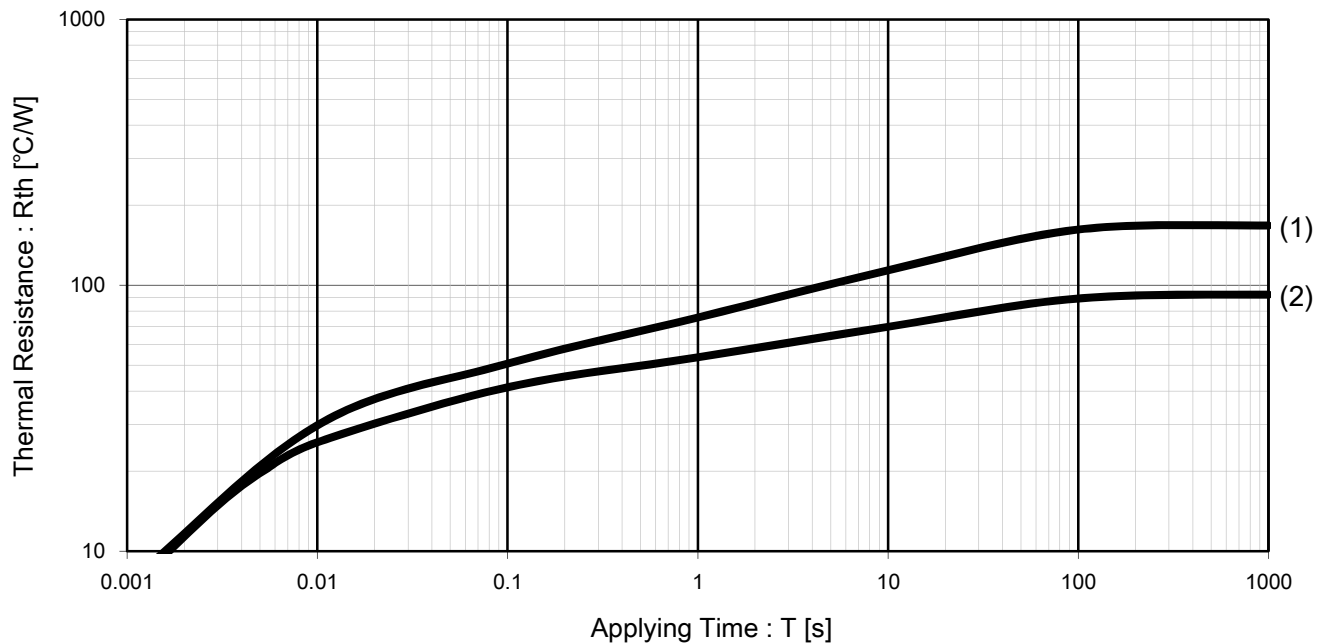
Note) *1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).
 *2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).

(Evaluation board outline)

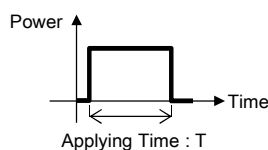


Thermal Characteristics Technical Data (Reference)

$R_{th} - T^{*1}$ / Typical Data



Note) *1: Single pulse measurement
 (Waveform definition)



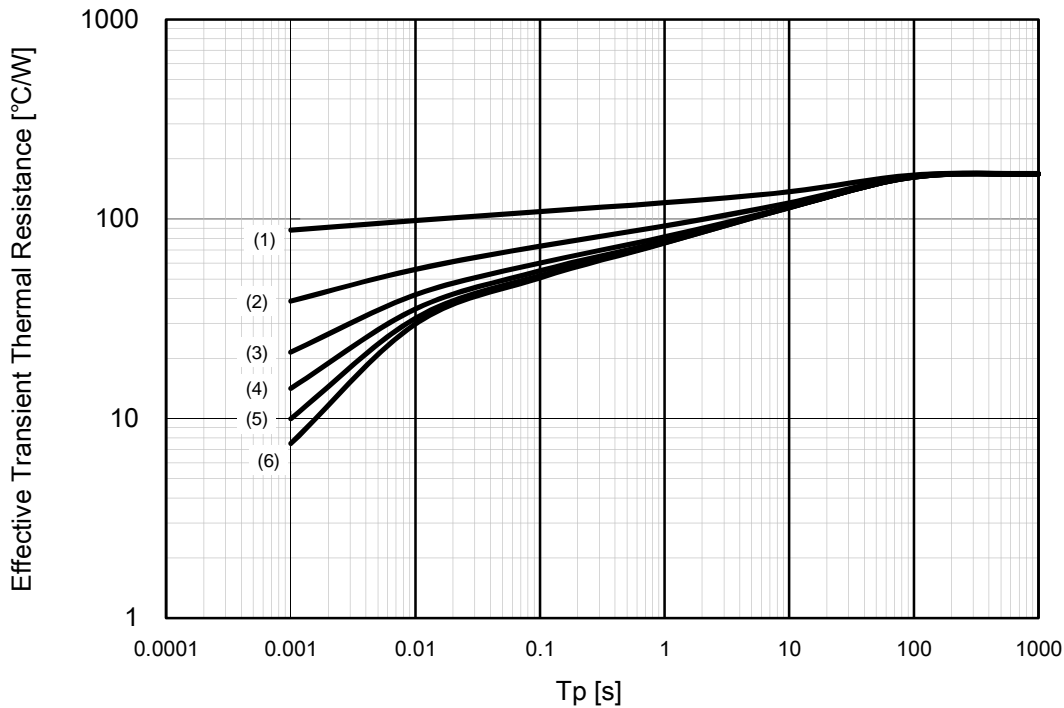
(Graph legends)

