

Panasonic

DB2L33400L1

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: C5

■ Packaging

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

■ 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}	$I_F(AV)$	-	0.5	A
Average Forward Current ^{*2,4}	$I_F(AV)$	-	0.5	A
Non-repetitive Peak Surge Forward Current ^{*1,5}	IFSM	-	5	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

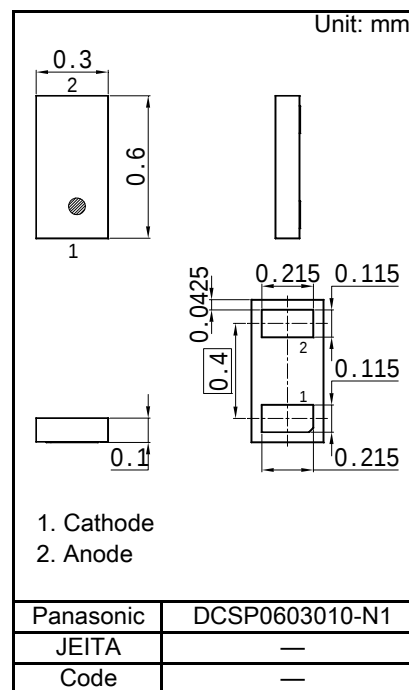
^{*2}: Squire wave : $\sigma = 0.5$

^{*3}: Ta $\leq 82^\circ\text{C}$, when device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108mm² area, 36μm thick).

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

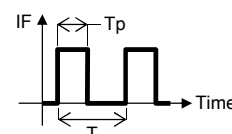
^{*5}: Squire wave : Tp = 5 ms

^{*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	-	0.45	0.54	V
Reverse Current	IR	VR = 30 V	-	10	45	μA
Terminal Capacitance	Ct	VR = 10 V, f = 1 MHz	-	10	-	pF
Reverse Recovery Time ^{*1}	trr	IF = IR = 100 mA, Irr = 10 mA	-	3.5	-	ns

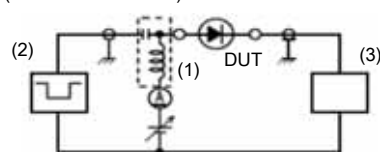
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

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)

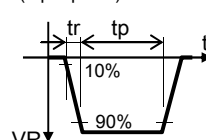


(1) Bias Insertion Unit (N-50BU)

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

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

(Input pulse)

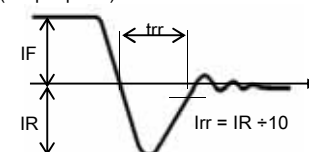


tp = 2 μs

tr = 0.35 ns

σ = 0.05

(Output pulse)



