ShinDengen

# D3FS6

## Schottky Barrier Diodes
## 60V, 3A

### Feature

- Small SMD
- High Recovery Speed
- Low $V_F$
- Available for automotive use
- Pb free terminal
- RoHS:Yes

### OUTLINE

**Package (House Name):** 2F

### Equivalent circuit


## Absolute Maximum Ratings (unless otherwise specified : Tl=25°C)

| Item | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Storage temperrature | Tstg | | -55 to 150 | °C |
| Junction temperature | Tj | | -55 to 150 | °C |
| Repetitive peak reverse voltage | $V_{RRM}$ | | 60 | V |
| Repetitive peak surge reverse voltage | $V_{RRSM}$ | Pulse width 0.5ms, duty=1/40 | 65 | V |
| Average forward current | $I_F$(AV) | 50Hz sine wave, Resistance load, Tl=87°C | 3 | A |
| Average forward current | $I_F$(AV) | 50Hz sine wave, Resistance load, On alumina substrate, Ta=25°C ※ | 1.65 | A |
| Average forward current | $I_F$(AV) | 50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25°C ※ | 1.05 | A |
| Surge forward current | $I_{FSM}$ | 50Hz sine wave, Non-repetitive, 1cycle, Peak value, Tj=25°C | 80 | A |
| Repetitive peak surge reverse power | $P_{RRSM}$ | Pulse width 10μs, Tj=25°C | 330 | W |

