

# Panasonic

## DB2L32400L1

For rectification

### ■ Features

- Average Forward Current  $I_F(AV) \leq 0.5$  A rectification is possible
- Low Forward Voltage
- High power capability due to Chip Size Package  
RoHS compliant (EU RoHS / MSL:Level 1 compliant)

### ■ Marking Symbol: A3

### ■ Packaging

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

### ■ Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Reverse Voltage <sup>*1</sup>	VR	-	30	V
Maximum Peak Reverse Voltage <sup>*1</sup>	VRM	-	30	V
Average Forward Current <sup>*2,3</sup>	$I_F(AV)$	-	0.5	A
Average Forward Current <sup>*2,4</sup>	$I_F(AV)$	-	0.5	A
Non-repetitive Peak Surge Forward Current <sup>*1,5</sup>	IFSM	-	5	A
Operating Junction Temperature <sup>*6</sup>	Tj	-	150	°C
Ambient Temperature	Ta	-40	+150	°C
Storage Temperature	Tstg	-55	+150	°C

Note) \*1: Ta = Tj = 25°C

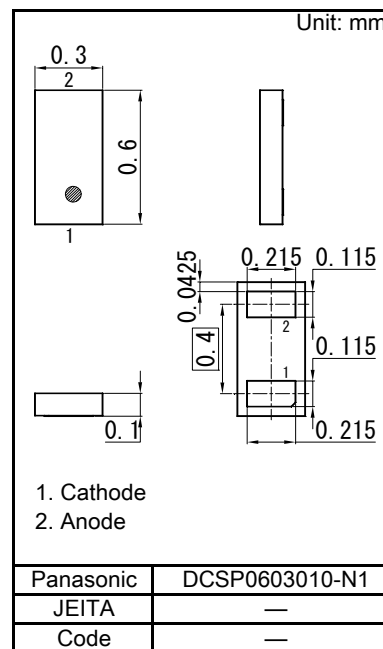
\*2: Squire wave :  $\sigma = 0.5$

\*3: Ta  $\leq 82^\circ\text{C}$ , when device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm<sup>2</sup> area, 36 $\mu\text{m}$  thick).

\*4: Tsp  $\leq 138^\circ\text{C}$

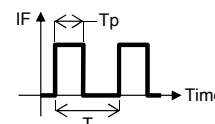
\*5: Squire wave : Tp = 5 ms

\*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 = 0.5 A	-	0.4	0.49	V
Reverse Current	IR	VR = 30 V	-	50	225	$\mu\text{A}$
Terminal Capacitance	Ct	VR = 10 V, f = 1 MHz	-	10	-	pF
Reverse Recovery Time <sup>*1</sup>	trr	IF = IR = 100 mA, Irr = 10 mA	-	3.2	-	ns

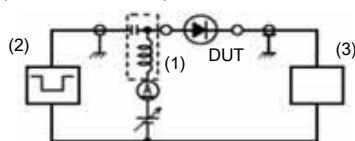
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

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)

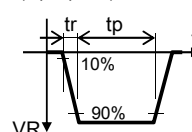


(1) Bias Insertion Unit (N-50BU)

(2) Pulse Generator (PG-10N), RS = 50  $\Omega$

(3) Wave Form Analyzer (SAS-8130), Ri = 50  $\Omega$

(Input pulse)

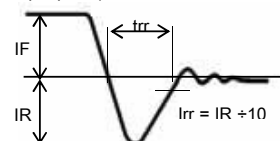


tp = 2  $\mu\text{s}$

tr = 0.35 ns

$\sigma = 0.05$

(Output pulse)