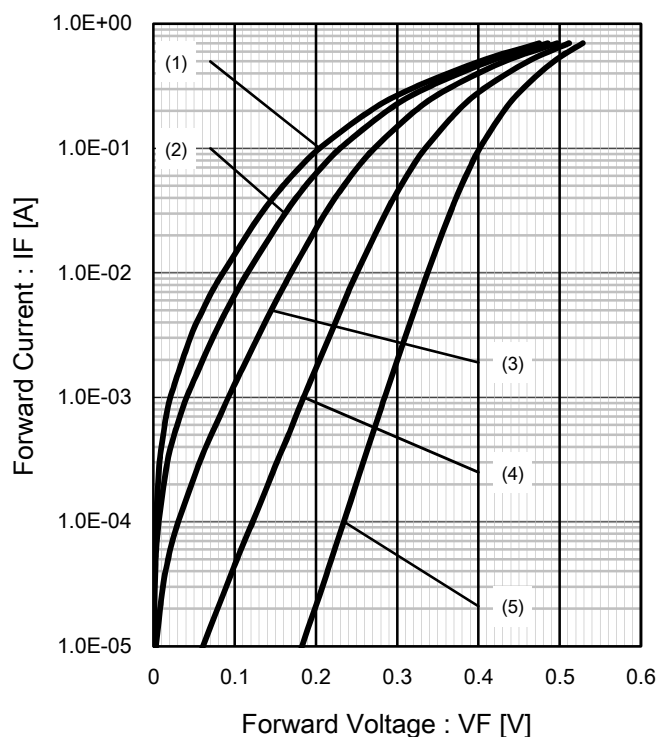
IF = 100 mA

IR = 100 mA

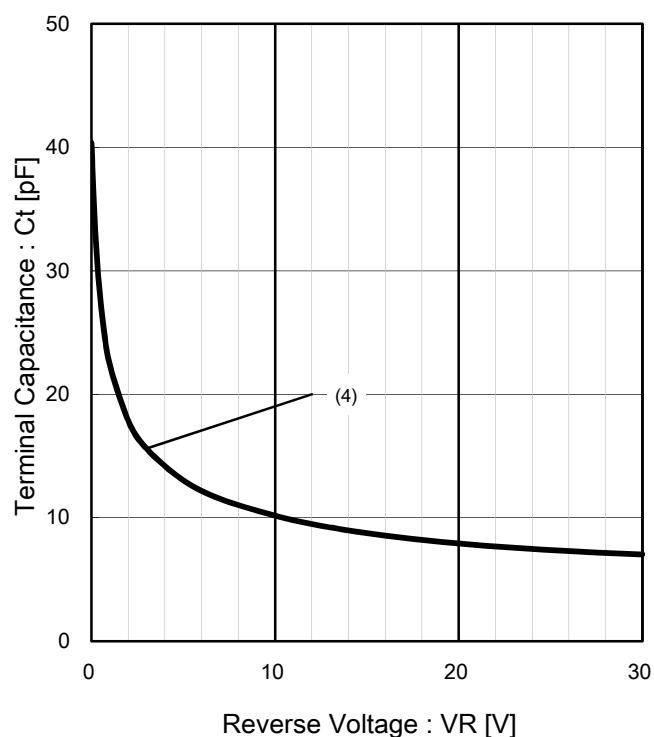
Irr = 10 mA

Electrical Characteristics Technical Data (Reference)

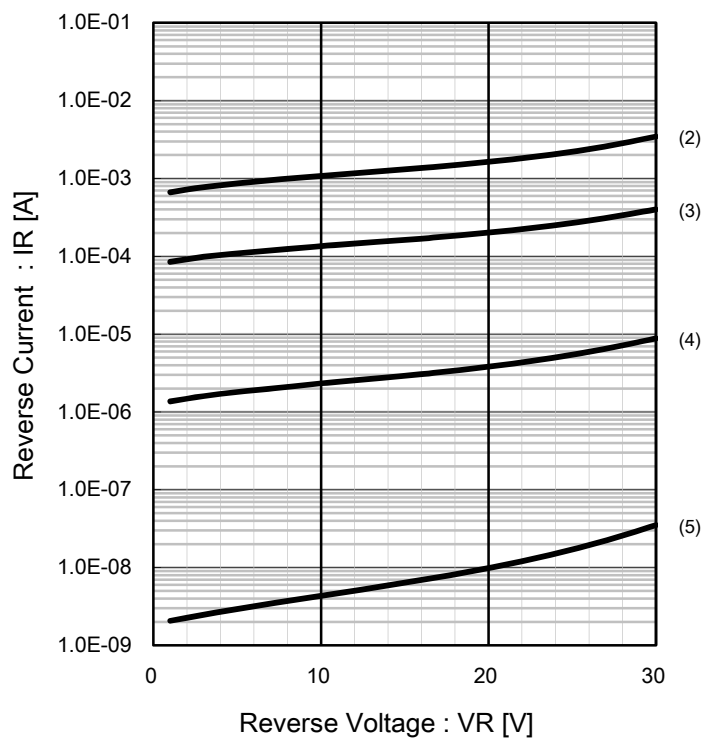
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data



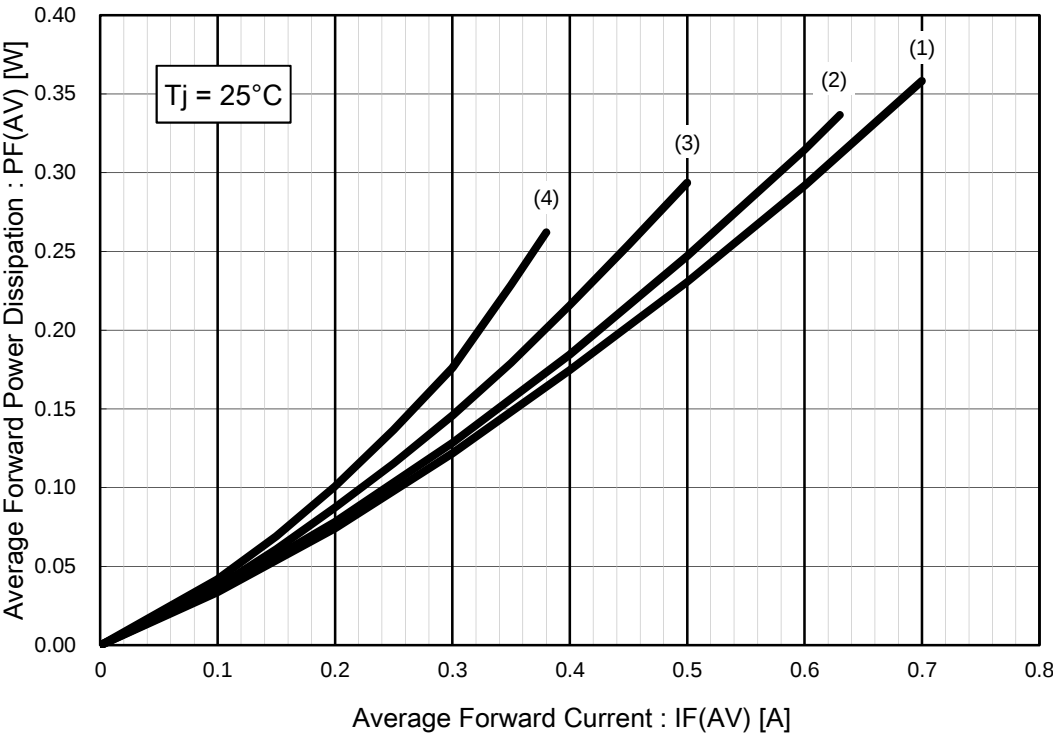
(Graph legends)