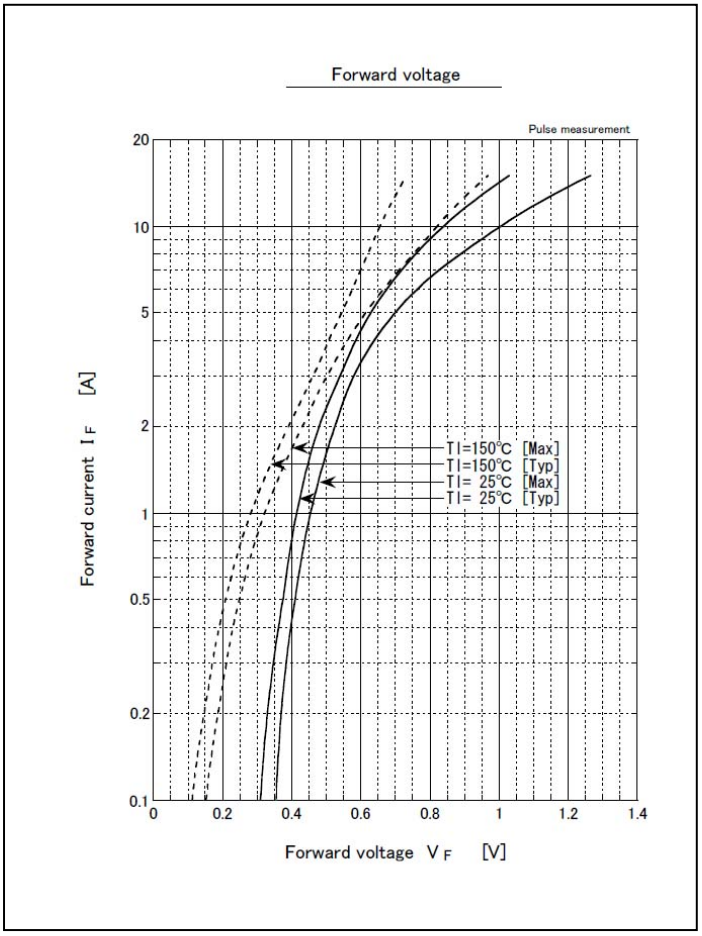
※ :See the original Specifications

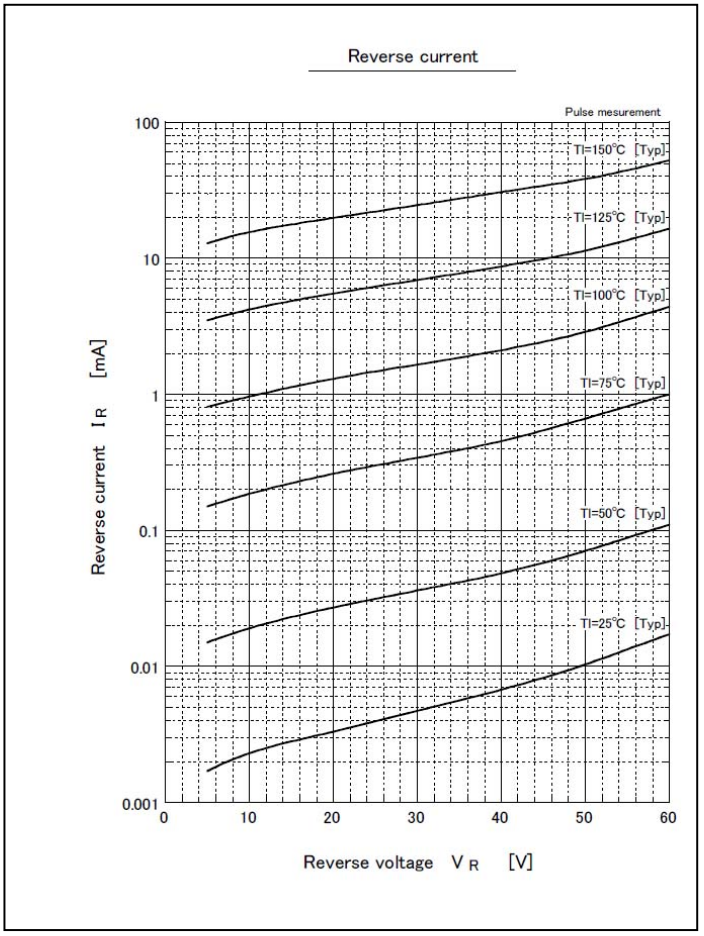
## Electrical Characteristics (unless otherwise specified : Tl=25°C)

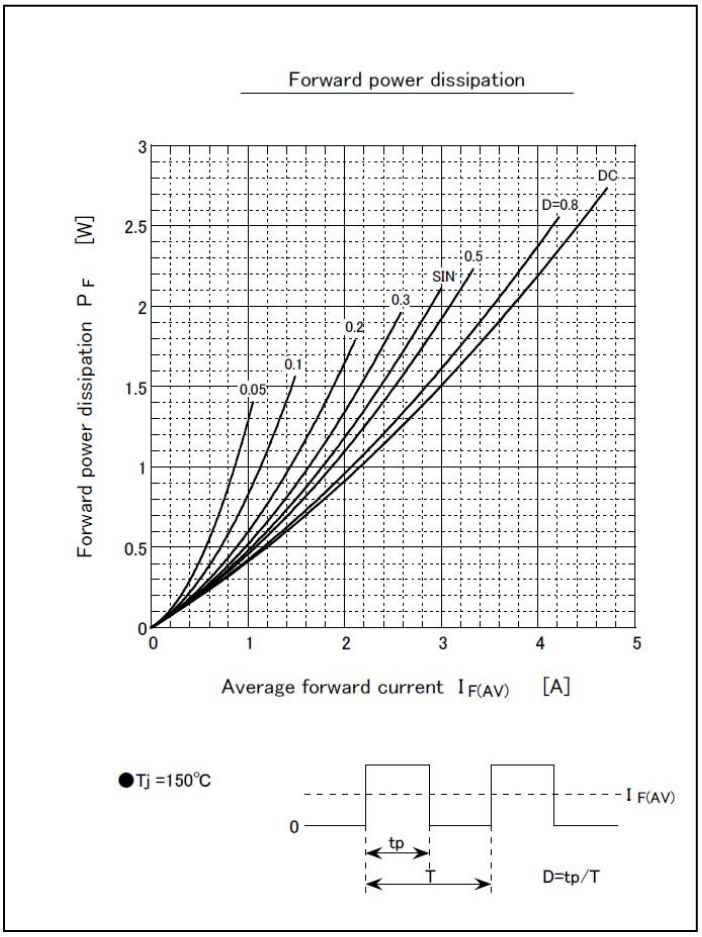
| Item | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | MIN | TYP | MAX | |
| Forward voltage | $V_F$ | IF=3A, Pulse measurement | | | 0.58 | V |
| Reverse current | $I_R$ | VR=60V, Pulse measurement | | | 2.5 | mA |
| Total capacitance | Ct | f=1MHz, VR=10V | | 130 | | pF |
| Thermal resistance | Rth(j-l) | Junction to lead | | | 24 | °C/W |
| Thermal resistance | Rth(j-a) | Junction to ambient, On alumina substrate ※ | | | 90 | °C/W |
| Thermal resistance | Rth(j-a) | Junction to ambient, On glass-epoxy substrate ※ | | | 124 | °C/W |

