Schottky Barrier Diode

Panasonic DB2F43100L

DB2F43100L

For rectification

■ Features

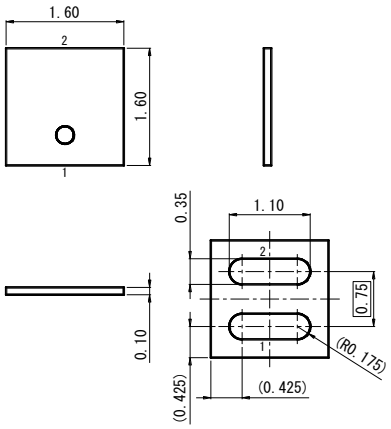
- Low forward voltage VF
- Forward current (Average) IF(AV) ≦ 5.0 A rectification is possible
- RoHS compliant
- (EU RoHS / MSL:Level 1 compliant)

■ Marking Symbol: E6

■ Packaging

Embossed type (Thermo-compression sealing) : 10 000 pcs / reel (standard)

Unit: mm



1. Cathode	2. Anode
Panasonic	DCSP1616010-N1
JEITA	—
Code	—

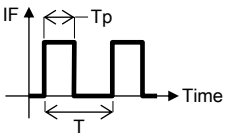
■ Absolute Maximum Ratings

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)	-	5.0	A
Non-repetitive Peak Surge Forward Current *1,4	IFSM	-	40	A
Operating Junction Temperature *5	Tj	-	150	°C
Ambient Temperature	Ta	-40	+150	°C
Storage Temperature	Tstg	-55	+150	°C

Note) *1: Ta = Tj = 25°C
*2: Square wave : σ = 0.5
*3: Solder Point Temperature : Tsp ≦ 122°C
*4: Square wave : Tp = 5 ms
*5: Power derating is necessary so that Tj < 150°C.

(Waveform definition)

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

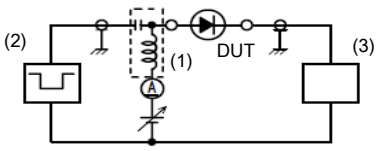


■ Electrical Characteristics Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward Voltage	VF	IF = 5.0 A	-	0.51	0.6	V
Reverse Current	IR	VR = 40 V	-	15	100	μA
Terminal Capacitance	Ct	VR = 10 V, f = 1 MHz	-	140	-	pF
Reverse Recovery Time *1	trr	IF = IR = 100 mA, Irr = 10 mA	-	45	-	ns

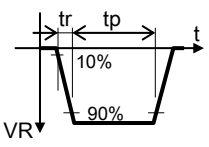
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.
2. This product is sensitive to electric shock (static electricity, etc.).
Due attention must be paid on the charge of a human body and the leakage of current from the operating equipment.
3.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

(Measurement circuit)



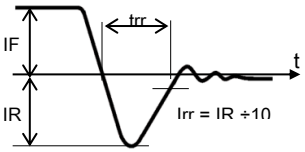
(1) Bias Insertion Unit (N-50BU)
(2) Pulse Generator (PG-10N), RS = 50 Ω
(3) Wave Form Analyzer (SAS-8130), Ri = 50 Ω

(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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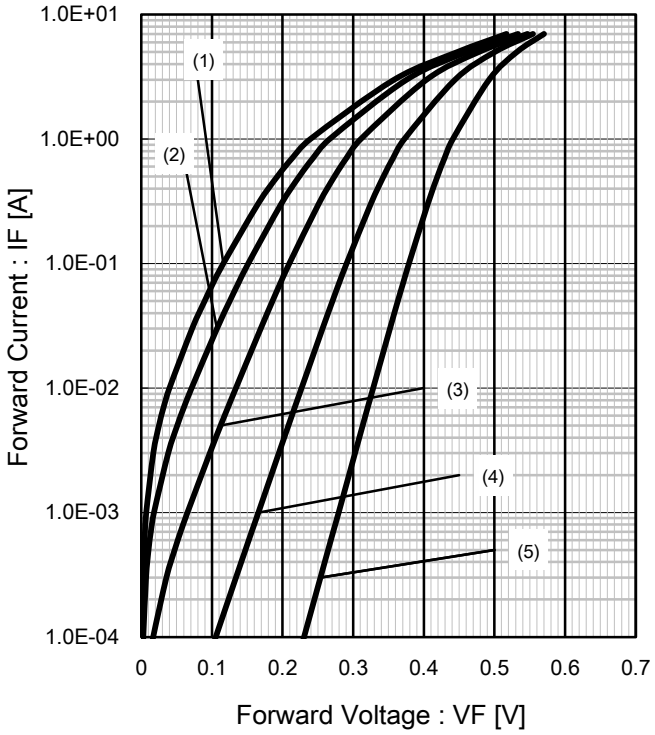
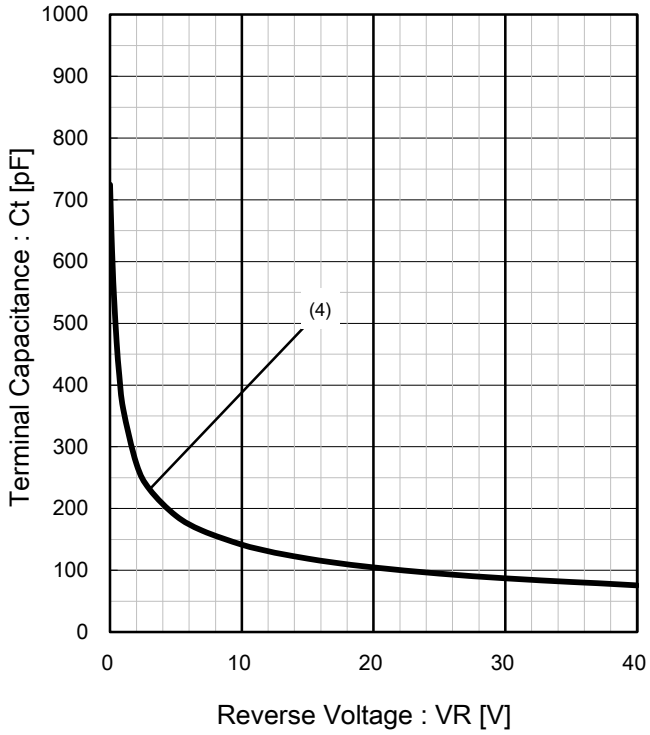
Electrical Characteristics Technical Data (Reference)