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

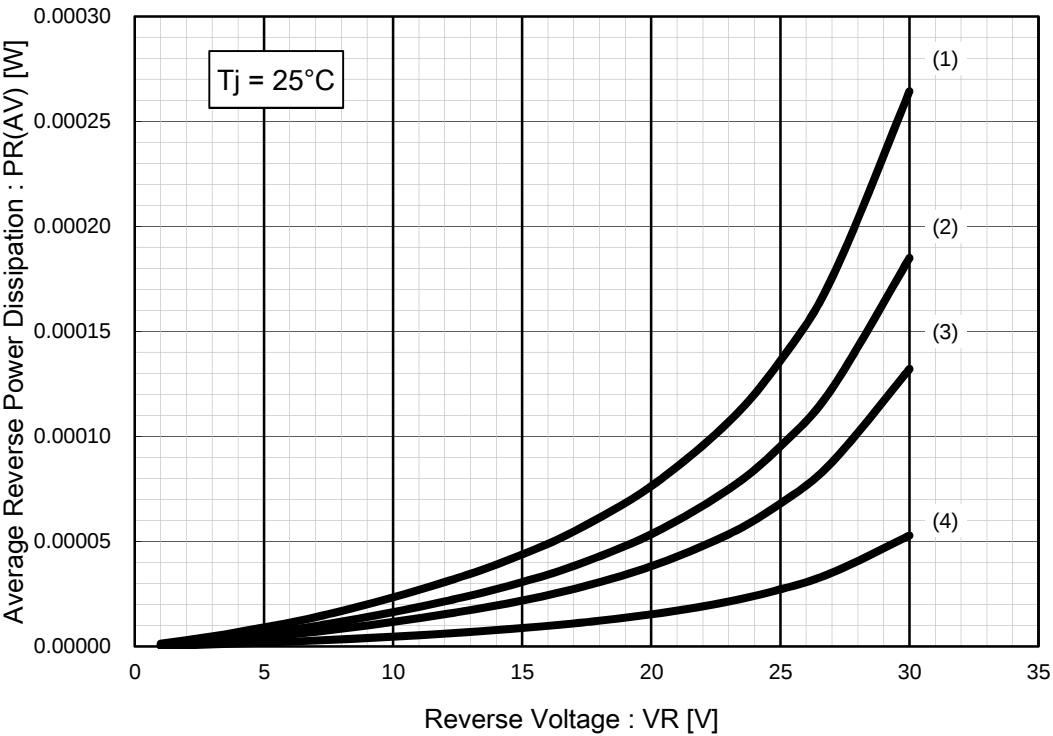


Electrical Characteristics Technical Data (Reference)