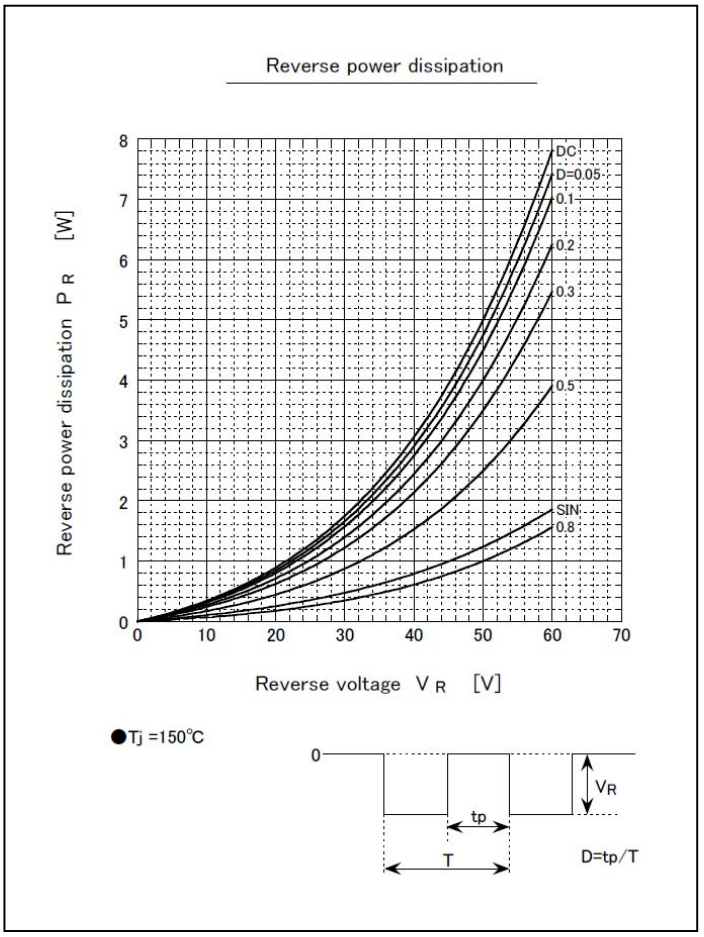
※ ：See the original Specifications

## CHARACTERISTIC DIAGRAMS

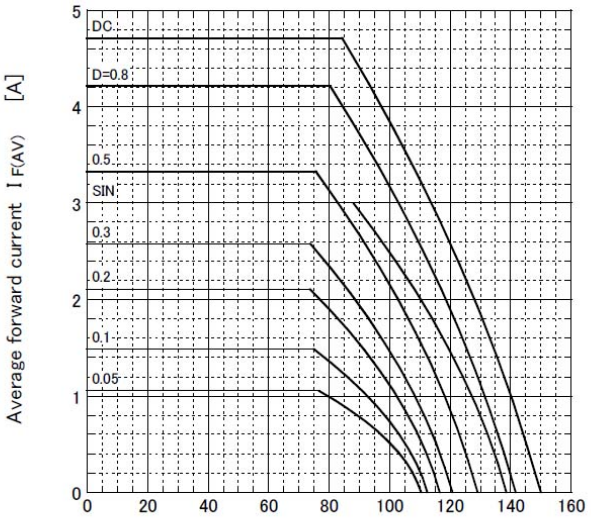


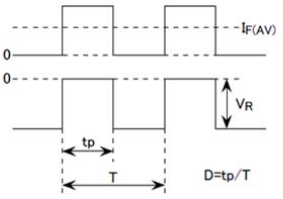



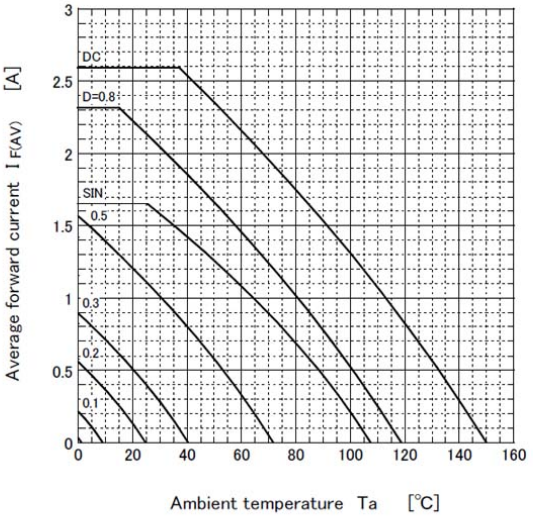
## Derating curve




●$V_R$ = 30V
R-load
Free in air



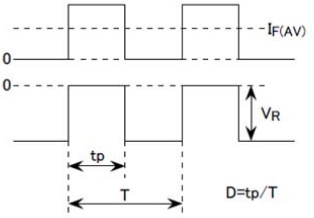

## Derating curve



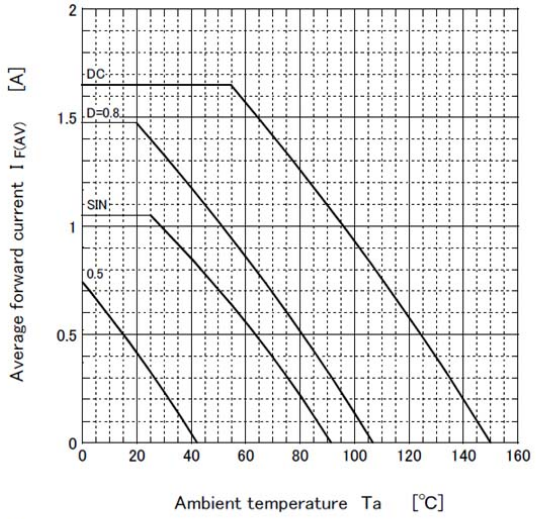

●$V_R$ = 30V
R-load
Free in air

●Substrate detail

| | |
|---|---|
| Type | Alumina |
| Size | 1 inch² |
| Thickness | 0.64mm |
| Conductor thickness | 20 μm |
| Pattern area | 44.52mm² |



