ShinDengen

D1FS6

Schottky Barrier Diodes
60V, 1.1A

Feature

- Small SMD
- High Recovery Speed
- Low V_F
- Based on AEC-Q101
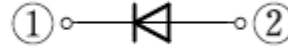- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): 1F
Package (JEDEC Code): DO-214AC

Equivalent circuit

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

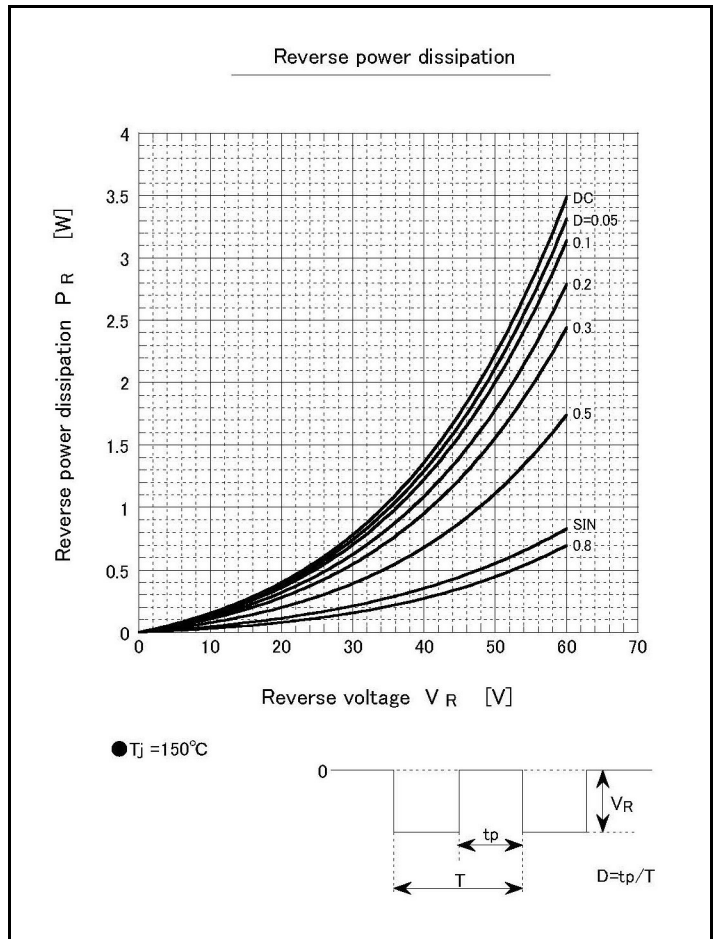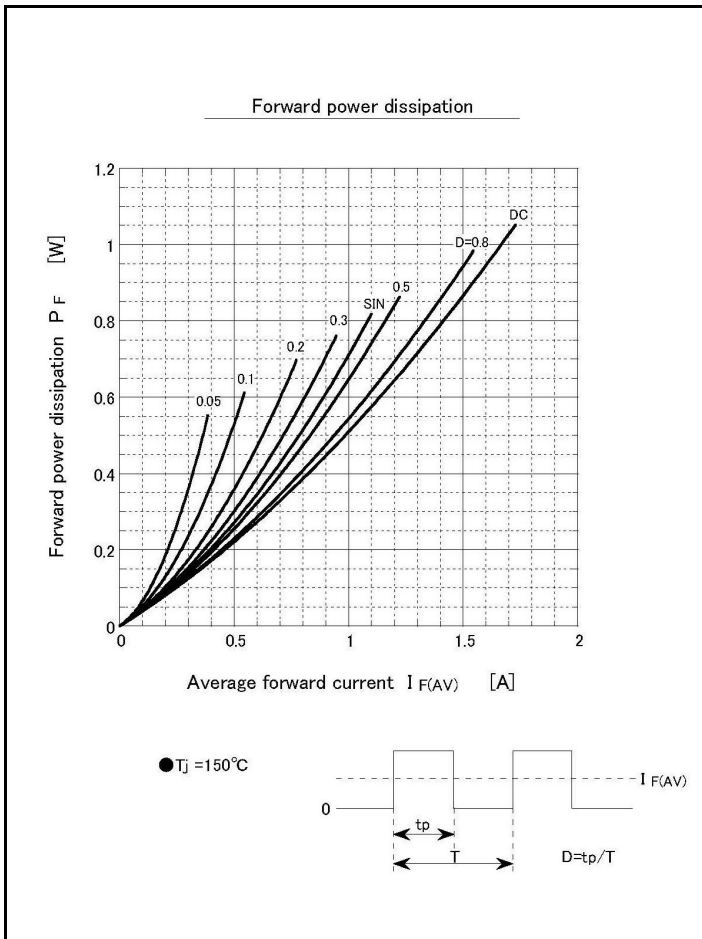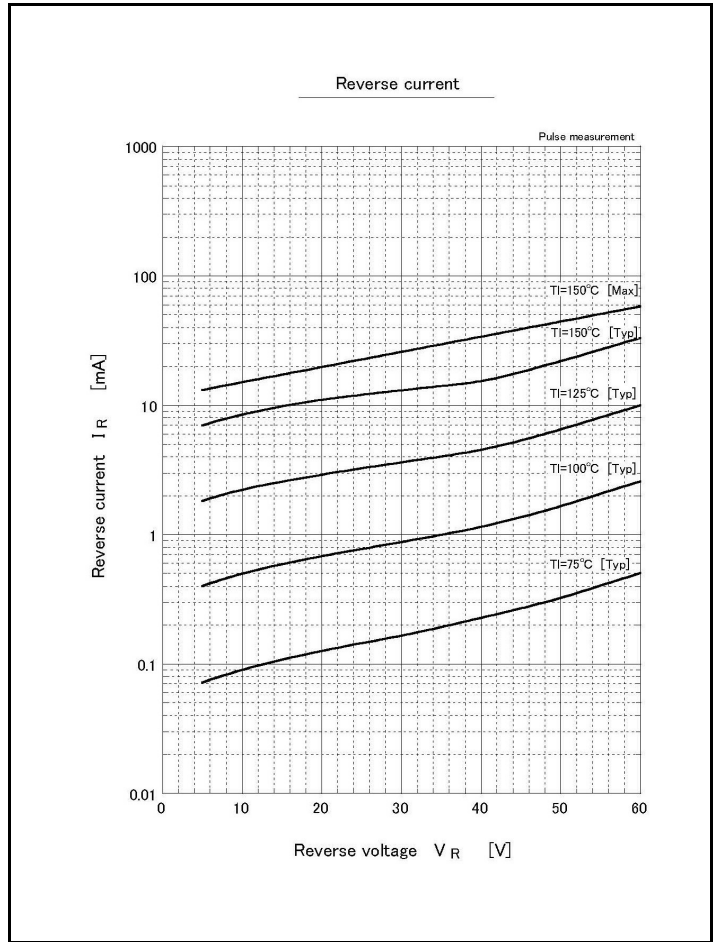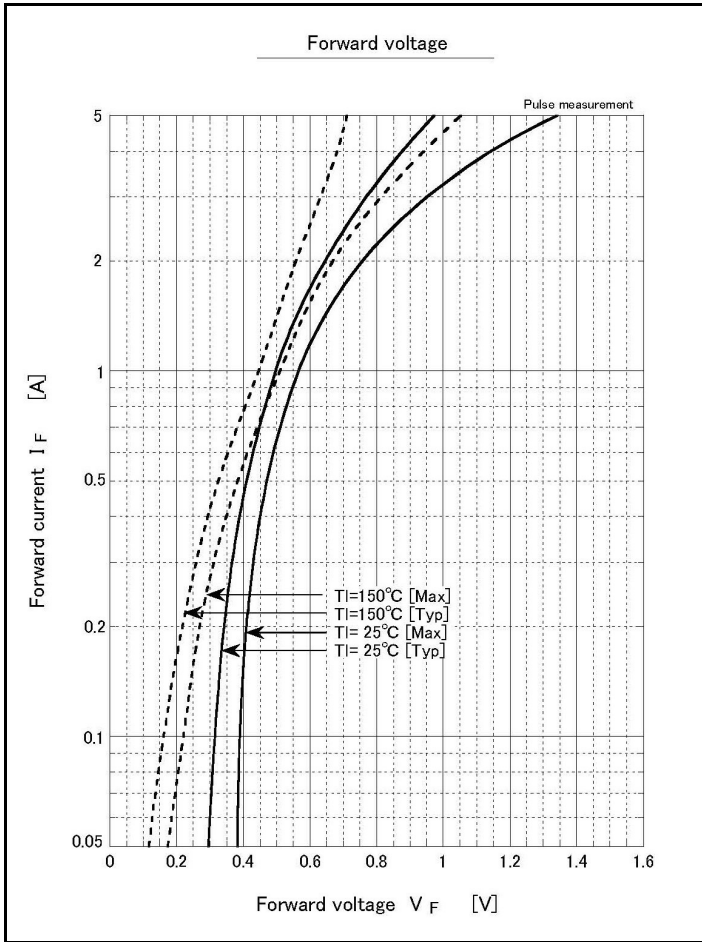| Item	Symbol	Conditions	Ratings	Unit
Storage temperrature	Tstg		-55 to 150	°C
Junction temperature	Tj		-55 to 150	°C
Repetitive peak reverse voltage	V_{RRM}		60	V
Repetitive peak surge reverse voltage	V_{RRSM}	Pulse width 0.5ms, duty=1/40	65	V
Average forward current	$I_F(AV)$	50Hz sine wave, Resistance load, On alumina substrate, Ta=49°C ※	1.1	A
Average forward current	$I_F(AV)$	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=48°C ※	0.82	A
Surge forward current	I_{FSM}	50Hz sine wave, Non-repetitive, 1cycle, Peak value, Tj=125°C	40	A
Repetitive peak surge reverse power	P_{RRSM}	Pulse width 10μs, Tj=25°C	60	W

