Schottky Barrier Diode

Panasonic

DB2L33500L1

DB2L33500L1

For rectification

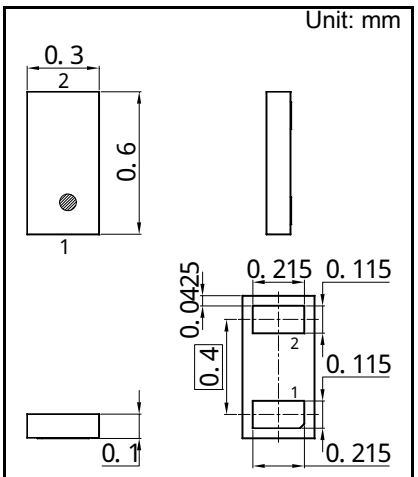
■ Features

- Average Forward Current IF(AV) ≦ 0.1 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: C6

■ Packaging

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



Panasonic	DCSP0603010-N1
JEITA	—
Code	—

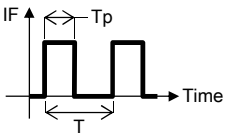
■ Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Reverse Voltage *1	VR	-	30	V
Maximum Peak Reverse Voltage *1	VRM	-	30	V
Average Forward Current *2,3	IF(AV)	-	0.1	A
Average Forward Current *2,4	IF(AV)	-	0.1	A
Non-repetitive Peak Surge Forward Current *1,5	IFSM	-	3	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: Squre wave : σ = 0.5
*3: Ta ≦ 123°C, when device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm^2 area, 36μm thick).
*4: Tsp ≦ 148°C
*5: Squre wave : Tp = 5 ms
*6: Power derating is necessary so that Tj < 150°C.

(Waveform definition)

Duty Cycle : $\sigma = \frac{Tp}{T}$

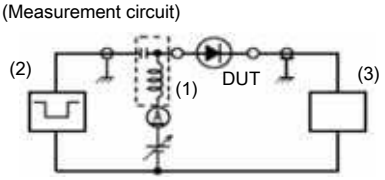


■ Electrical Characteristics Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward Voltage	VF	IF = 0.1 A	-	0.35	0.41	V
Reverse Current	IR	VR = 30 V	-	15	70	μA
Terminal Capacitance	Ct	VR = 10 V, f = 1 MHz	-	4.4	-	pF
Reverse Recovery Time *1	trr	IF = IR = 100 mA, Irr = 10 mA	-	1.6	-	ns

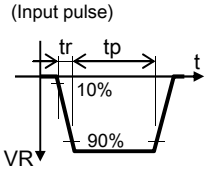
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.
2. This product is sensitive to electric shock (static electricity, etc.).
Due attention must be paid on the charge of a human body and the leakage of current from the operating equipment.
3. *1: Measurement circuit, input pulse, output pulse for Reverse recovery time

(Measurement circuit)



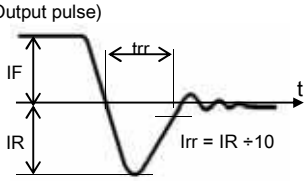
(1) Bias Insertion Unit (N-50BU)
(2) Pulse Generator (PG-10N), RS = 50 Ω
(3) Wave Form Analyzer (SAS-8130), Ri = 50 Ω

(Input pulse)



tp = 2 μs
tr = 0.35 ns
σ = 0.05

(Output pulse)