IF = 100 mA

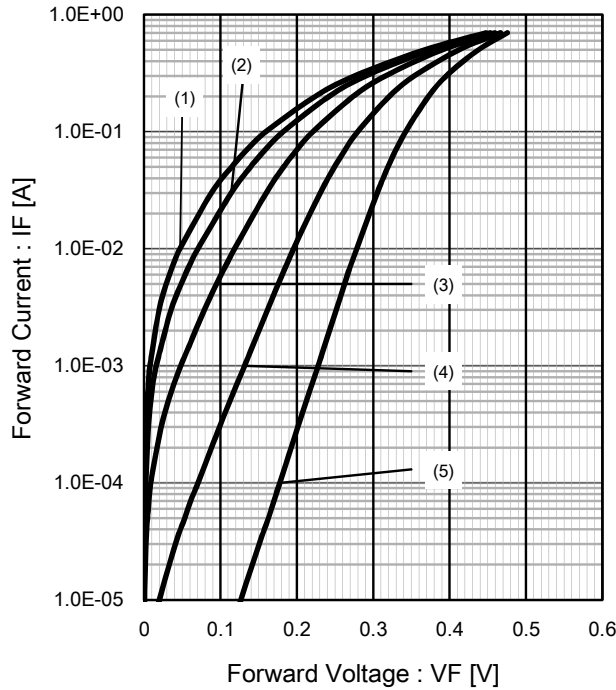
IR = 100 mA

Irr = 10 mA

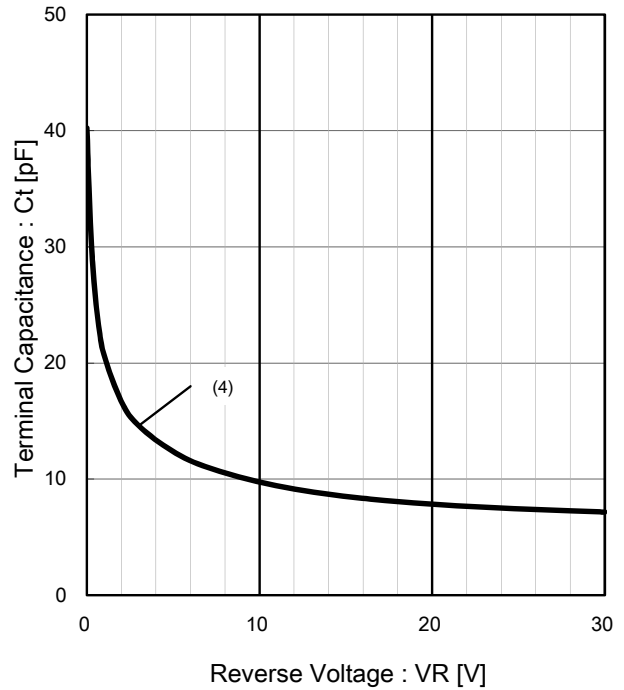


Electrical Characteristics Technical Data (Reference)

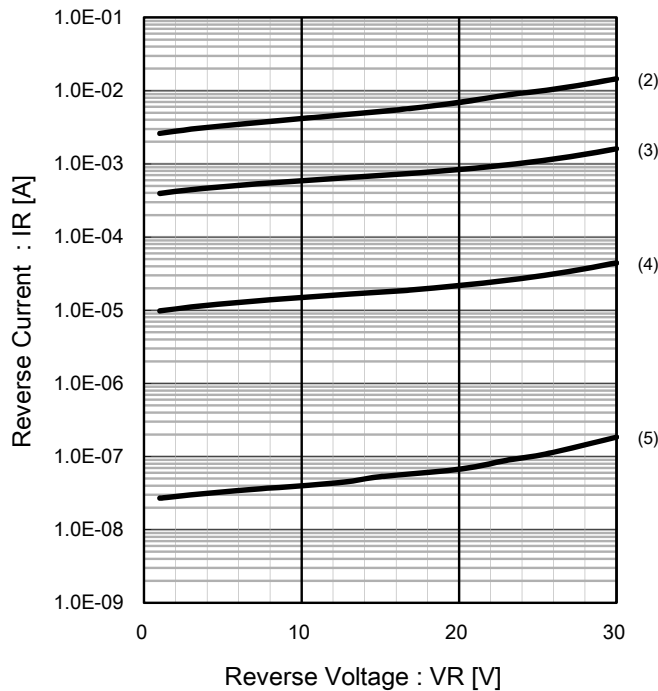
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data



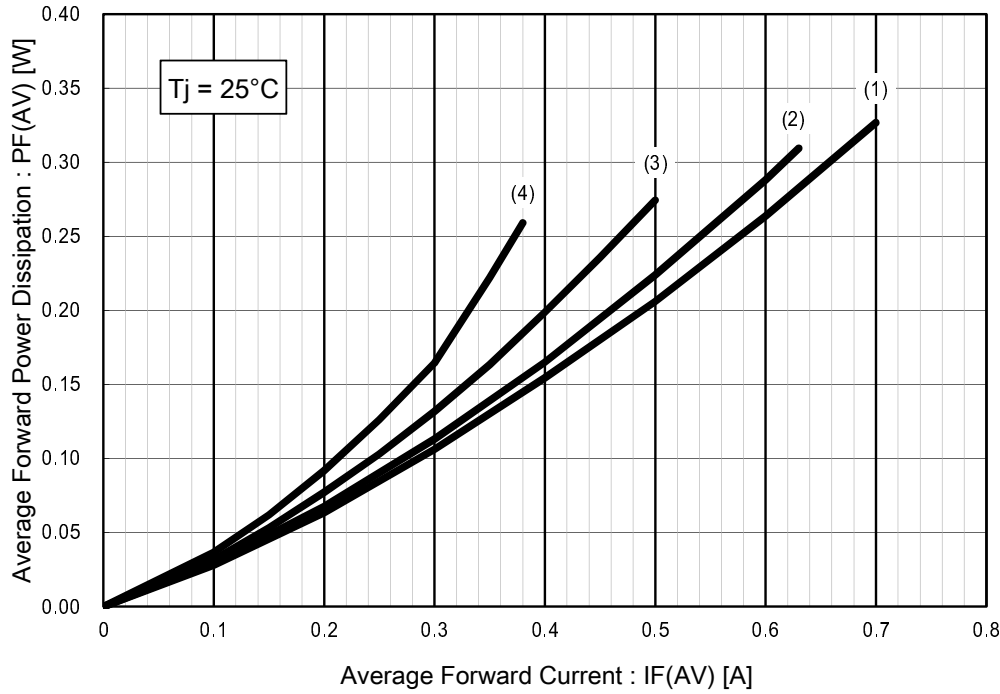
(Graph legends)