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



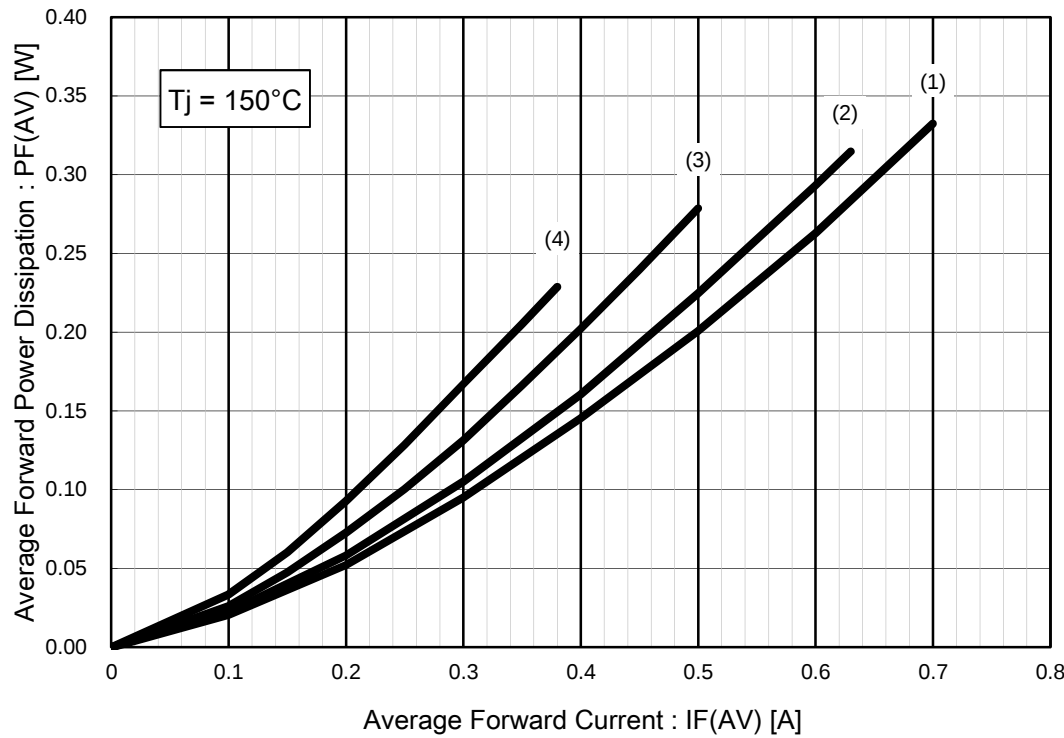
PR(AV) - VR / Typical Data



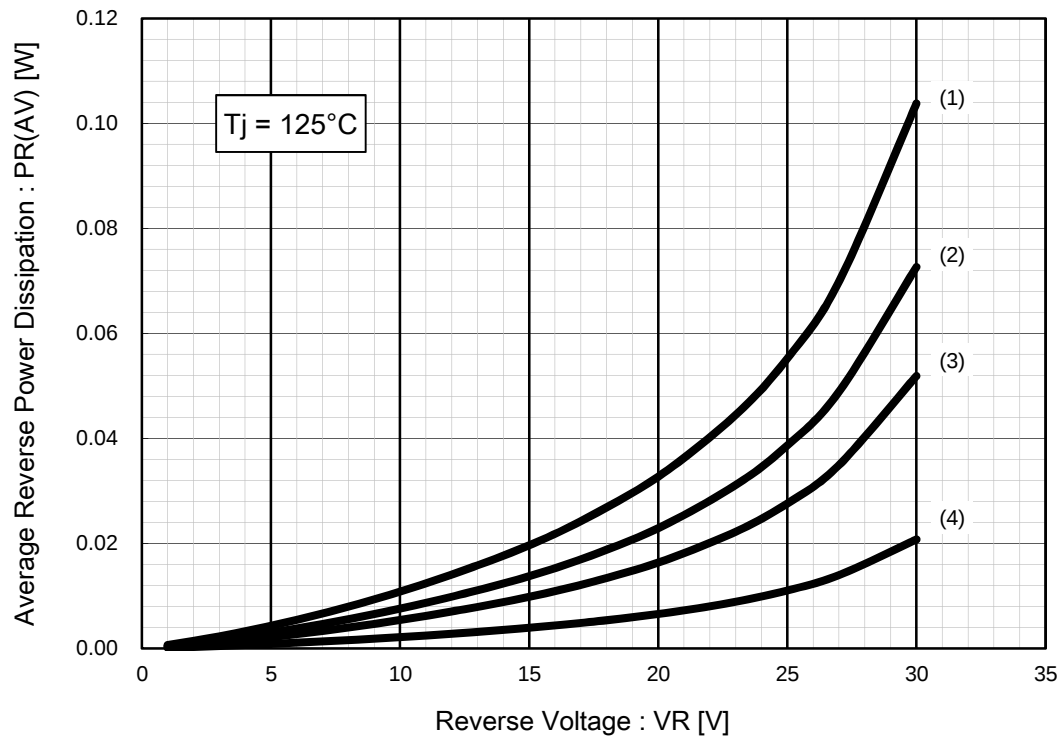


Electrical Characteristics Technical Data (Reference)