IF = 100 mA
IR = 100 mA
Irr = 10 mA

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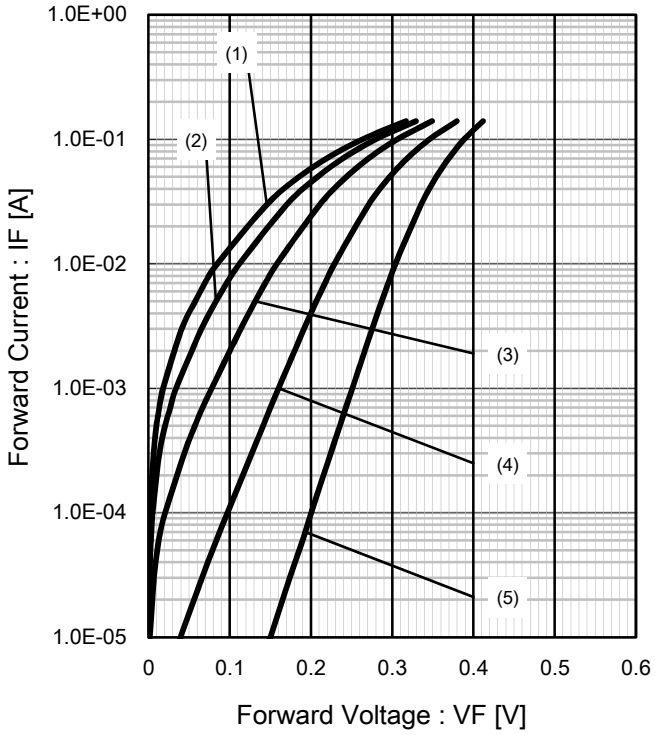
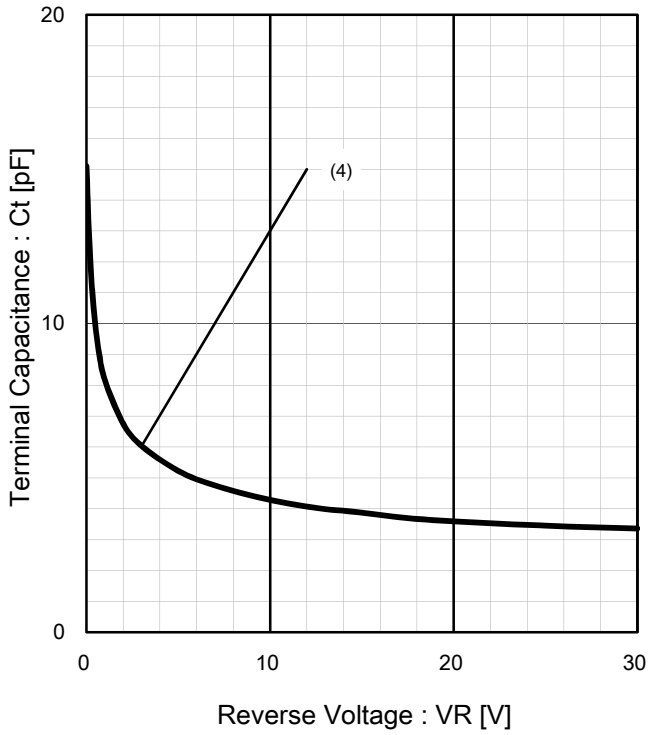
Electrical Characteristics Technical Data (Reference)

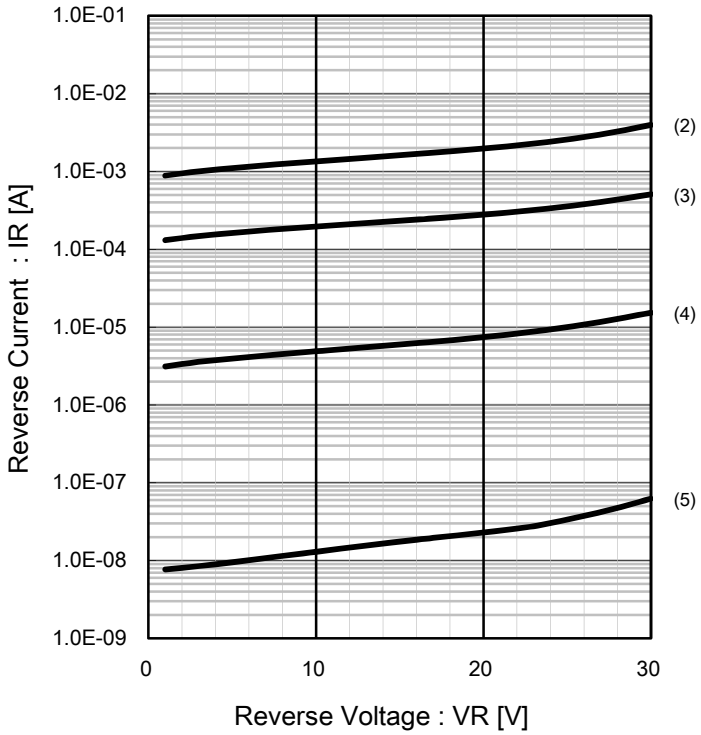
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data



(Graph legends)

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

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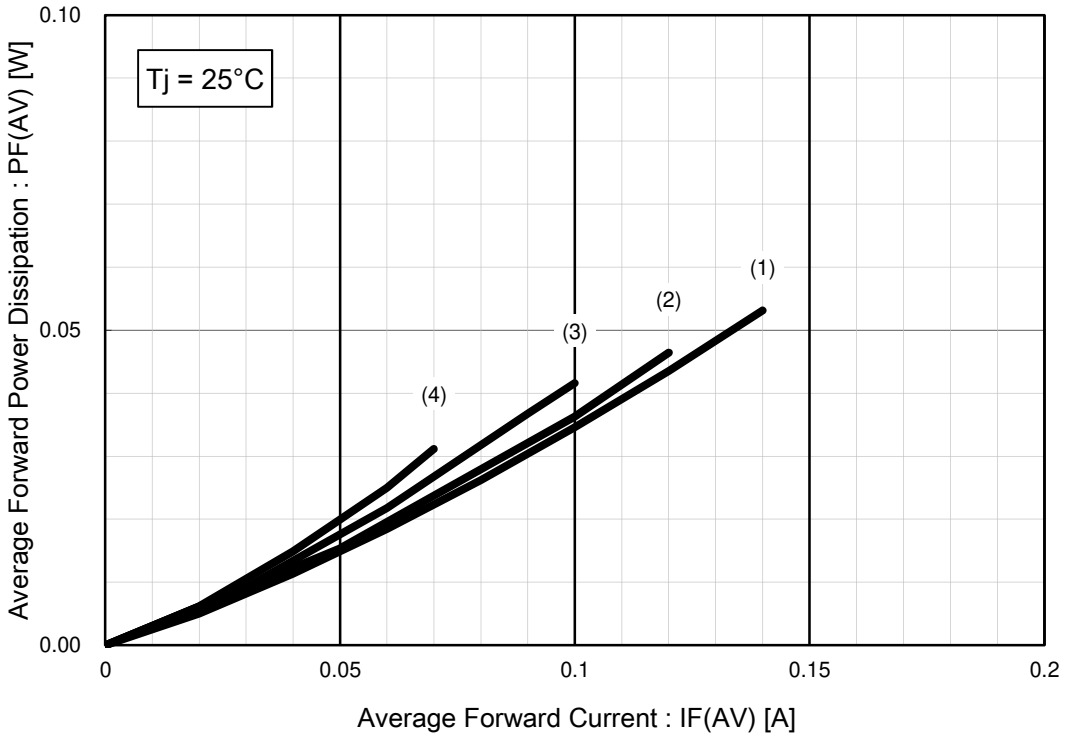
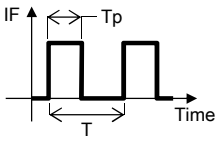
Electrical Characteristics Technical Data (Reference)