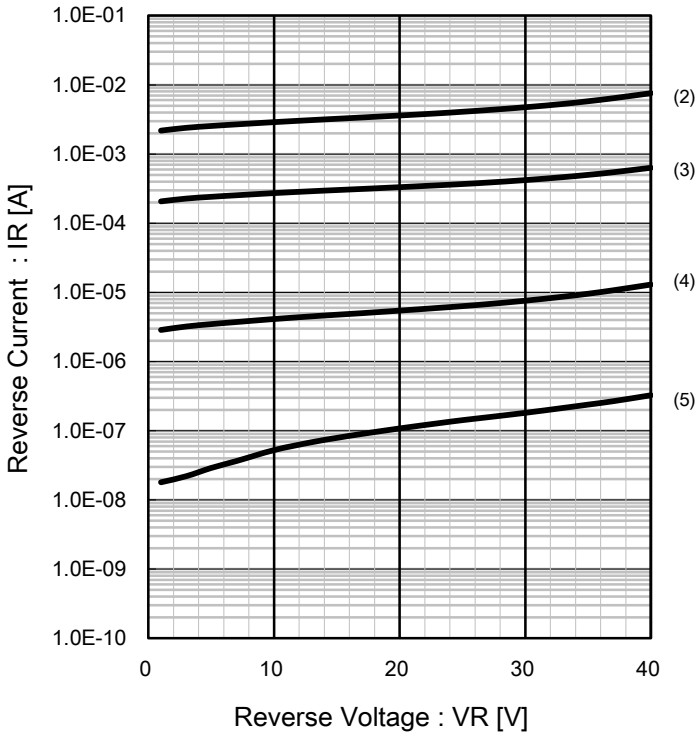
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data