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



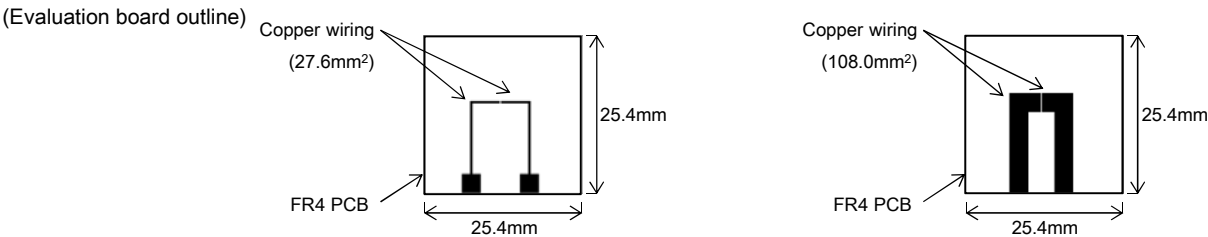
PR(AV) - VR / Typical Data



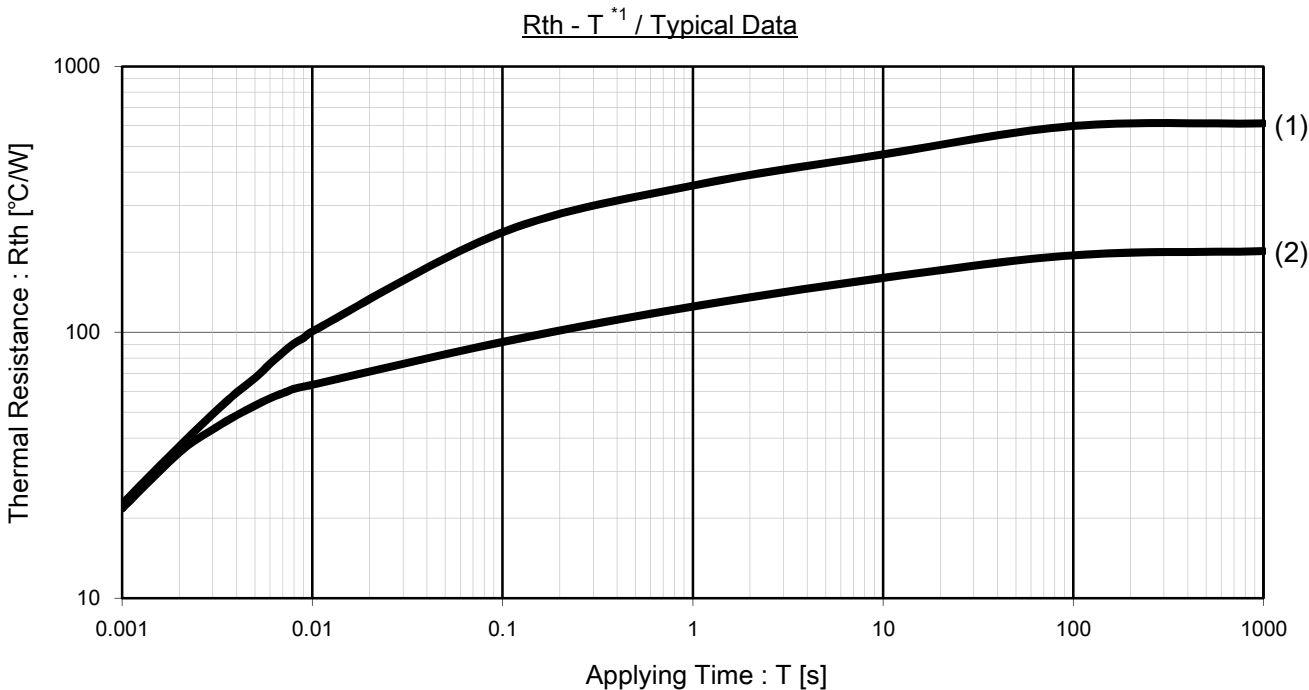
Thermal Characteristics

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

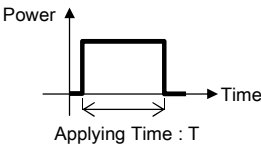
Note) ^{*1}: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm² area, 36μm thick).
^{*2}: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm² area, 36μm thick).



Thermal Characteristics Technical Data (Reference)



Note) ^{*1}: Single pulse measurement
(Waveform definition)