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



(Waveform definition)

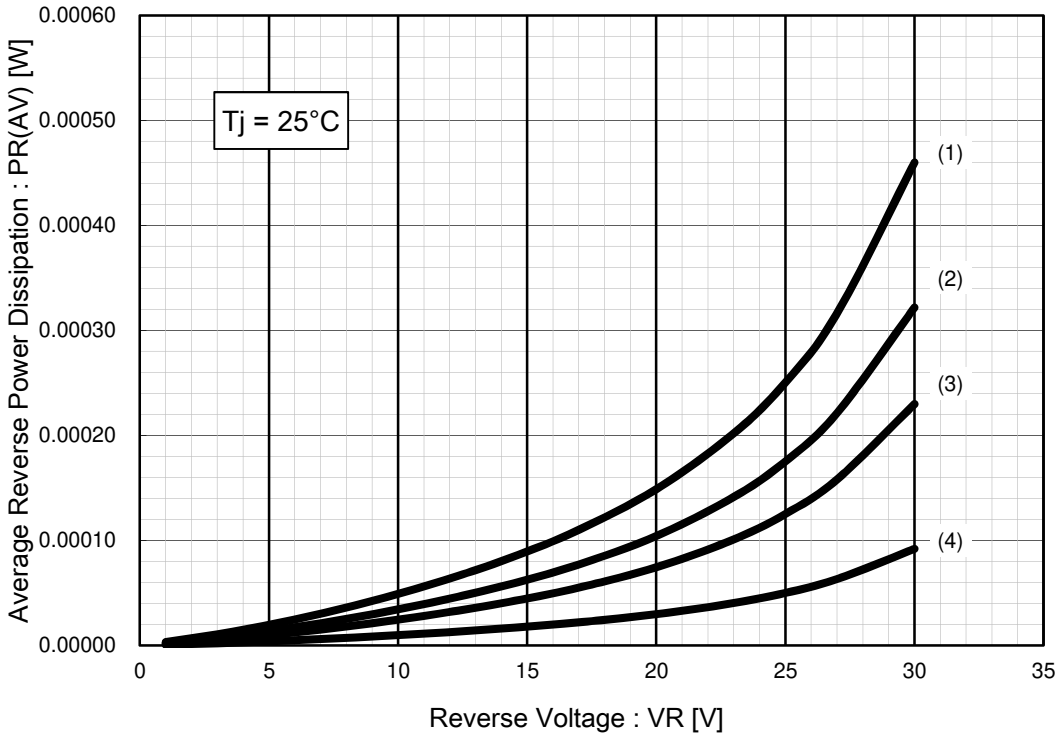


Duty Cycle : $\sigma = \frac{Tp}{T}$

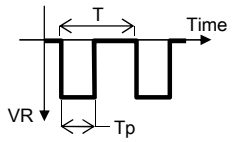
(Graph legends)

(1)	σ= 1.0
(2)	σ= 0.8
(3)	σ= 0.5
(4)	σ= 0.3

PR(AV) - VR / Typical Data



(Waveform definition)



Duty Cycle : $\sigma = \frac{Tp}{T}$

(Graph legends)