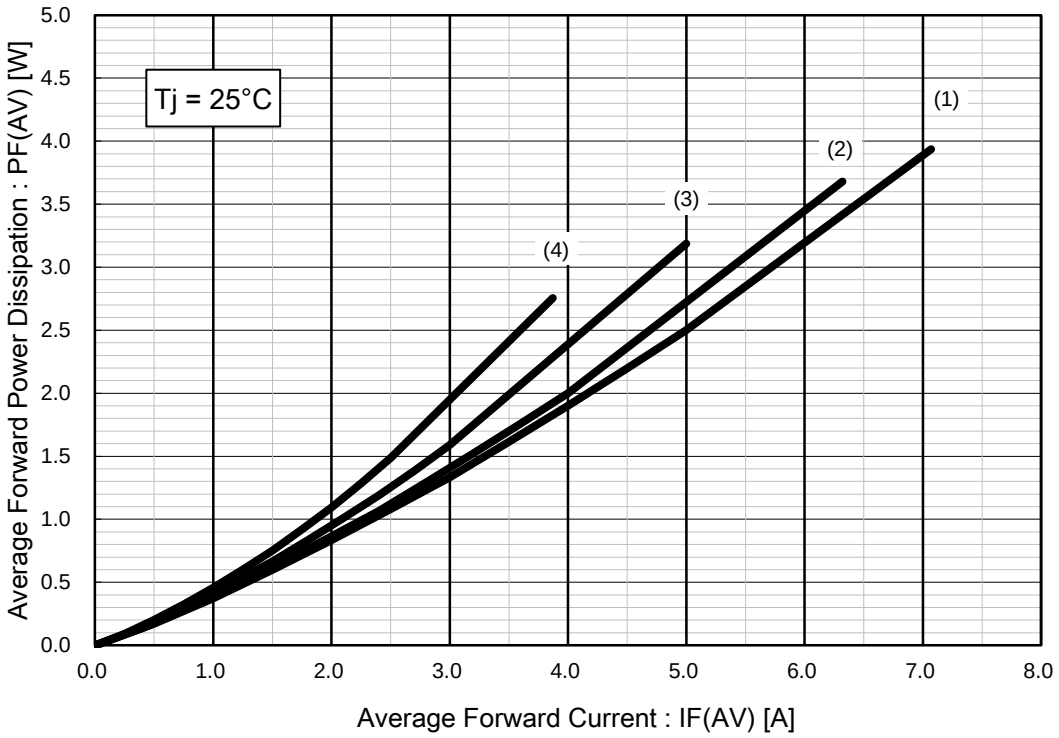


(Graph legends)

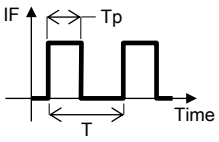
(1)	Ta = 150 ℃
(2)	Ta = 125 ℃
(3)	Ta = 85 ℃
(4)	Ta = 25 ℃
(5)	Ta = -40 ℃

Electrical Characteristics Technical Data (Reference)

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



(Waveform definition)

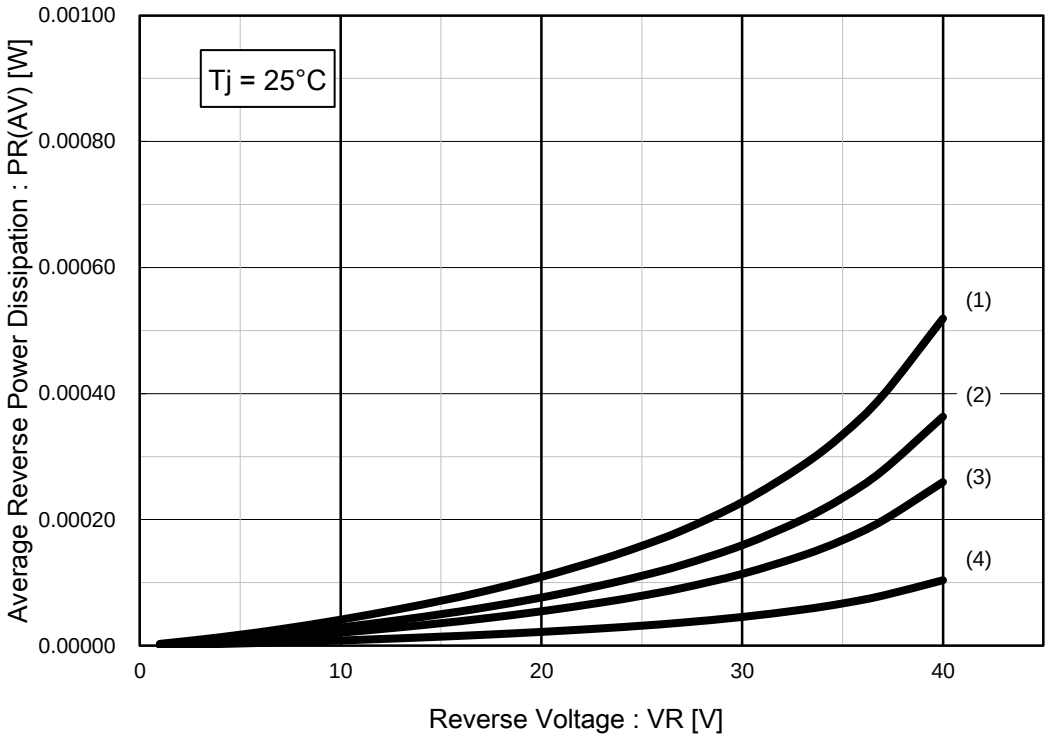


Duty Cycle : $\sigma = \frac{Tp}{T}$

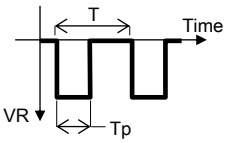
(Graph legends)