(1)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm ² area, 36μm thick).
(2)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm ² area, 36μm thick).

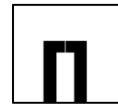


Thermal Characteristics Technical Data (Reference)

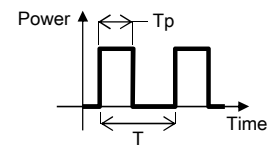
Effective Transient Thermal Resistance - T_p^{*1} / Typical Data



(Evaluation board outline)



(Waveform definition)

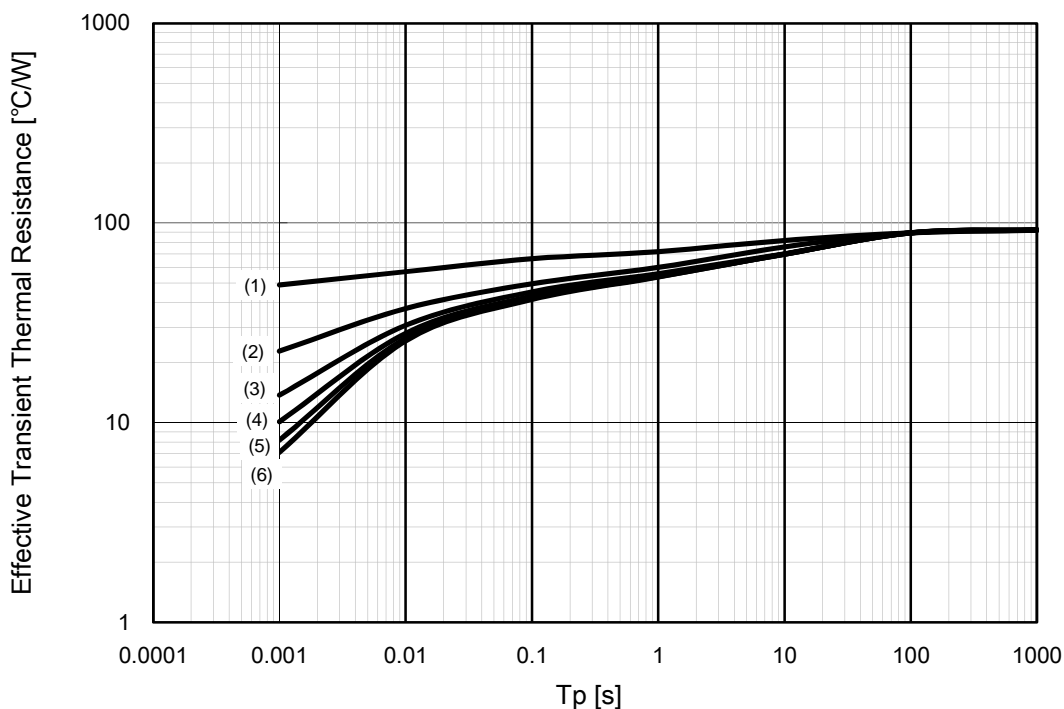


$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

(Graph legends)

(1)	$\sigma = 0.5$
(2)	$\sigma = 0.2$
(3)	$\sigma = 0.1$
(4)	$\sigma = 0.05$
(5)	$\sigma = 0.02$
(6)	$\sigma = 0$

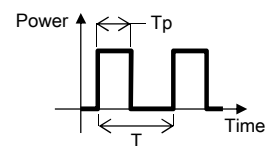
Effective Transient Thermal Resistance - T_p^{*2} / Typical Data