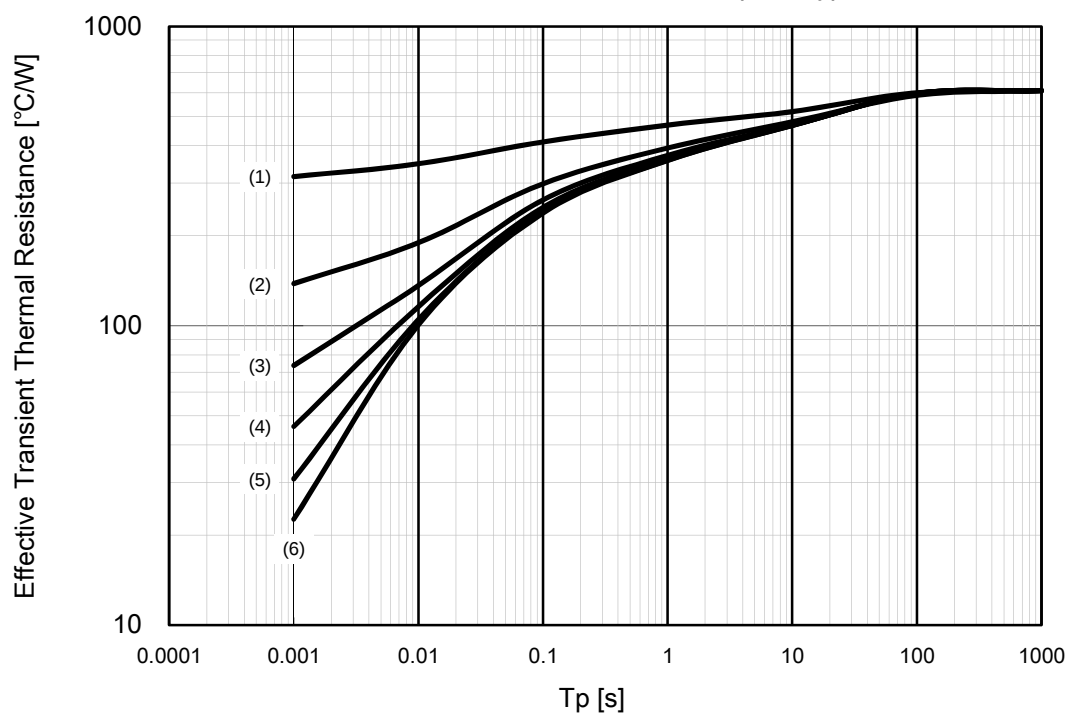


(Graph legends)

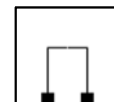
(1)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm ² area, 36μm thick).
(2)	Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm ² area, 36μm thick).

Thermal Characteristics Technical Data (Reference)

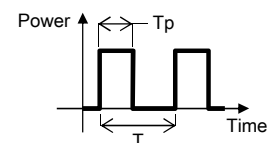
Effective Transient Thermal Resistance - T_p^{*1} / Typical Data



(Evaluation board outline)



(Waveform definition)

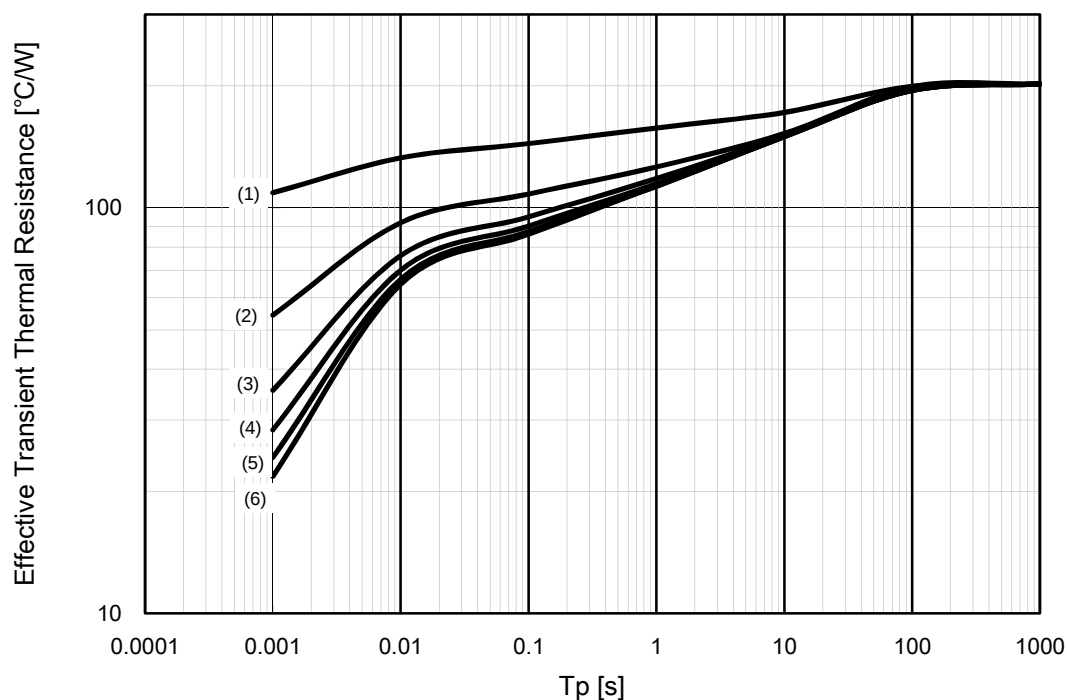


$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

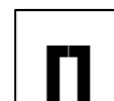
(Graph legends)

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

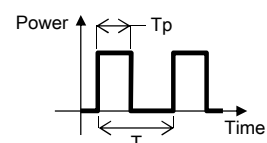
Effective Transient Thermal Resistance - T_p^{*2} / Typical Data



(Evaluation board outline)



(Waveform definition)



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

(Graph legends)