(1)	σ= 1.0
(2)	σ= 0.7
(3)	σ= 0.5
(4)	σ= 0.2

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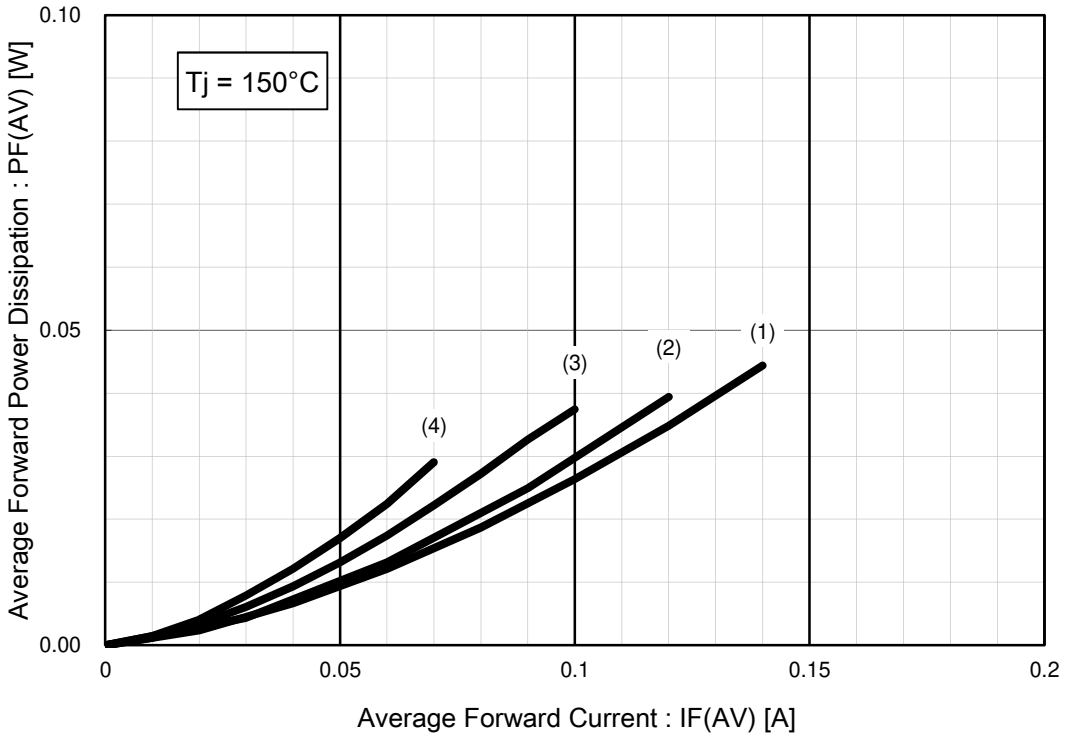
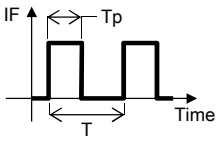
Electrical Characteristics Technical Data (Reference)

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



(Waveform definition)

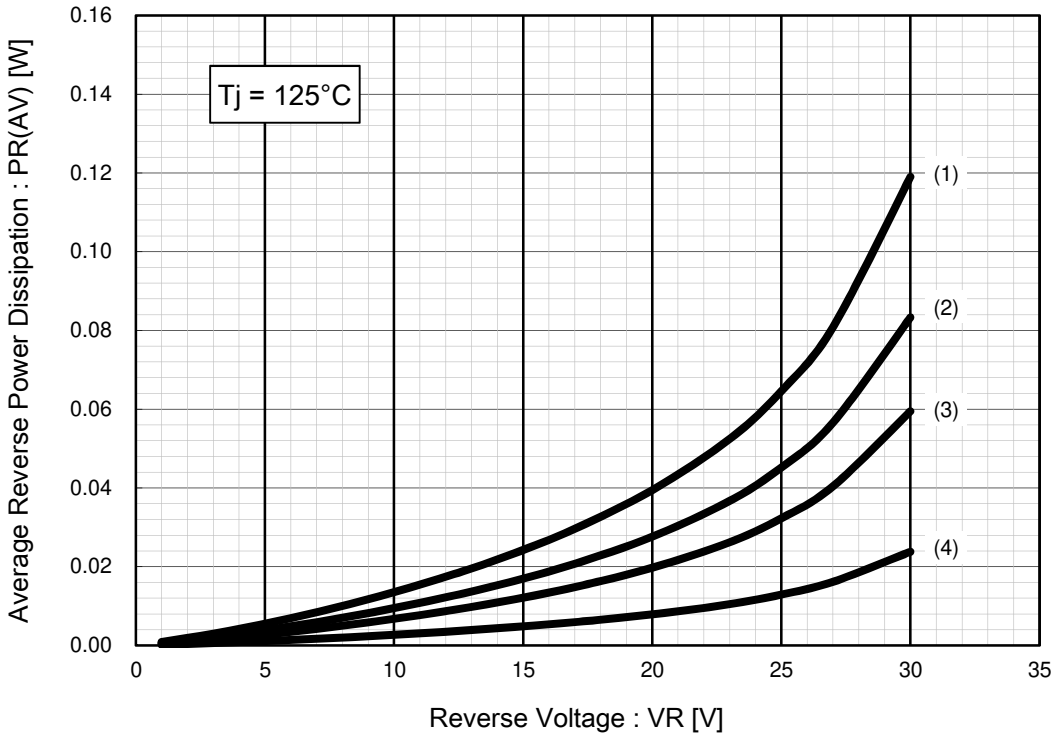


Duty Cycle : $\sigma = \frac{Tp}{T}$

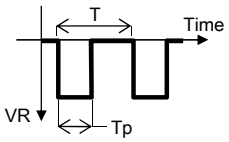
(Graph legends)