(Evaluation board outline)



(Waveform definition)



$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

(Graph legends)

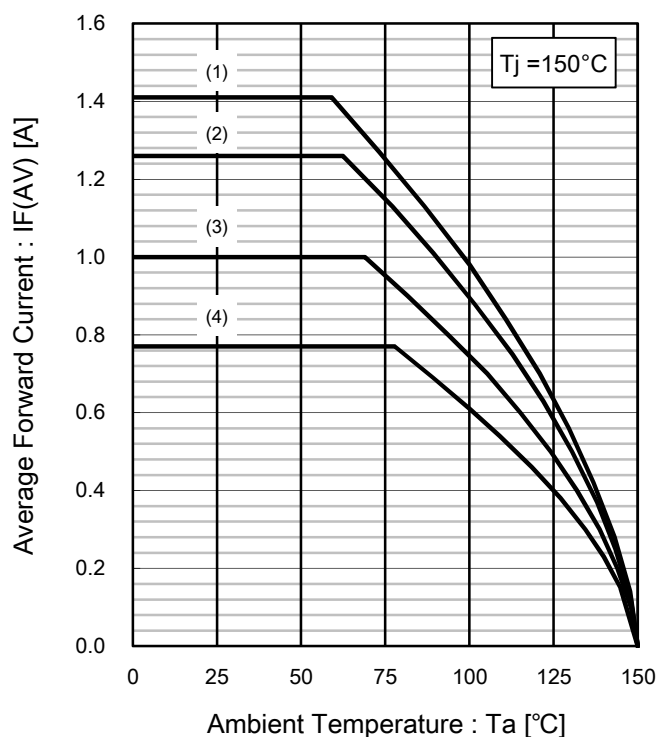
(1)	$\sigma = 0.5$
(2)	$\sigma = 0.2$
(3)	$\sigma = 0.1$
(4)	$\sigma = 0.05$
(5)	$\sigma = 0.02$
(6)	$\sigma = 0$

Note) *1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).
 *2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

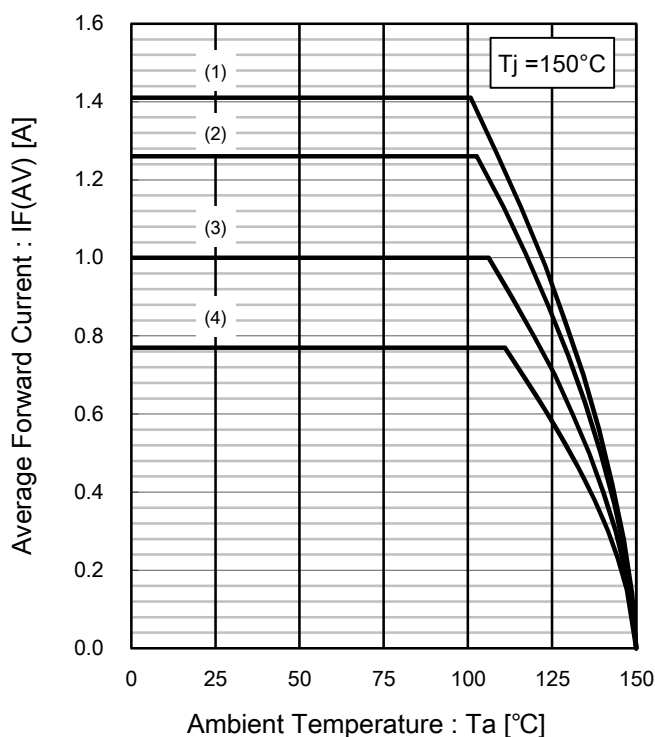


Power Derating Technical Data (Reference)