(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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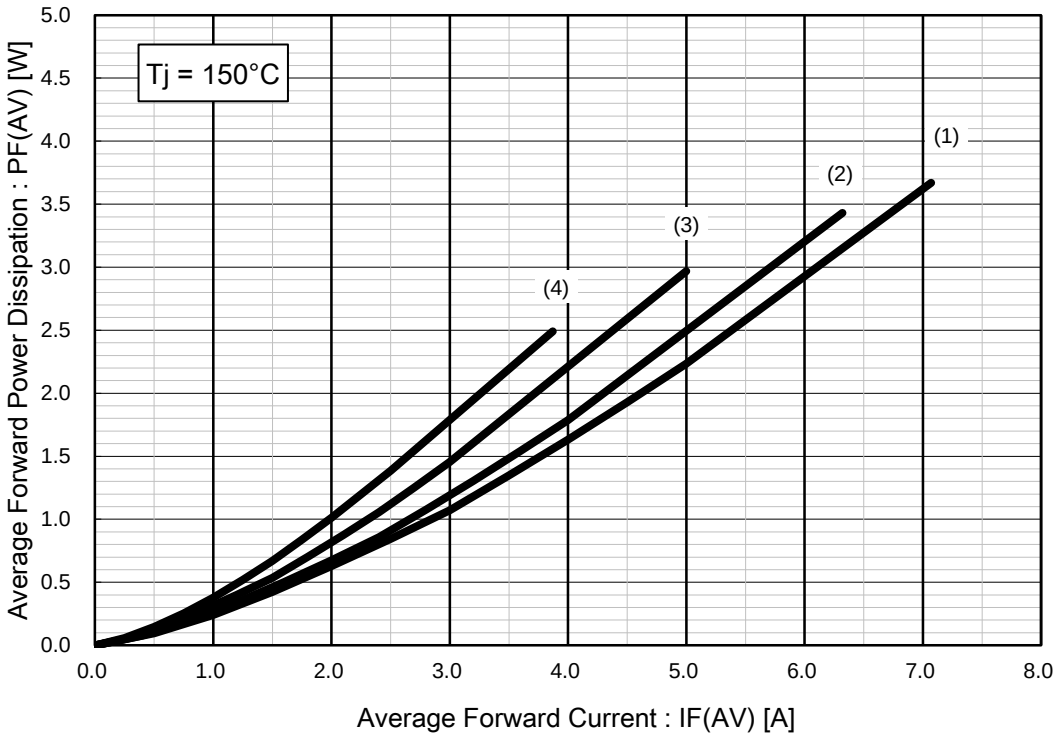
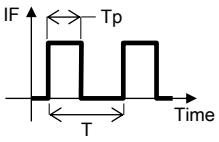
Electrical Characteristics Technical Data (Reference)

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



(Waveform definition)

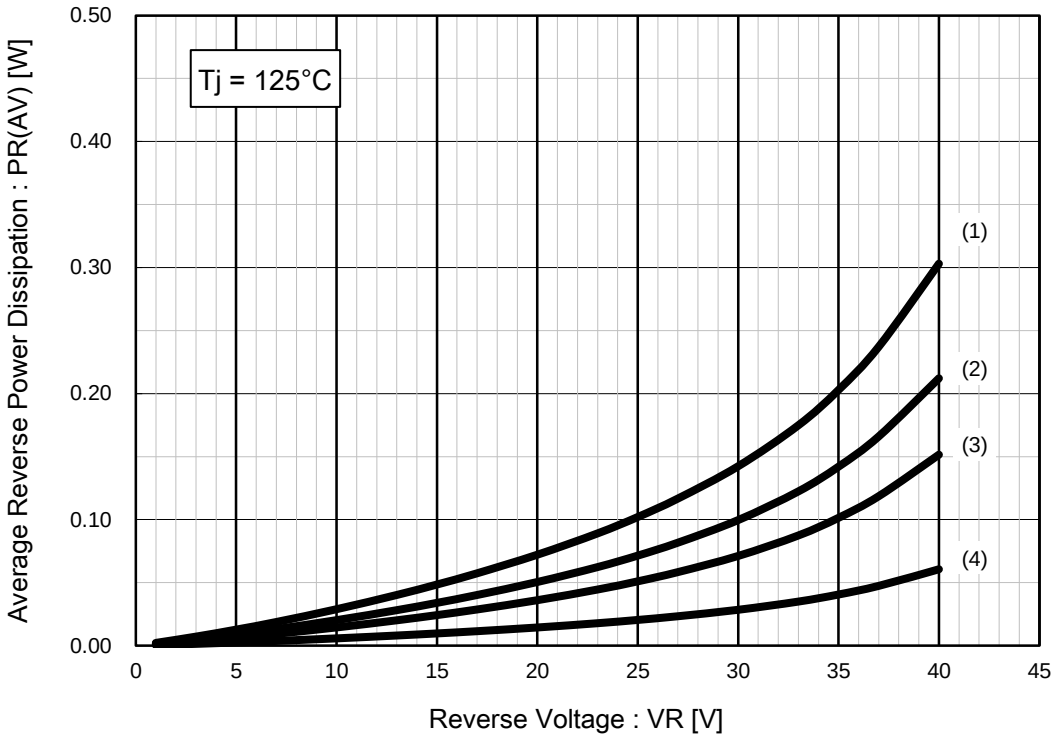


Duty Cycle : $\sigma = \frac{Tp}{T}$

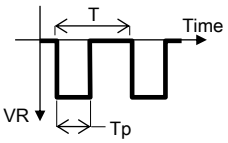
(Graph legends)