(1)	σ= 1.0
(2)	σ= 0.8
(3)	σ= 0.5
(4)	σ= 0.3

PR(AV) - VR / Typical Data



(Waveform definition)



Duty Cycle : $\sigma = \frac{Tp}{T}$

(Graph legends)

(1)	σ= 1.0
(2)	σ= 0.7
(3)	σ= 0.5
(4)	σ= 0.2

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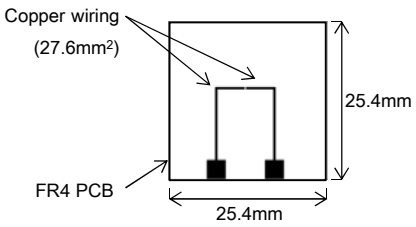
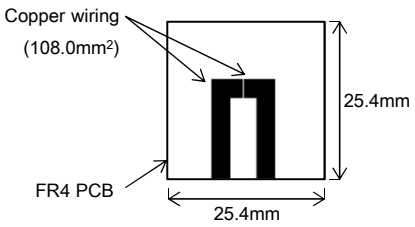
■ Thermal Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal Resistance, Junction to Splder Point	$R_{th(j-sp)}$	Ta = 25°C, in free air	-	35	-	°C/W
Thermal Resistance, Junction to Ambient *1	$R_{th(j-a)}$	Ta = 25°C, in free air	-	610	-	°C/W
Thermal Resistance, Junction to Ambient *2	$R_{th(j-a)}$	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^2 area, 36µm thick).
*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm^2 area, 36µm thick).

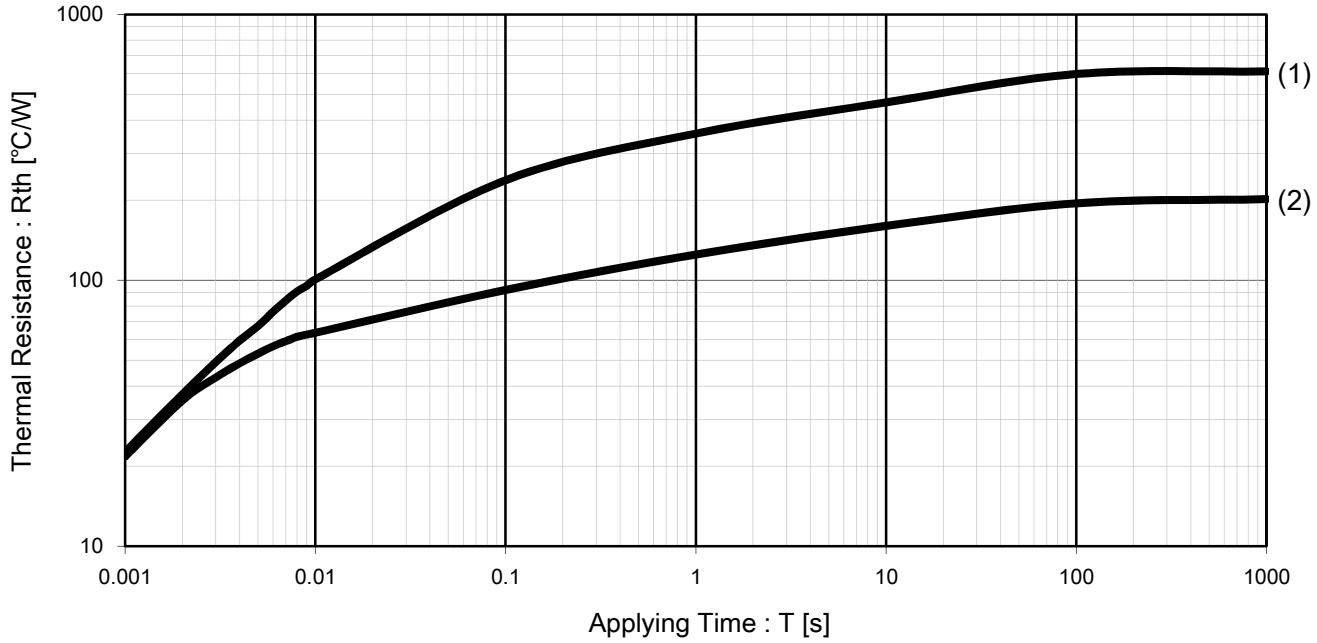
(Evaluation board outline)



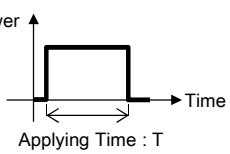


Thermal Characteristics Technical Data (Reference)

Rth - 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^2 area, 36µm thick).
(2)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm^2 area, 36µm thick).