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

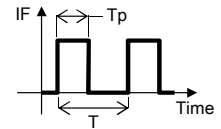


Electrical Characteristics Technical Data (Reference)

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



(Waveform definition)

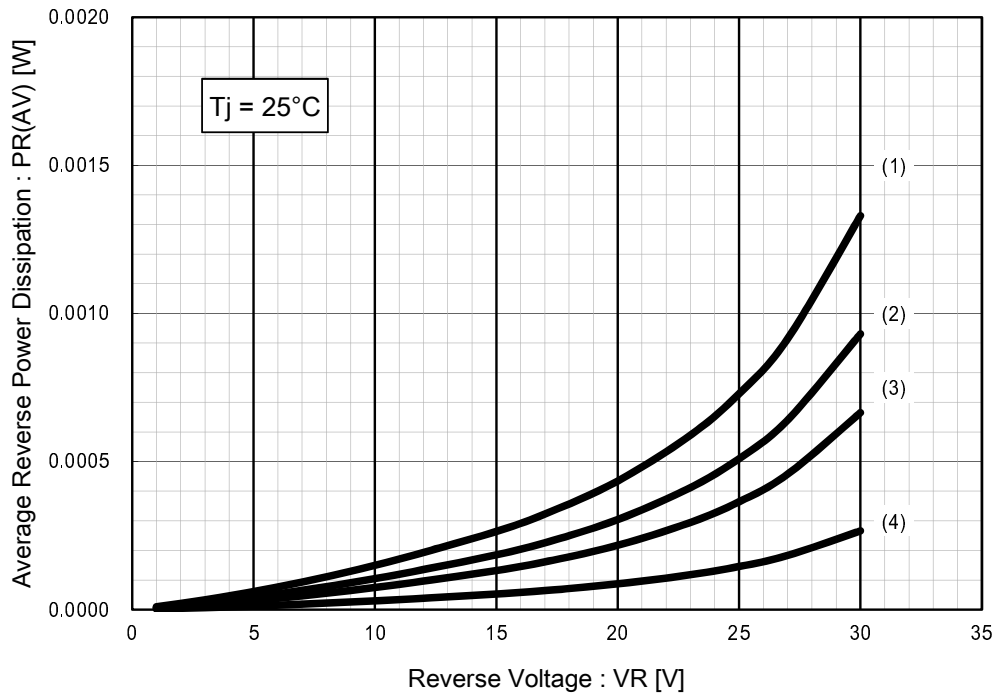


$$\text{Duty Cycle} : \sigma = \frac{T_p}{T}$$

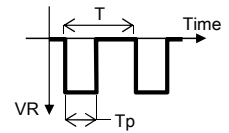
(Graph legends)

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

PR(AV) - VR / Typical Data



(Waveform definition)



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

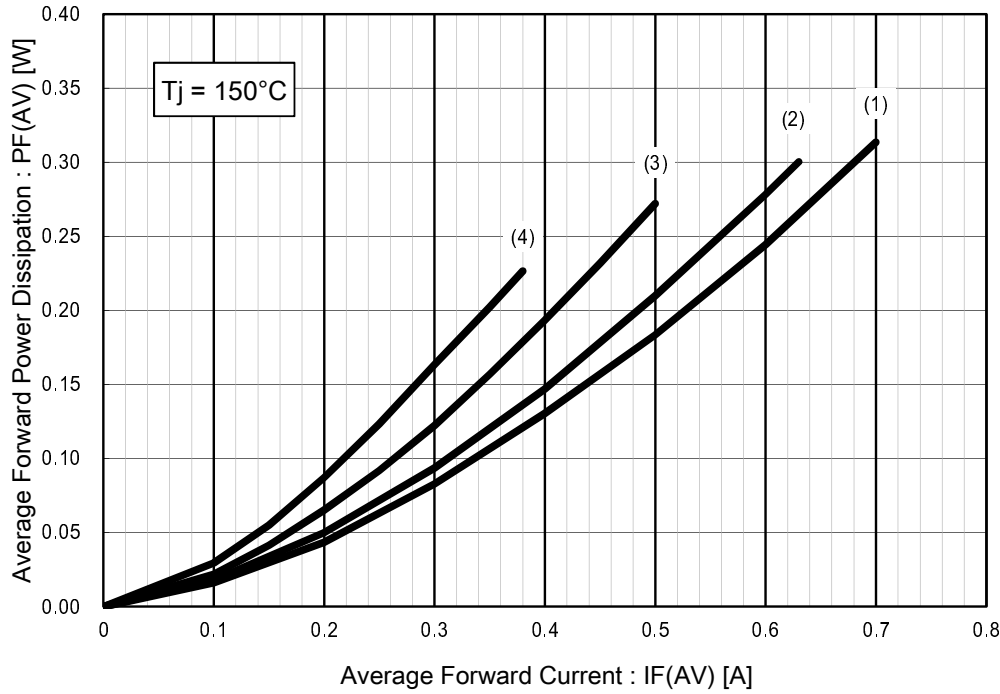
(Graph legends)