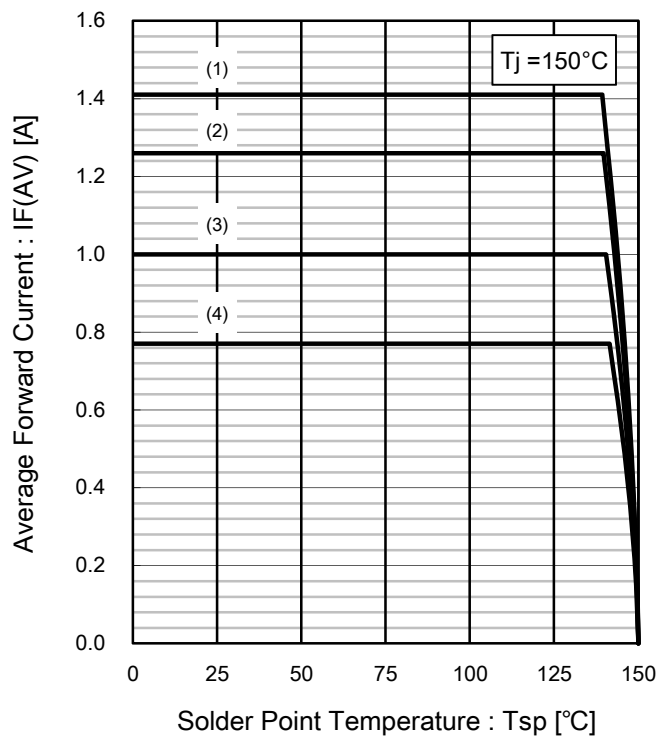
IF(AV) - Ta^{*1} / Typical Data



IF(AV) - Ta^{*2} / Typical Data



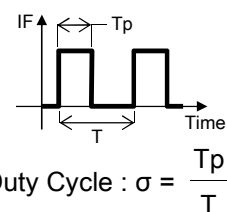
IF(AV) - Tsp / Typical Data



(Graph legends)

(1)	$\sigma = 1.0$
(2)	$\sigma = 0.8$
(3)	$\sigma = 0.5$
(4)	$\sigma = 0.3$

(Waveform definition)



Note)

*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).

(Evaluation board outline)



*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

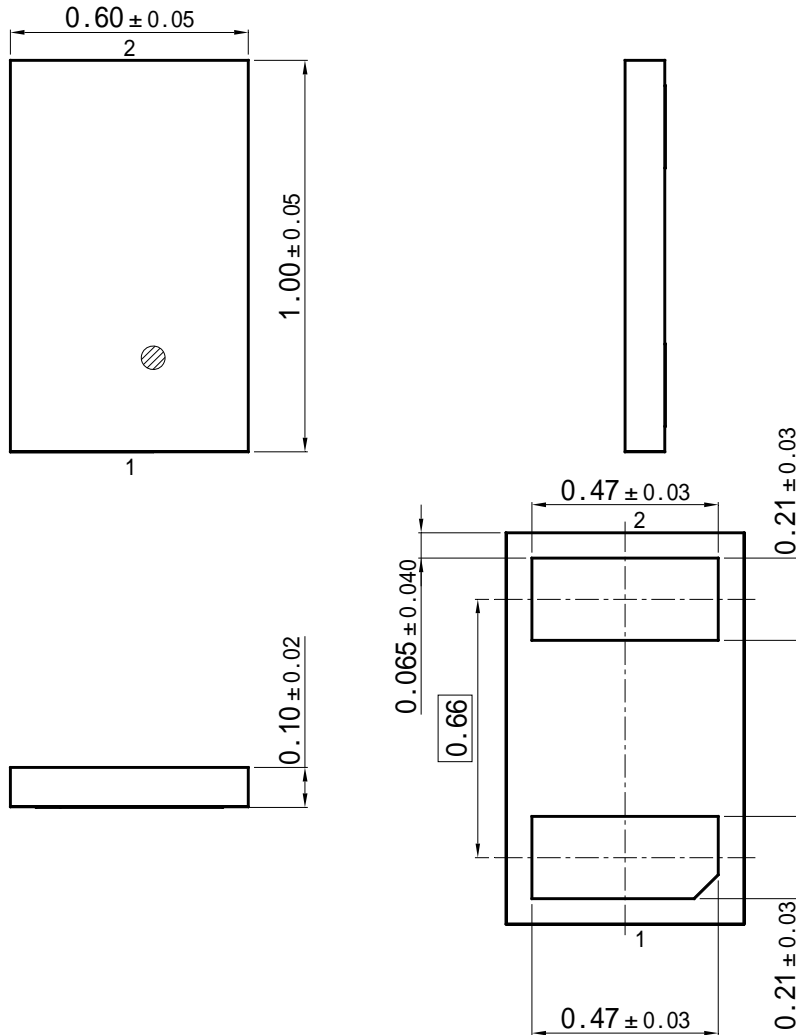
(Evaluation board outline)





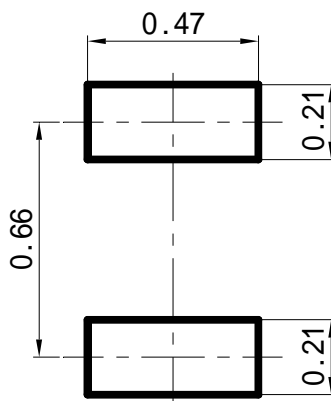
DCSP1006010-N1

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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