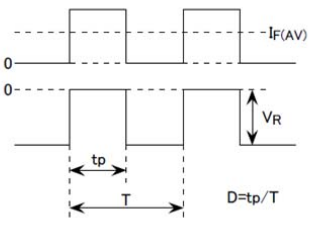

## Derating curve



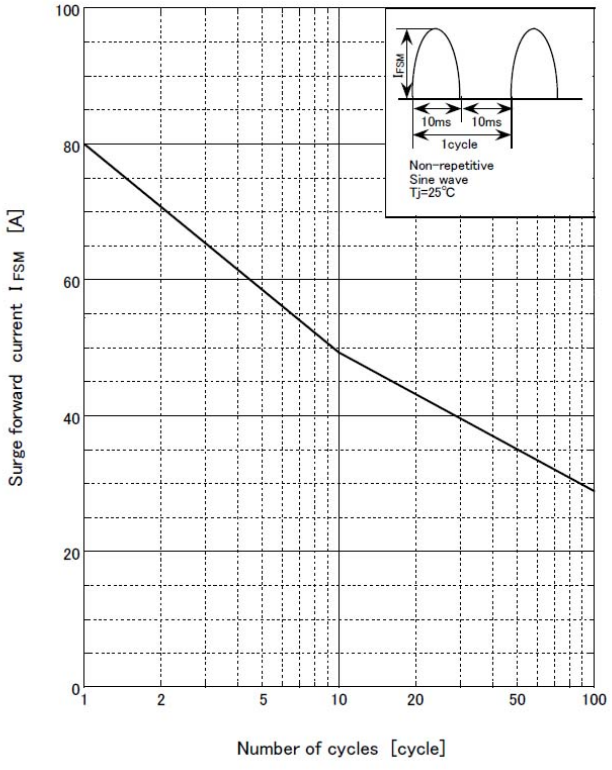

●$V_R$ = 30V
R-load
Free in air

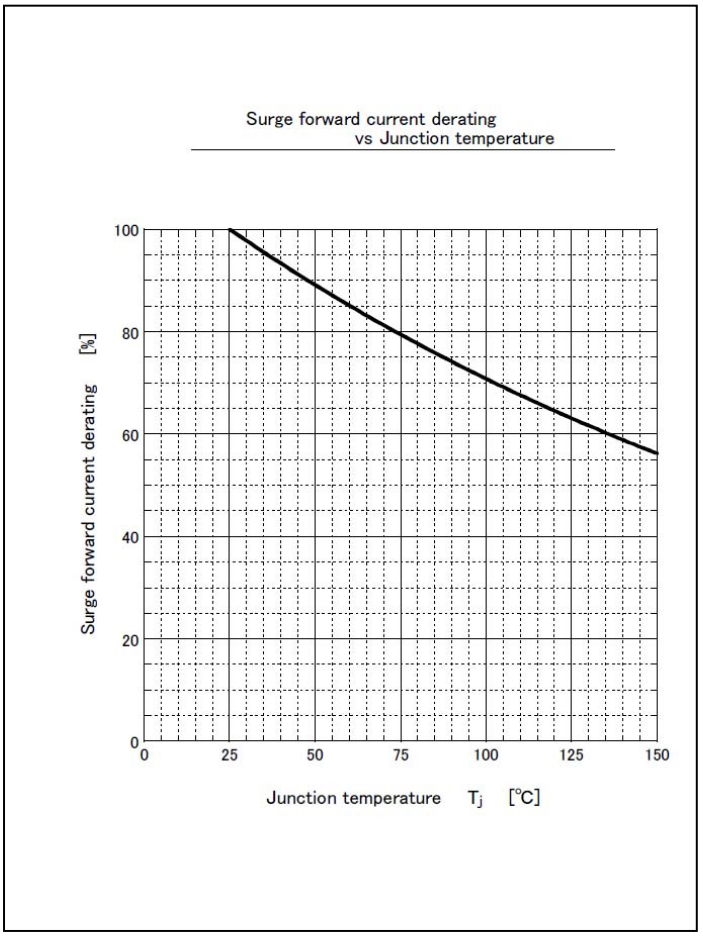
●Substrate detail

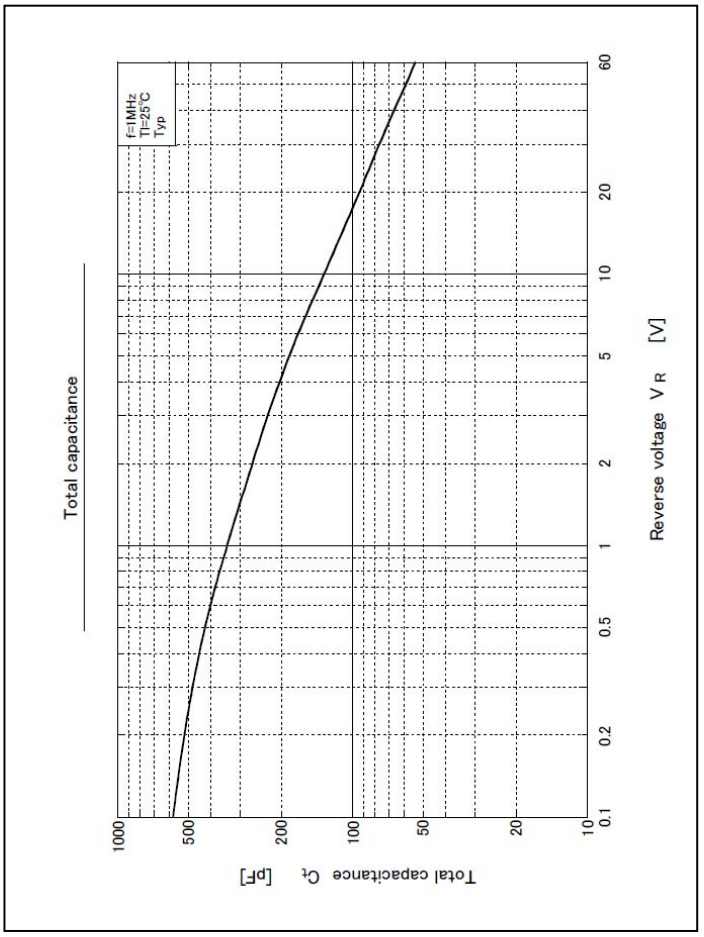
| | |
|---|---|
| Type | Glass-epoxy |
| Size | 1 inch² |
| Thickness | 1mm |
| Conductor thickness | 35 μm |
| Pattern area | 44.52mm² |