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

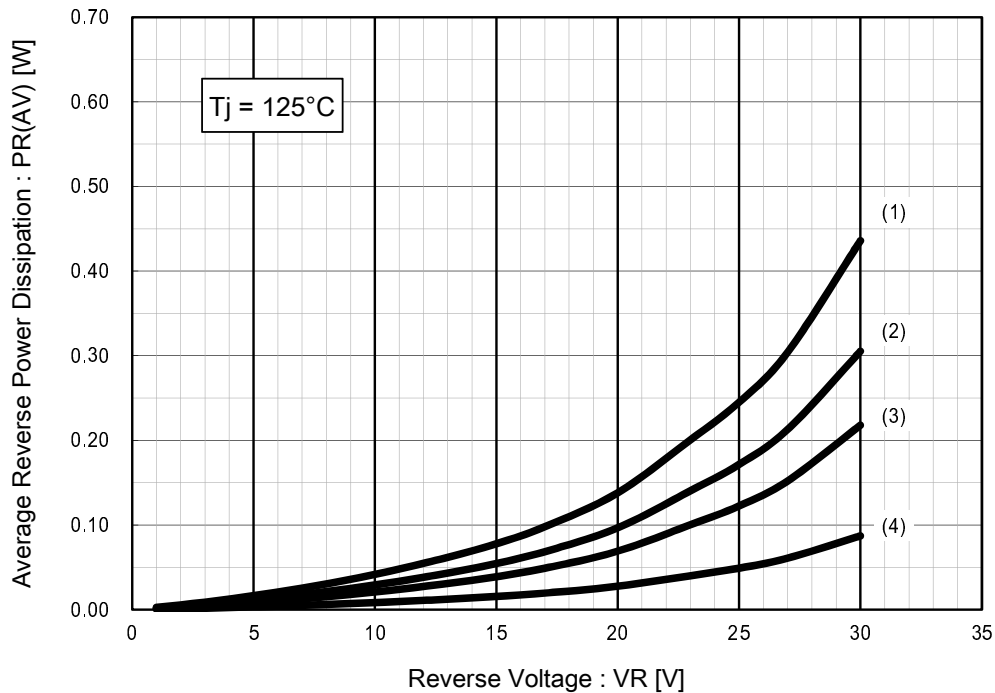


Electrical Characteristics Technical Data (Reference)