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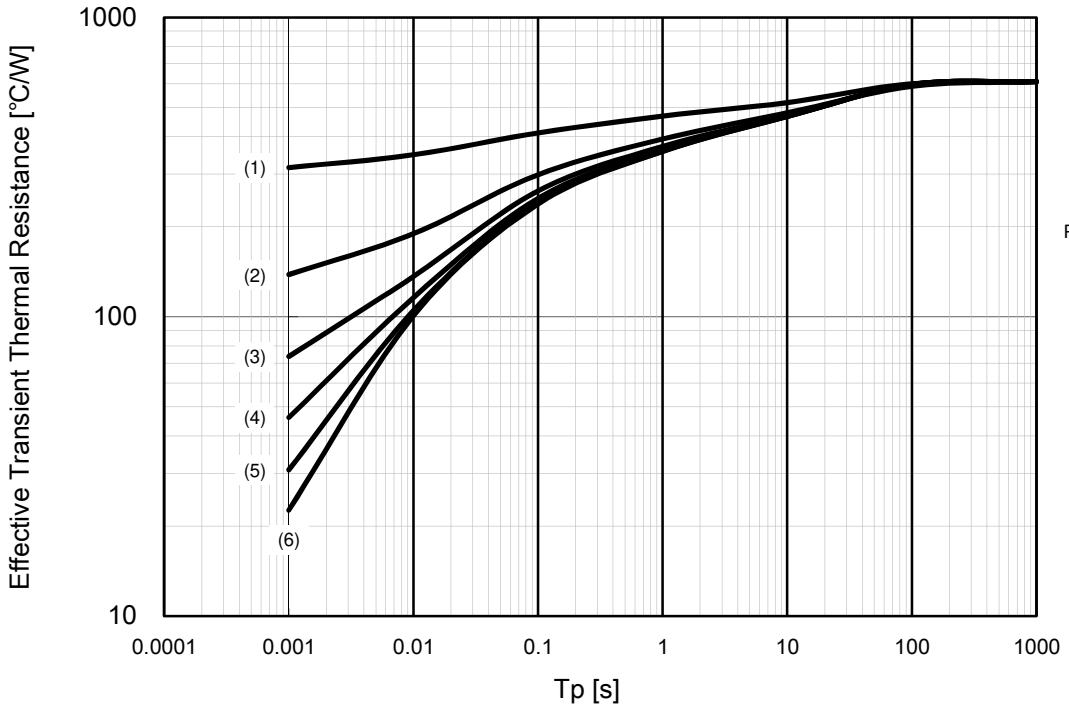
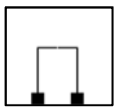
Thermal Characteristics Technical Data (Reference)

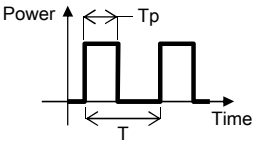
Effective Transient Thermal Resistance - Tp *1 / Typical Data



(Evaluation board outline)



(Waveform definition)

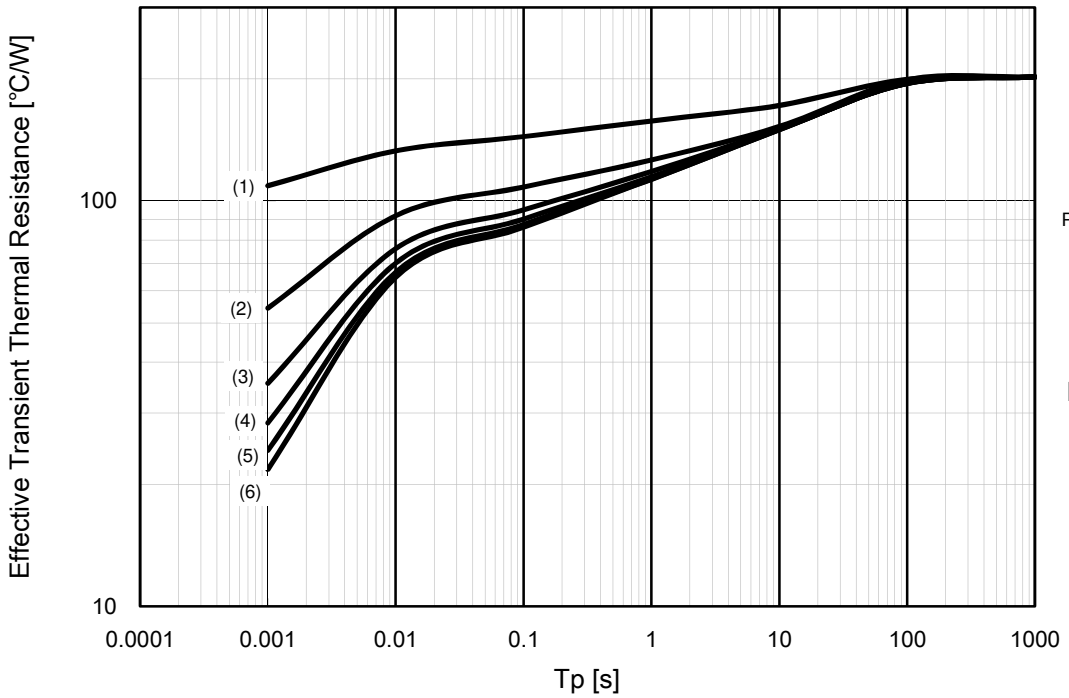


Duty Cycle : $\sigma = \frac{Tp}{T}$

(Graph legends)