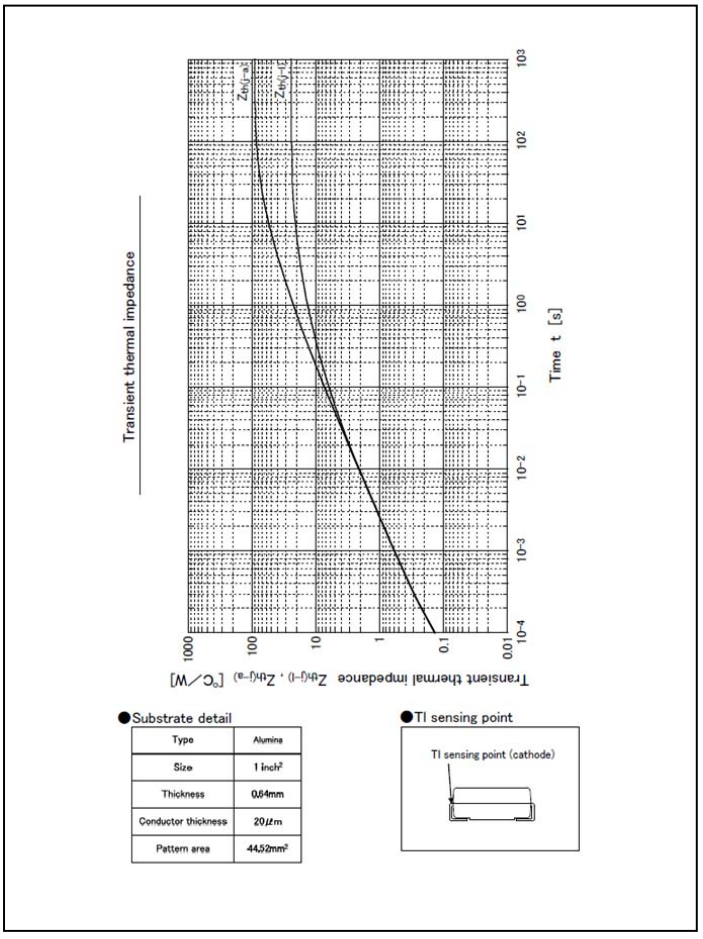


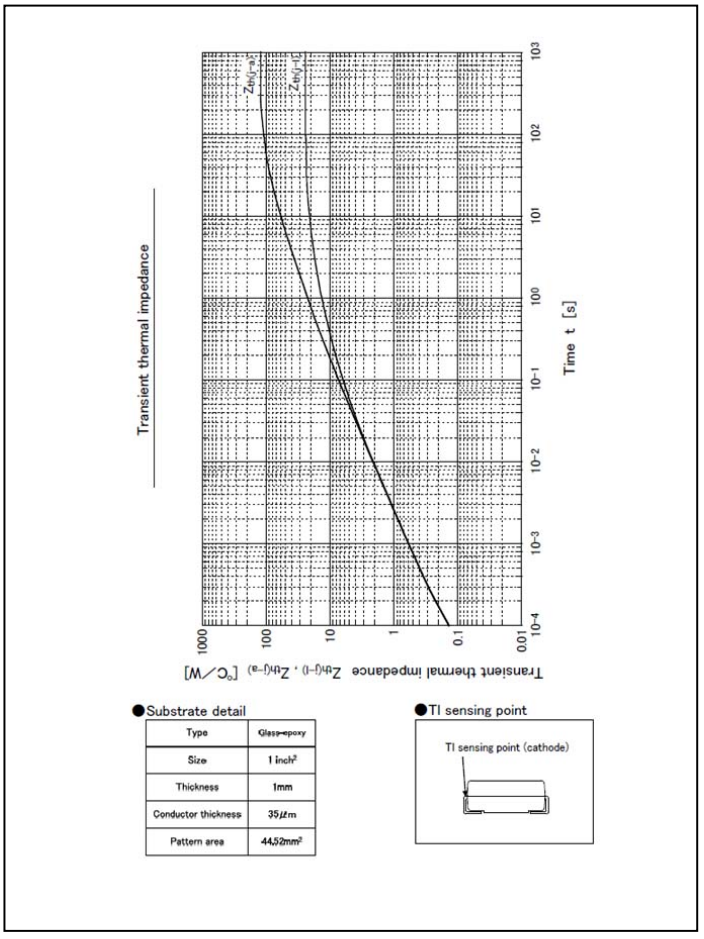

## Surge forward current capability



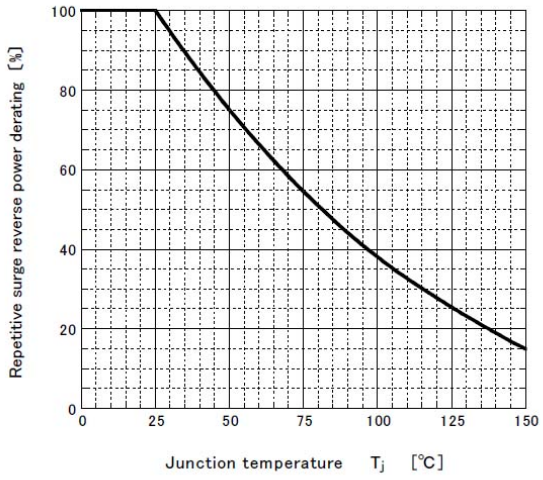

Surge forward current derating
vs Junction temperature
Surge forward current derating [%]
100
80
60
40
20
0
0
25
50
75
100
125
150
Junction temperature Tj [°C]


f=1MHz
Tj=25°C
Typ
Total capacitance
1000
500
200
100
50
20
10
Total capacitance Ct [pF]
60
20
10
5
2
1
0.5
0.2
0.1
Reverse voltage VR [V]

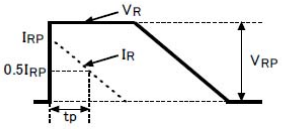

Transient thermal impedance
Zth(j-a)
Zth(j-l)
1000
100
10
1
0.1
0.01
10-4
10-3
10-2
10-1
100
101
102
103
Time t [s]