(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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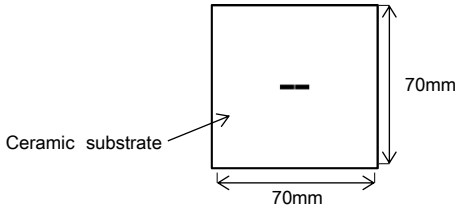
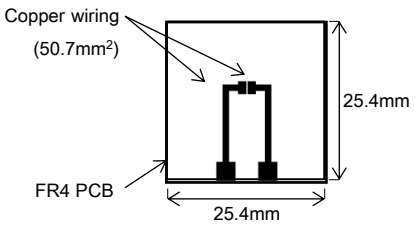
■ Thermal Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal Resistance, Junction to Solder Point	$R_{th(j-sp)}$	Ta = 25°C, in free air	-	8	-	°C/W
Thermal Resistance, Junction to Ambient *1	$R_{th(j-a)}$	Ta = 25°C, in free air	-	43	-	°C/W
Thermal Resistance, Junction to Ambient *2	$R_{th(j-a)}$	Ta = 25°C, in free air	-	250	-	°C/W

Note) *1: Device mounted on Ceramic substrate (70mm×70mm×t1.0mm).
*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (50.7mm^2 area, 36µm thick).

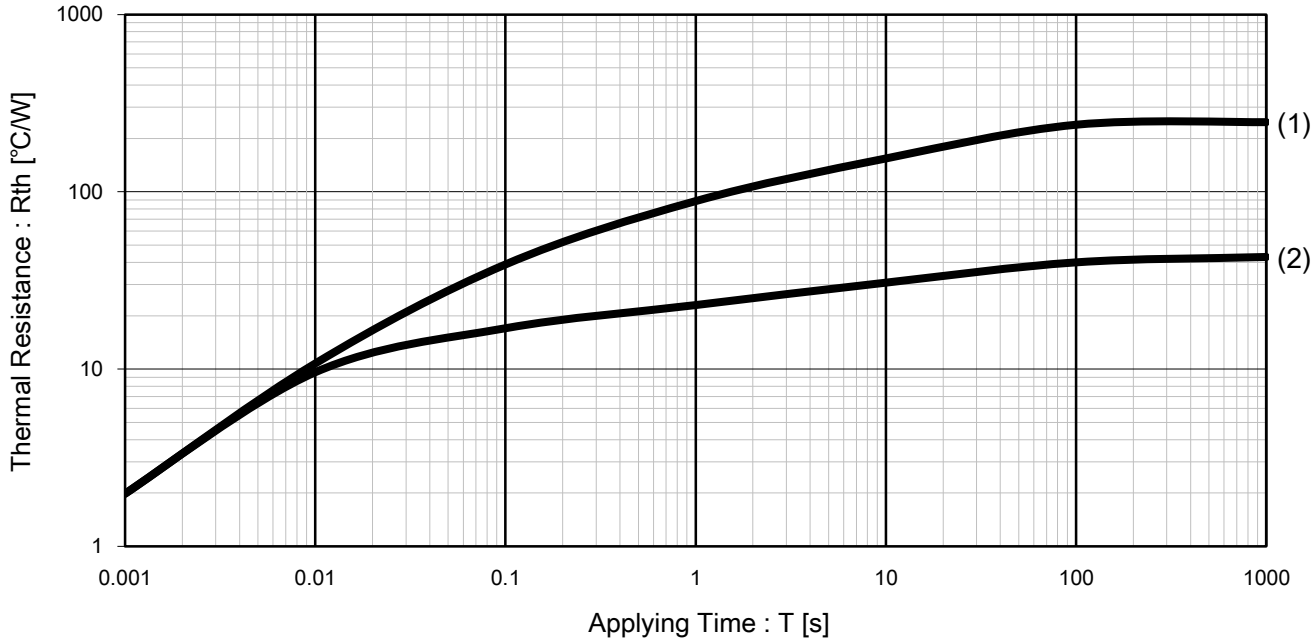
(Evaluation board outline)



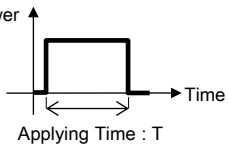


Thermal Characteristics Technical Data (Reference)

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 (50.7mm^2 area, 36µm thick).
(2)	Device mounted on Ceramic substrate (70mm×70mm×t1.0mm).