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



PR(AV) - VR / Typical Data

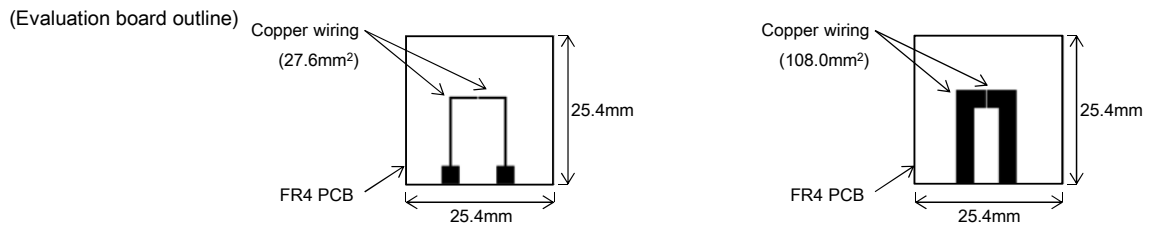




■ Thermal Characteristics

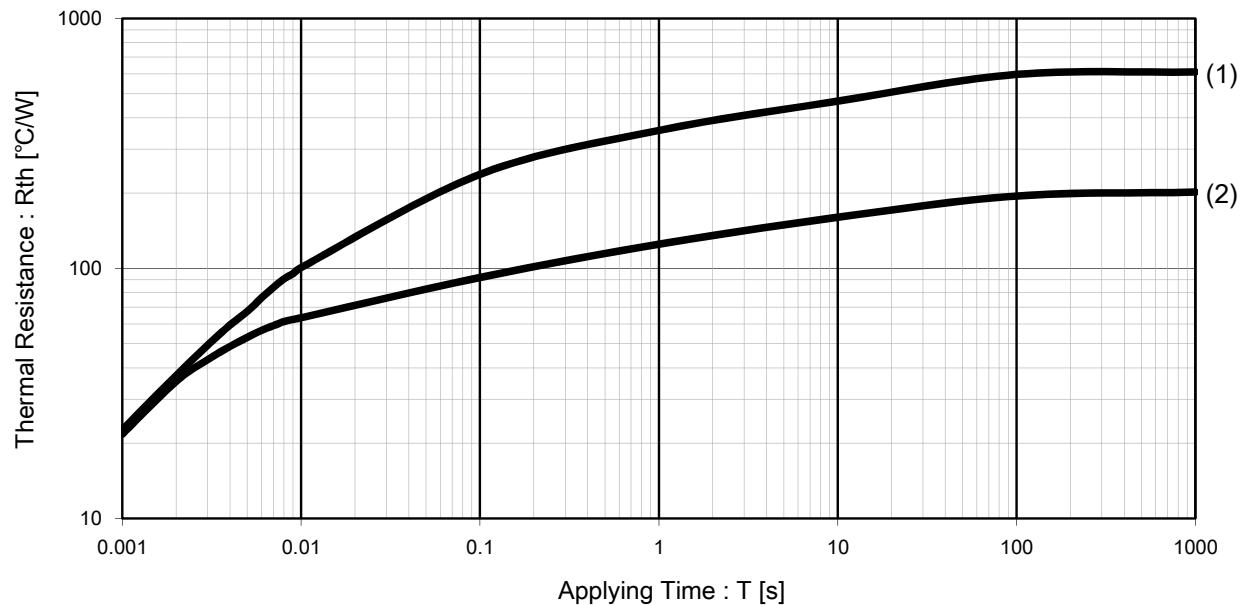
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal Resistance, Junction to Solder Point	$R_{th(j-sp)}$	Ta = 25°C, in free air	-	35	-	°C/W
Thermal Resistance, Junction to Ambient <sup>*1</sup>	$R_{th(j-a)}$	Ta = 25°C, in free air	-	610	-	°C/W
Thermal Resistance, Junction to Ambient <sup>*2</sup>	$R_{th(j-a)}$	Ta = 25°C, in free air	-	202	-	°C/W

Note) \*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm<sup>2</sup> area, 36μm thick).  
\*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm<sup>2</sup> area, 36μm thick).

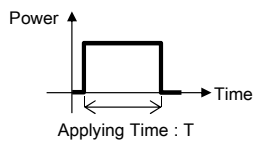


Thermal Characteristics Technical Data (Reference)

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



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



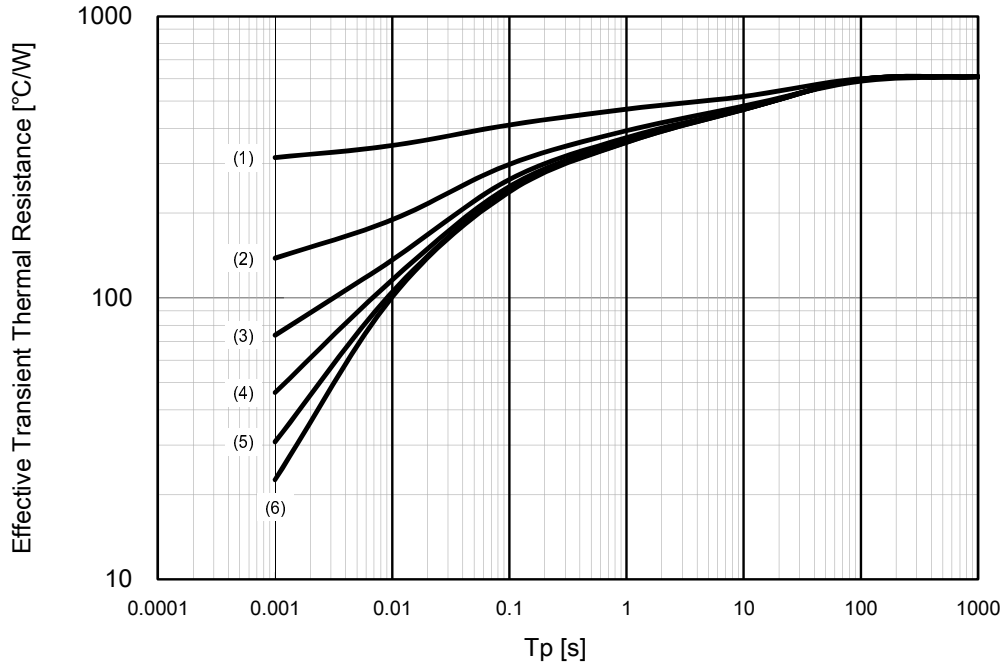
(Graph legends)

(1)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm <sup>2</sup> area, 36μm thick).
(2)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm <sup>2</sup> area, 36μm thick).