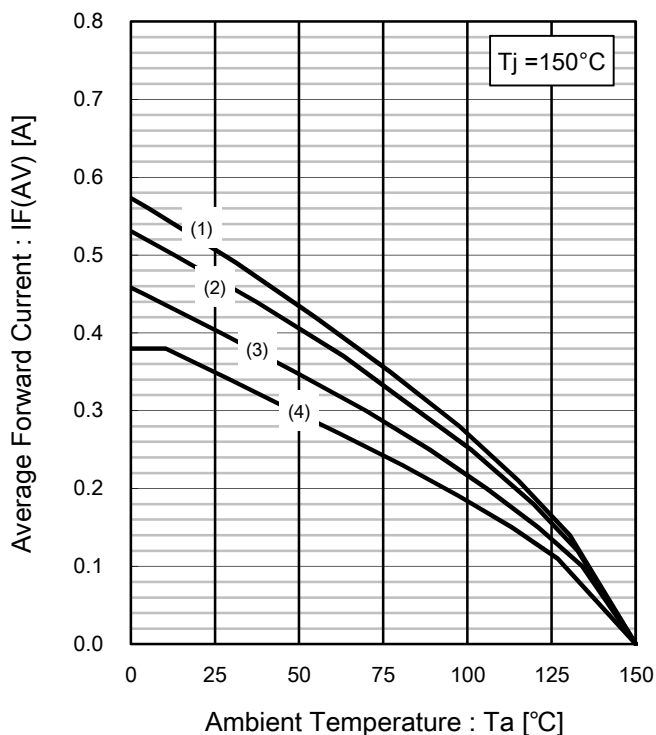
(1)	$\sigma = 0.5$
(2)	$\sigma = 0.2$
(3)	$\sigma = 0.1$
(4)	$\sigma = 0.05$
(5)	$\sigma = 0.02$
(6)	$\sigma = 0$

Note) *1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm² area, 36μm thick).

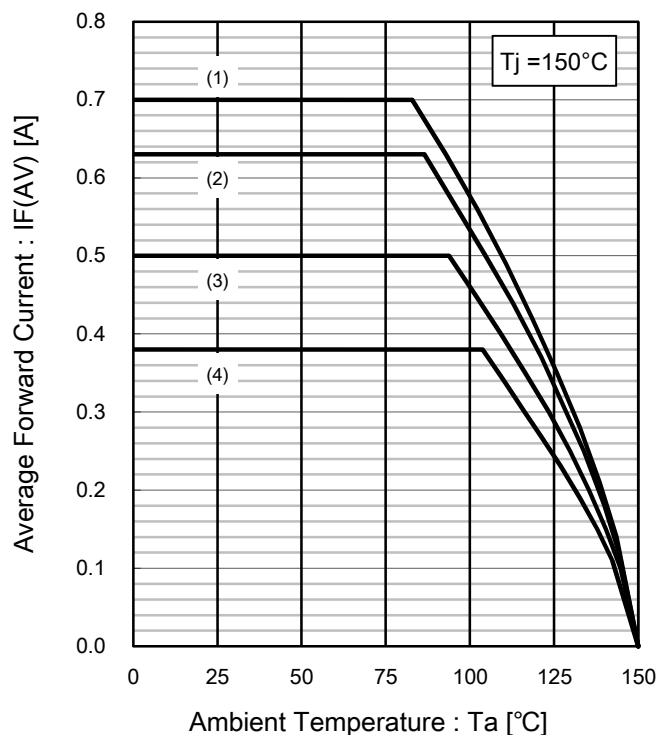
*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm² area, 36μm thick).

Power Derating Technical Data (Reference)