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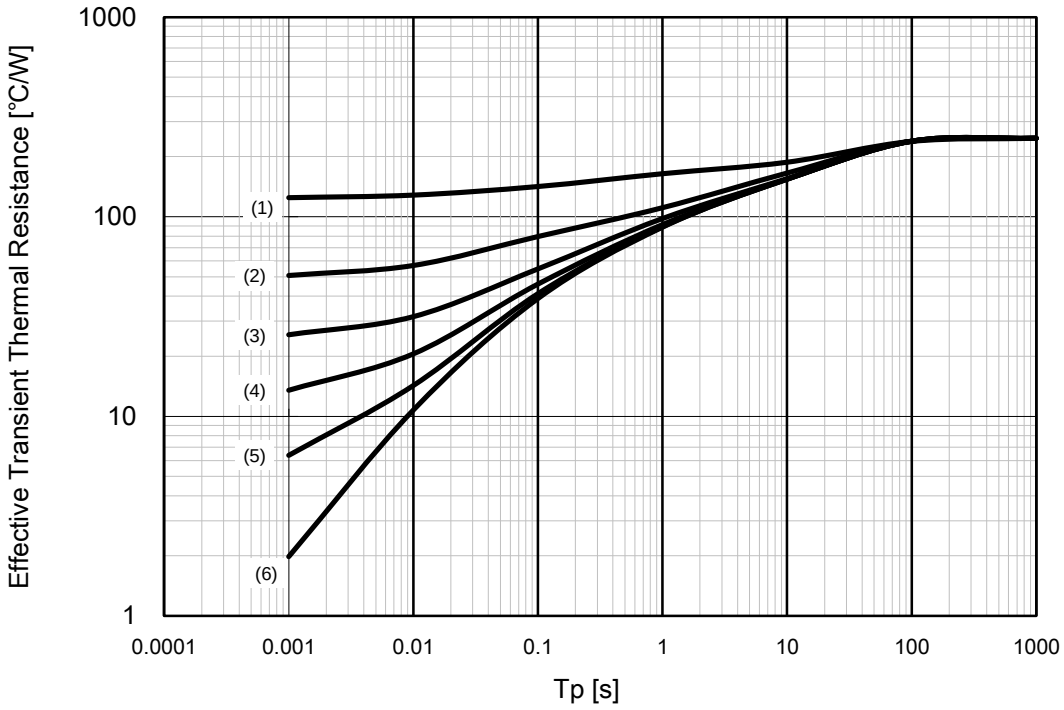
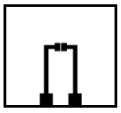
Thermal Characteristics Technical Data (Reference)

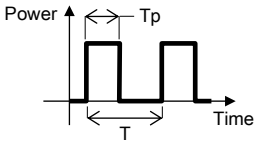
Effective Transient Thermal Resistance - Tp *1 / Typical Data



(Evaluation board outline)



(Waveform definition)

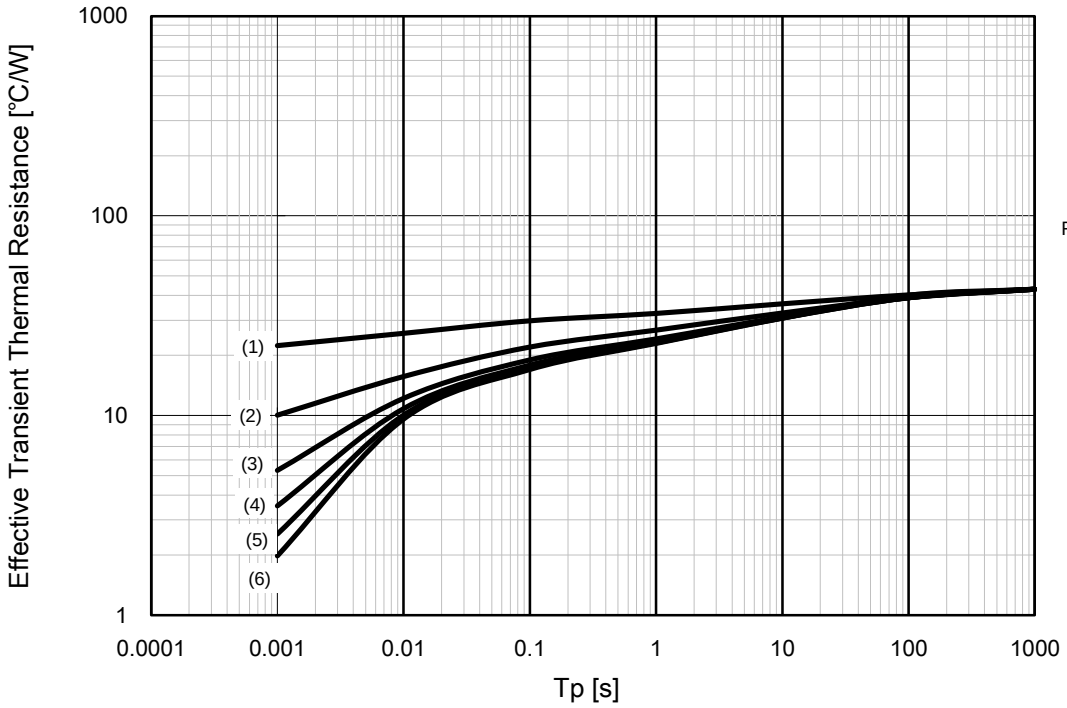


Duty Cycle : $\sigma = \frac{Tp}{T}$

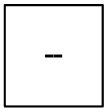
(Graph legends)

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

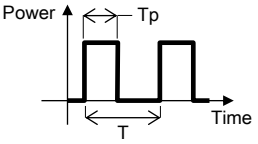
Effective Transient Thermal Resistance - Tp *2 / Typical Data



(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 (50.7mm^2 area, 36µm thick).
*2: Device mounted on Ceramic substrate (70mm×70mm×t1.0mm).