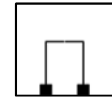


**Thermal Characteristics Technical Data (Reference)**

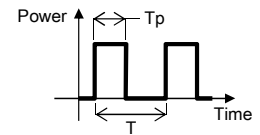
Effective Transient Thermal Resistance -  $T_p^{*1}$  / Typical Data



(Evaluation board outline)



(Waveform definition)

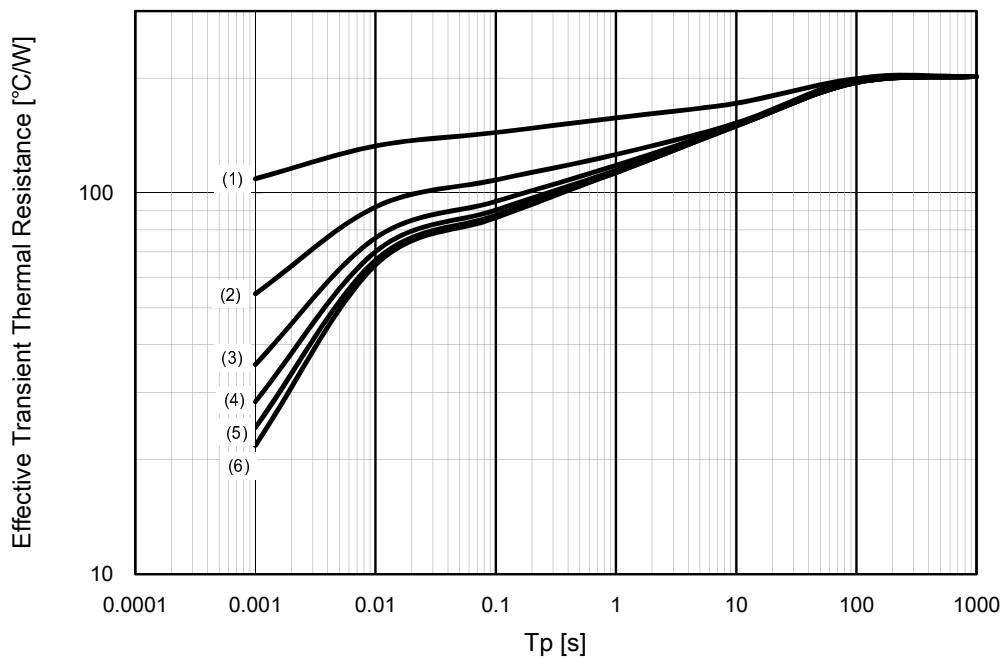


$$\text{Duty Cycle} : \sigma = \frac{T_p}{T}$$

(Graph legends)

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

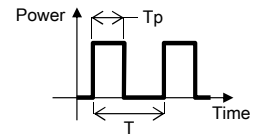
Effective Transient Thermal Resistance -  $T_p^{*2}$  / Typical Data



(Evaluation board outline)



(Waveform definition)



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

(Graph legends)

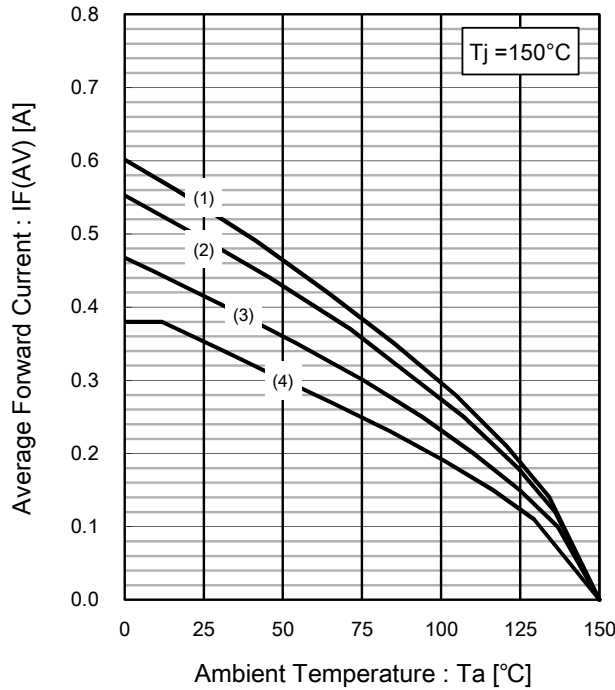
(1)	$\sigma = 0.5$
(2)	$\sigma = 0.2$
(3)	$\sigma = 0.1$
(4)	$\sigma = 0.05$
(5)	$\sigma = 0.02$
(6)	$\sigma = 0$

Note) \*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm<sup>2</sup> area, 36μm thick).  
 \*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm<sup>2</sup> area, 36μm thick).