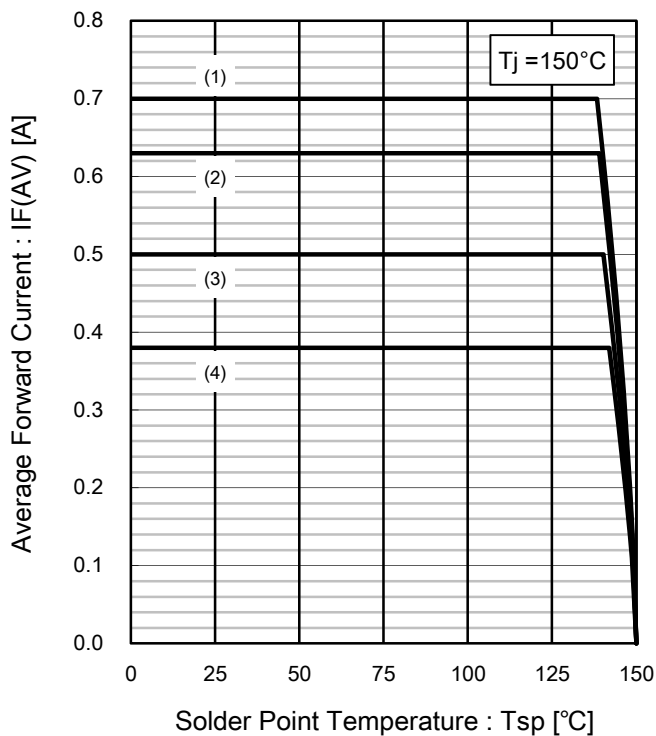
IF(AV) - Ta^{*1} / Typical Data



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



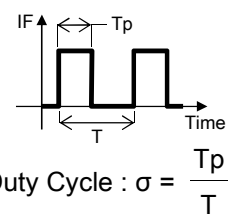
IF(AV) - Tsp / Typical Data



(Graph legends)

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

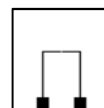
(Waveform definition)



Note)

*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (27.6mm² area, 36μm thick).

(Evaluation board outline)



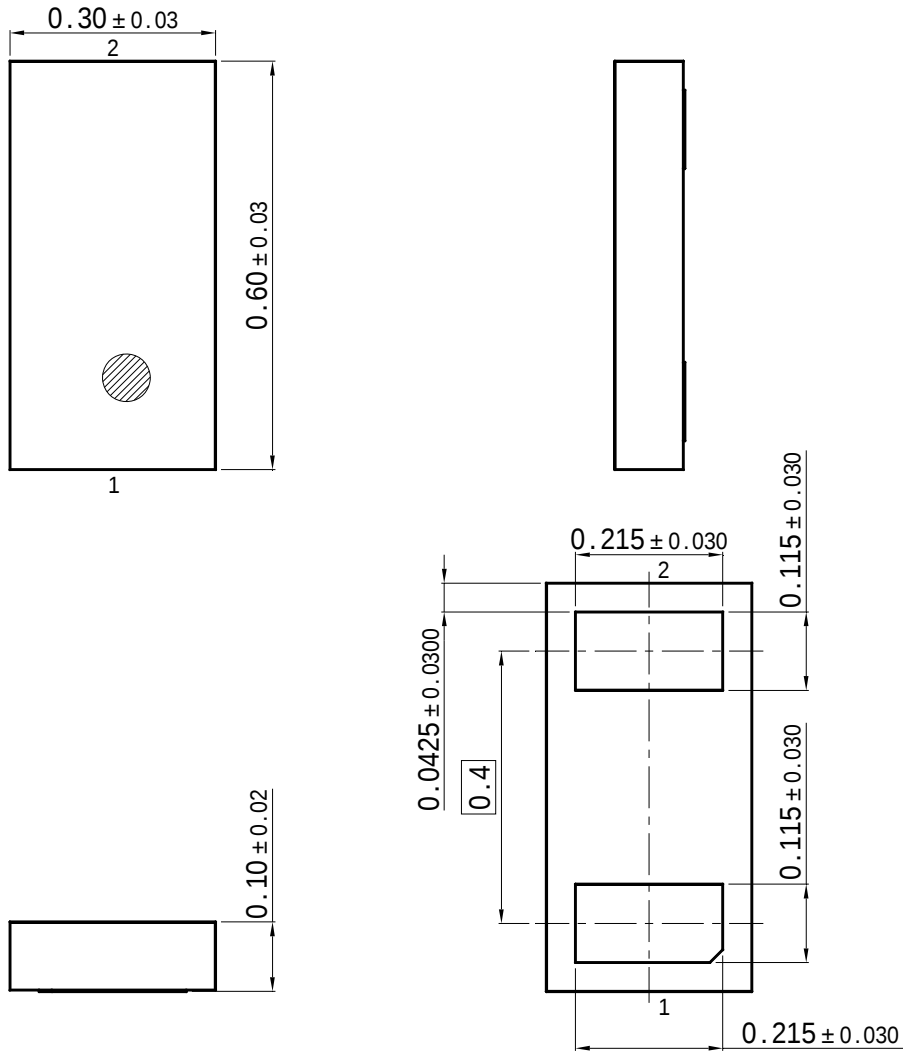
*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.0mm² area, 36μm thick).

(Evaluation board outline)



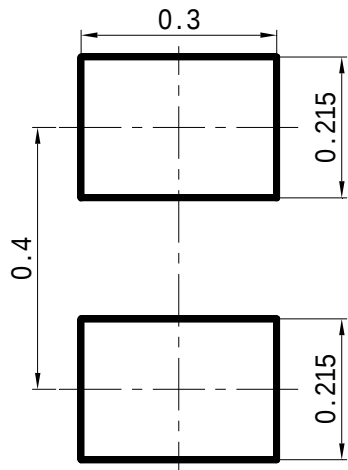
DCSP0603010-N1

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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