Transient thermal impedance Zth(j-l) , Zth(j-a) [°C/W]
●Substrate detail
Type Alumina
Size 1 inch²
Thickness 0.64mm
Conductor thickness 20μm
Pattern area 44.52mm²
●Tl sensing point
Tl sensing point (cathode)


Transient thermal impedance
Zth(j-a)
Zth(j-l)
1000
100
10
1
0.1
0.01
10-4
10-3
10-2
10-1
100
101
102
103
Time t [s]
Transient thermal impedance Zth(j-l) , Zth(j-a) [°C/W]
●Substrate detail
Type Glass-epoxy
Size 1 inch²
Thickness 1mm
Conductor thickness 35μm
Pattern area 44.52mm²
●Tl sensing point
Tl sensing point (cathode)

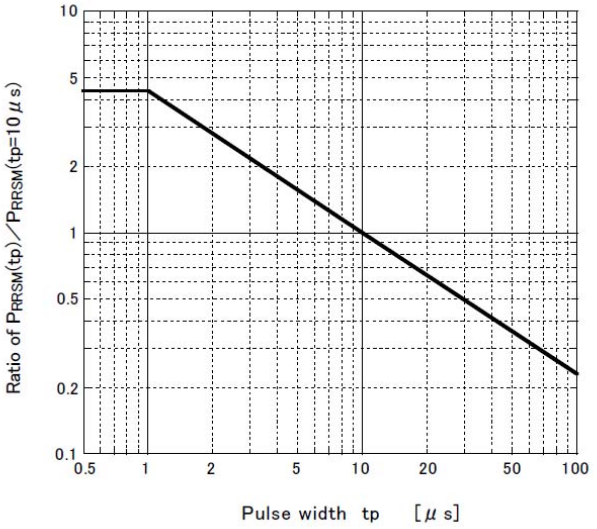
Repetitive surge reverse power derating
vs Junction temperature