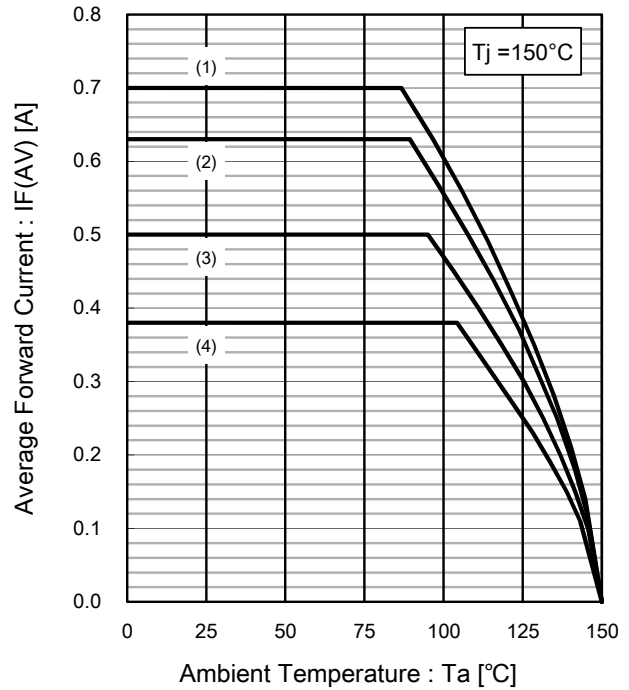


Power Derating Technical Data (Reference)

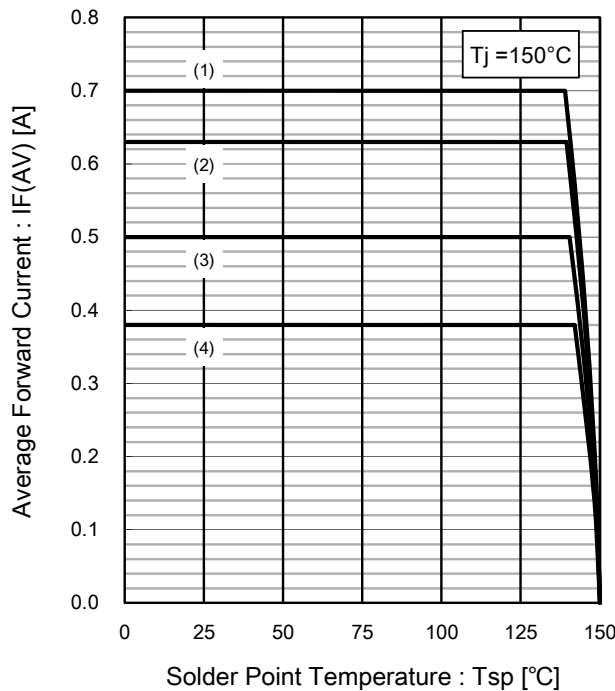
IF(AV) - Ta<sup>\*1</sup> / Typical Data



IF(AV) - Ta<sup>\*2</sup> / Typical Data



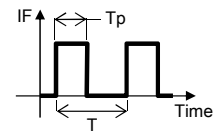
IF(AV) - Tsp / Typical Data



(Graph legends)

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

(Waveform definition)

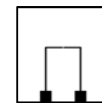


$$\text{Duty Cycle} : \sigma = \frac{T_p}{T}$$

Note)

\*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm<sup>2</sup> area, 36μm thick).

(Evaluation board outline)



\*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm<sup>2</sup> area, 36μm thick).

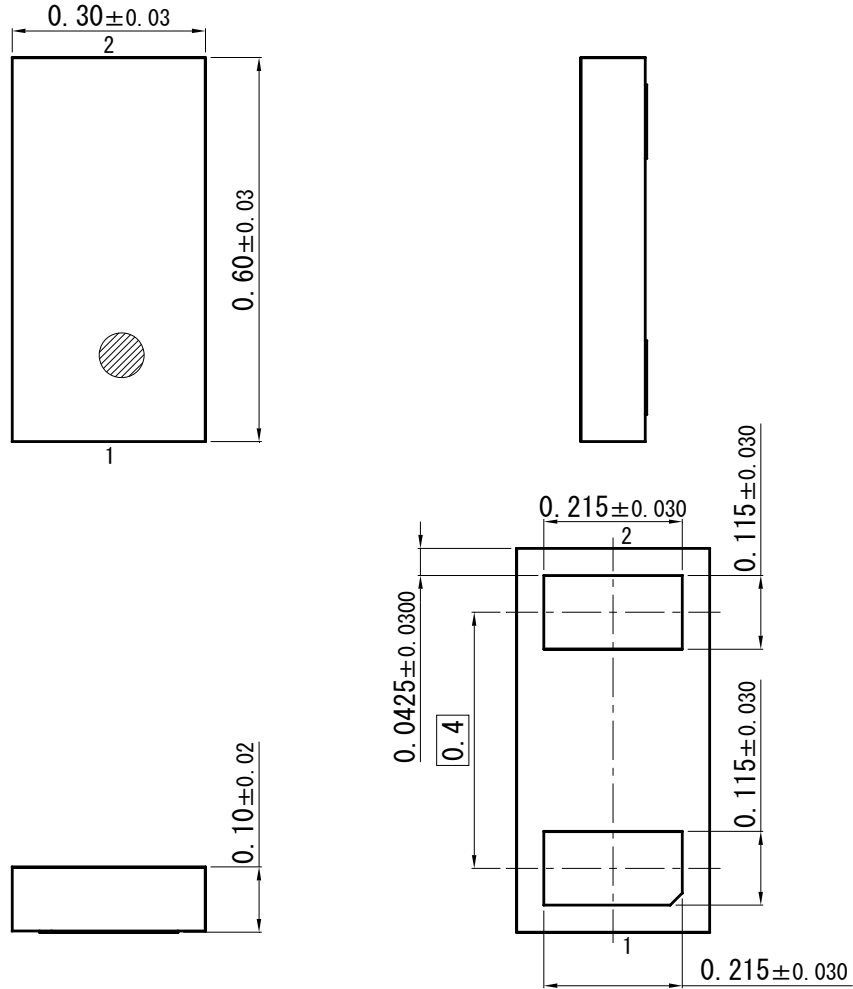
(Evaluation board outline)