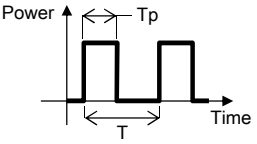
(1)	σ = 0.5
(2)	σ = 0.2
(3)	σ = 0.1
(4)	σ = 0.05
(5)	σ = 0.02
(6)	σ = 0

Effective Transient Thermal Resistance - Tp *2 / Typical Data



(Evaluation board outline)

(Waveform definition)



Duty Cycle : $\sigma = \frac{Tp}{T}$

(Graph legends)

(1)	σ = 0.5
(2)	σ = 0.2
(3)	σ = 0.1
(4)	σ = 0.05
(5)	σ = 0.02
(6)	σ = 0

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

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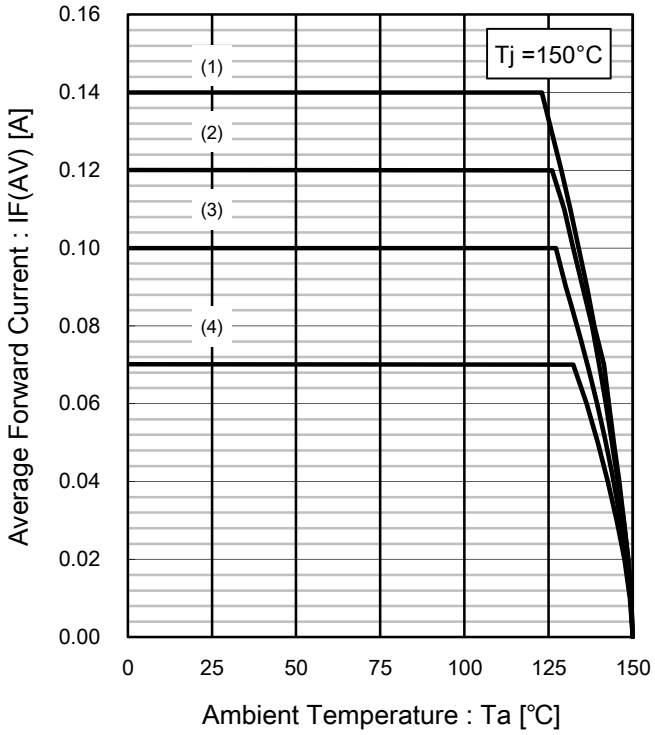
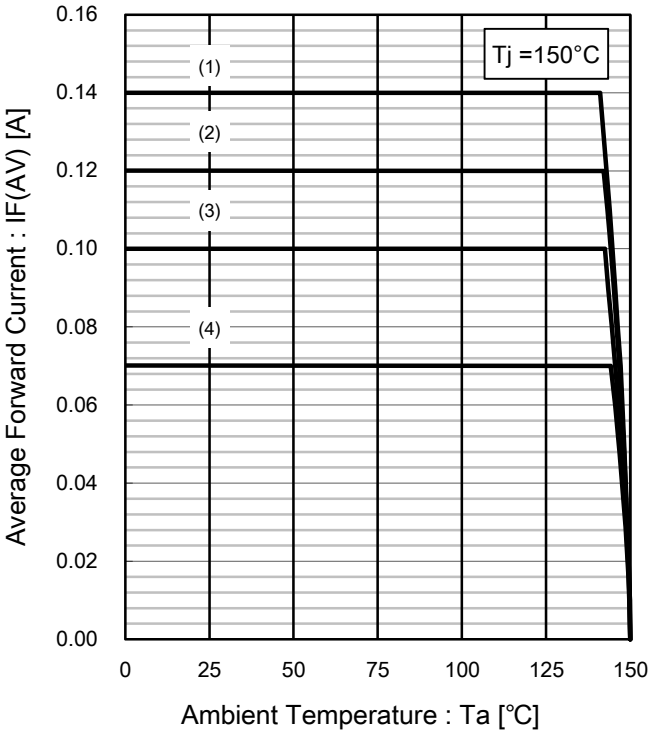
Power Derating Technical Data (Reference)