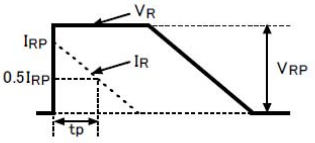

● $P_{RRSM} = I_{RP} \times V_{RP}$




Repetitive surge reverse power capability




● $P_{RRSM} = I_{RP} \times V_{RP}$



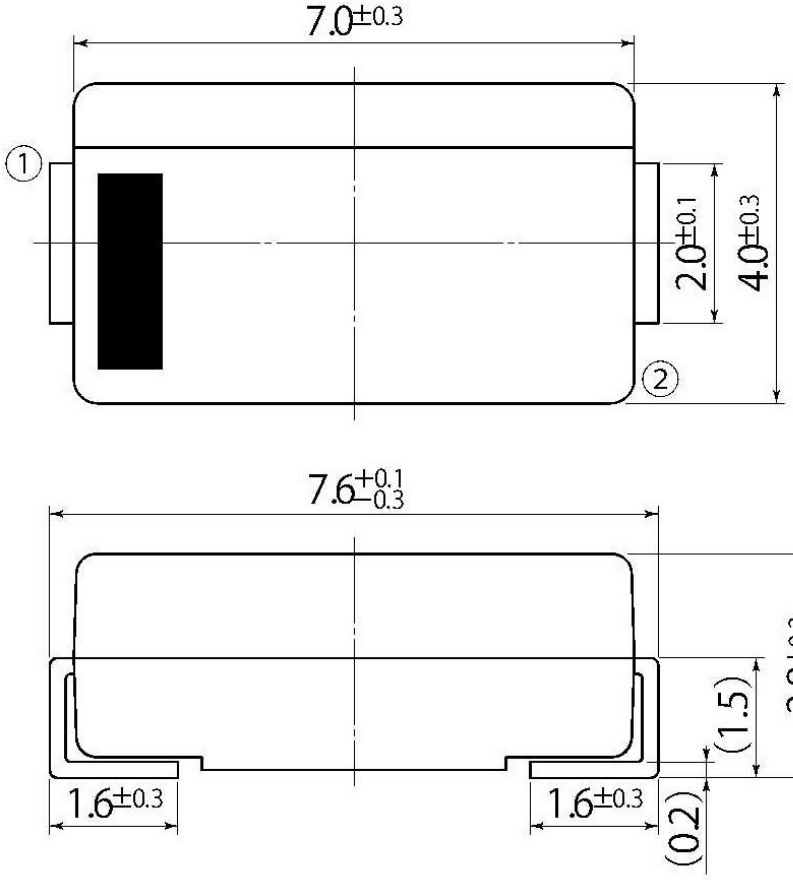
## Outline Dimensions

unit:mm

scale: 10/1

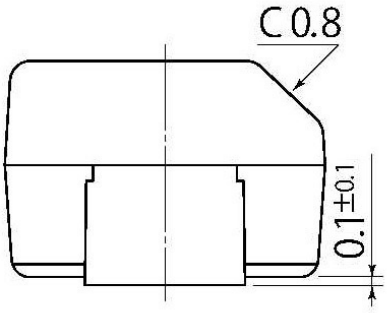
B9

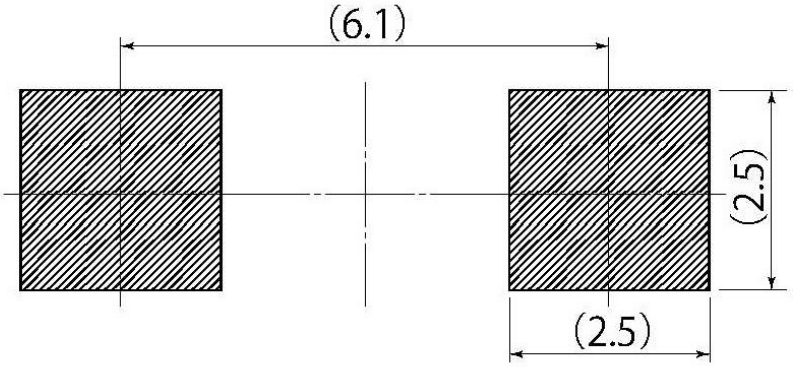
| | |
|---|---|
| JEDEC Code | – |
| JEITA Code | – |
| House Name | 2F |










Referential Soldering Pad

・Optimize soldering pad to the board design and soldering condi tion.

## Notes

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