# Panasonic

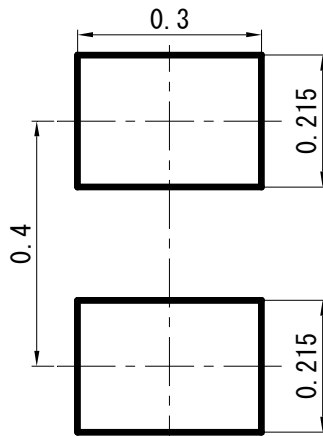
## DCSP0603010-N1

Unit: mm



■ Land Pattern (Reference)

Unit: mm



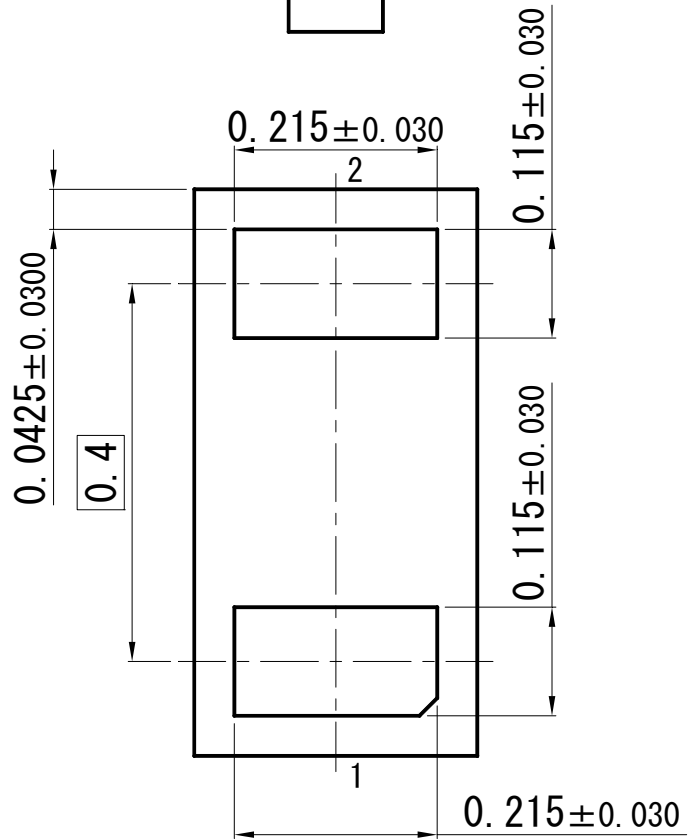
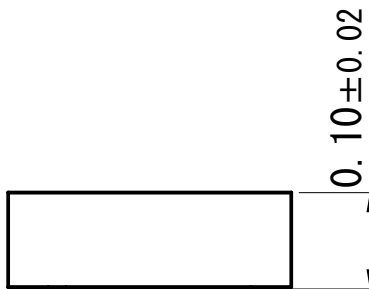
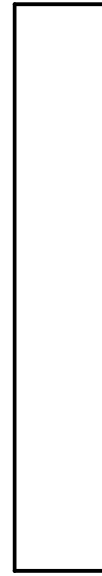
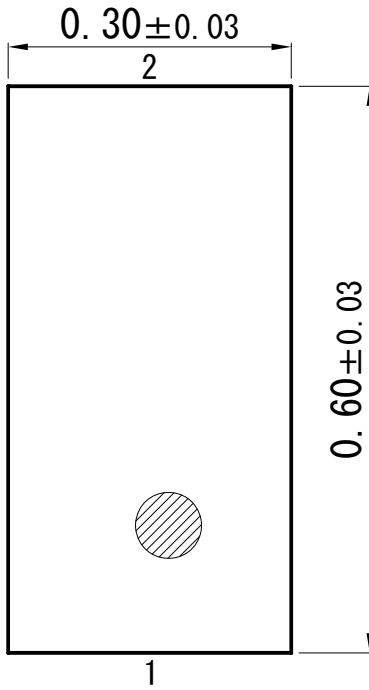


# Panasonic

## 1. Outline Drawing

Unit:mm

Package Code : DCSP0603010-N1



terminal : Ni/Au Plating