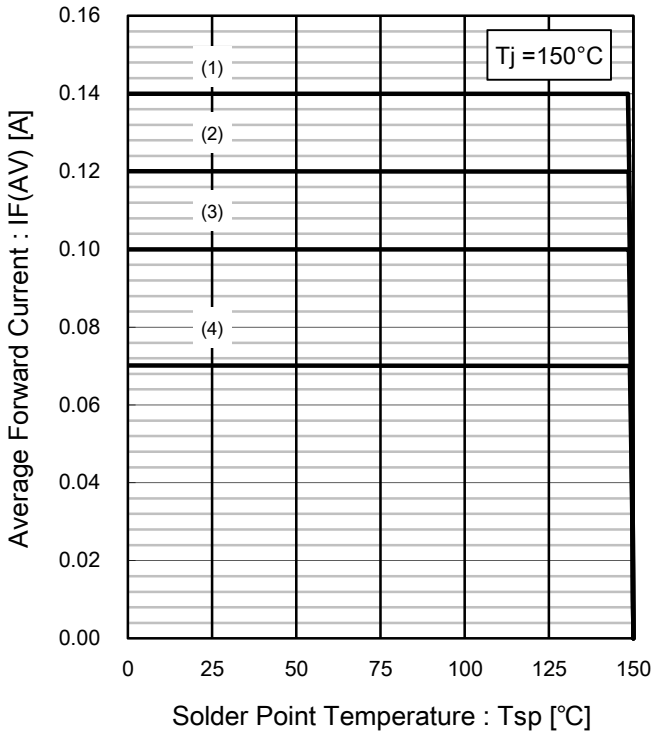
IF(AV) - Ta *1 / Typical Data



IF(AV) - Ta *2 / Typical Data



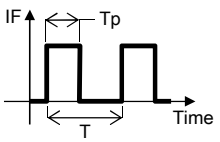
IF(AV) - Tsp / Typical Data



(Graph legends)

(1)	σ = 1.0
(2)	σ = 0.8
(3)	σ = 0.5
(4)	σ = 0.3

(Waveform definition)

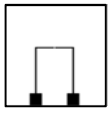


Duty Cycle : $\sigma = \frac{Tp}{T}$

Note)

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

(Evaluation board outline)



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

(Evaluation board outline)

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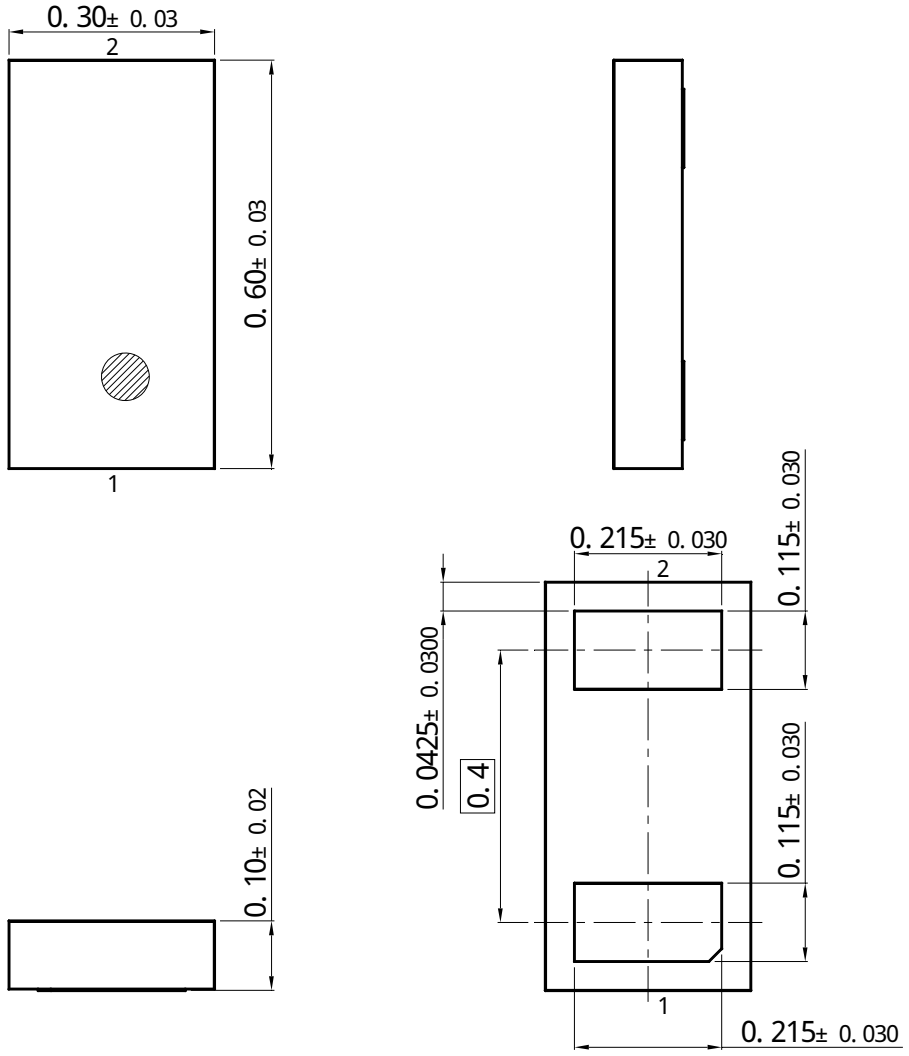
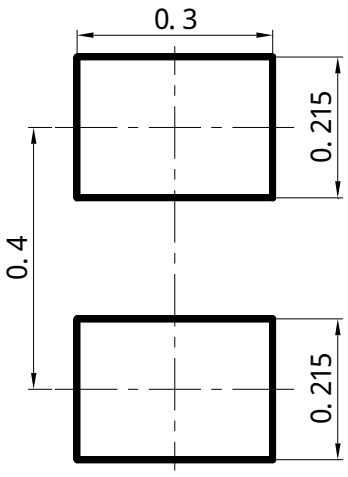
Unit: mm



■ Land Pattern (Reference)

Unit: mm



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Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.

(6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.

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