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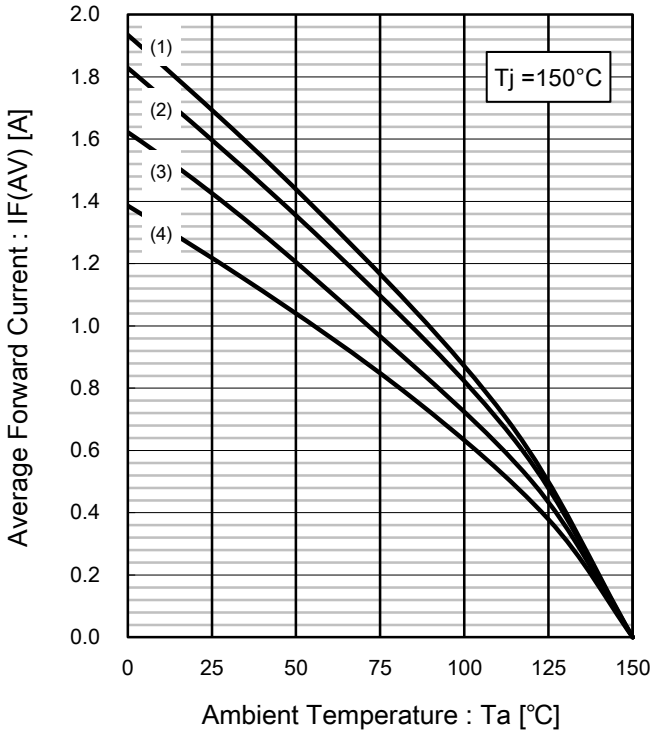
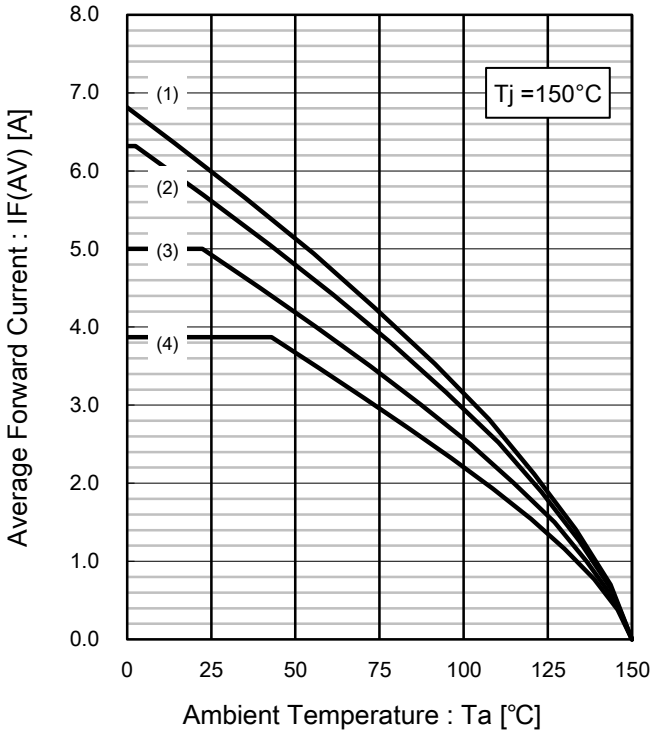
Power Derating Technical Data (Reference)

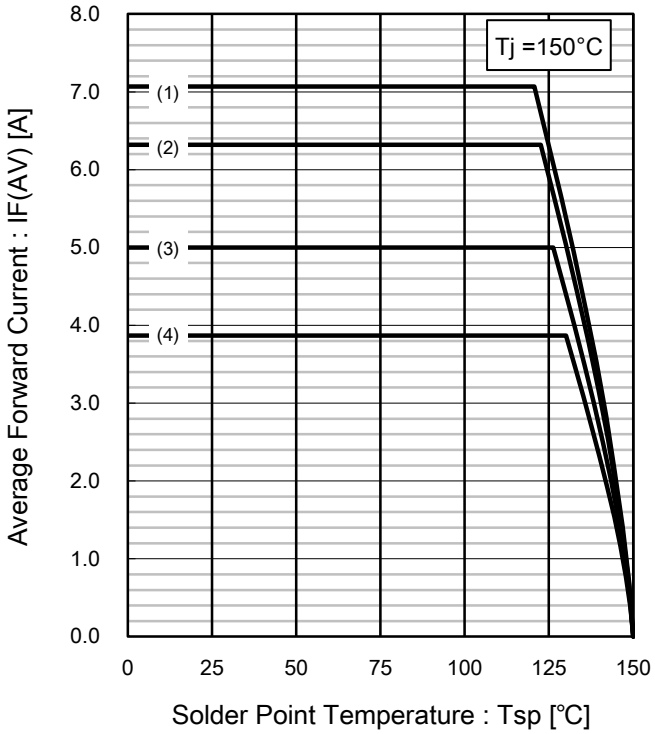
IF(AV) - Ta *1 / Typical Data



IF(AV) - Ta *2 / Typical Data



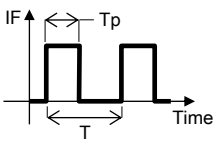
IF(AV) - Tsp / Typical Data



(Graph legends)

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

(Waveform definition)

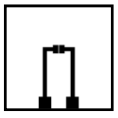


Duty Cycle : σ = $\frac{Tp}{T}$

Note)

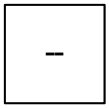
*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (50.7mm^2 area, 36μm thick).

(Evaluation board outline)



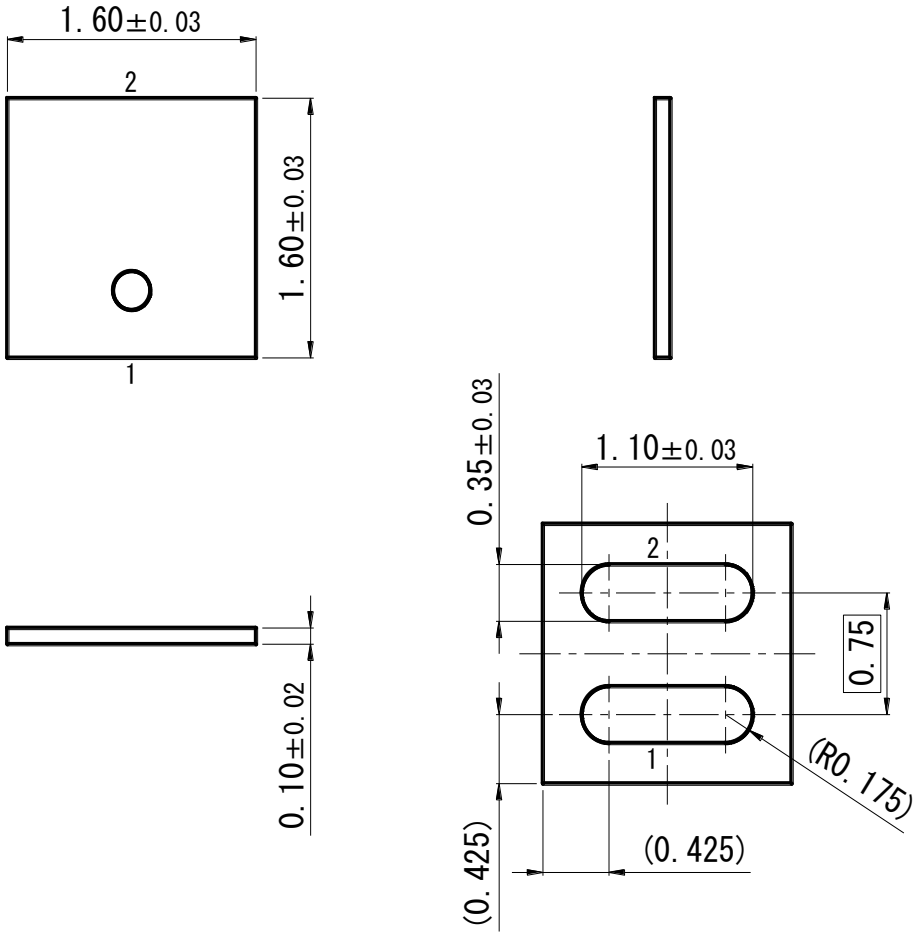
*2: Device mounted on Ceramic substrate (70mm×70mm×t1.0mm).

(Evaluation board outline)



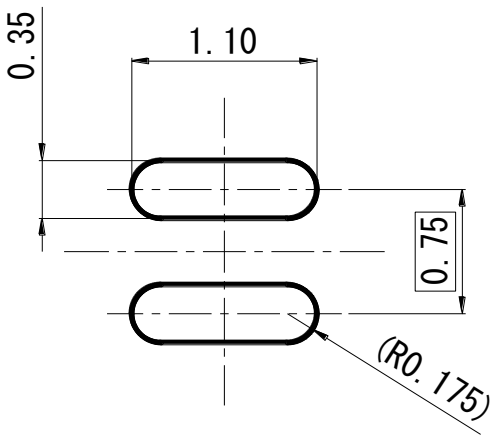
DCSP1616010-N1

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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