※ ：See the original Specifications

Electrical Characteristics (unless otherwise specified : Tl=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Forward voltage	V$_F$	IF=1.1A, Pulse measurement			0.58	V
Reverse current	I$_R$	VR=60V, Pulse measurement			1	mA
Total capacitance	Ct	f=1MHz, VR=10V		50		pF
Thermal resistance	Rth(j-l)	Junction to lead			23	℃/W
Thermal resistance	Rth(j-a)	Junction to ambient, On alumina substrate ※			108	℃/W
Thermal resistance	Rth(j-a)	Junction to ambient, On glass-epoxy substrate ※			157	℃/W

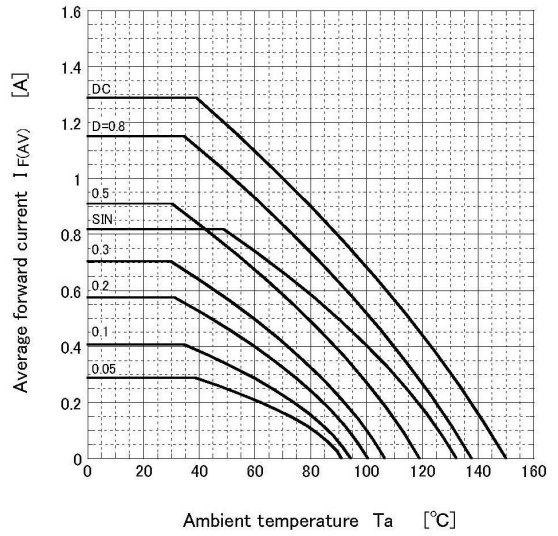※：See the original Specifications

CHARACTERISTIC DIAGRAMS
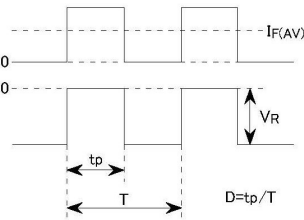
Forward voltage

Pulse measurement

Forward current I_F [A] vs Forward voltage V_F [V]

- TI=150°C [Max]
- TI=150°C [Typ]
- TI= 25°C [Max]
- TI= 25°C [Typ]

Reverse current

Pulse measurement

Reverse current I_R [mA] vs Reverse voltage V_R [V]

- TI=150°C [Max]
- TI=150°C [Typ]
- TI=125°C [Typ]
- TI=100°C [Typ]
- TI=75°C [Typ]

Forward power dissipation

Forward power dissipation P_F [W] vs Average forward current $I_{F(AV)}$ [A]

DC, D=0.8, 0.5, SIN, 0.3, 0.2, 0.1, 0.05

● Tj =150°C

$D=tp/T$

Reverse power dissipation

Reverse power dissipation P_R [W] vs Reverse voltage V_R [V]

DC, D=0.05, 0.1, 0.2, 0.3, 0.5, SIN, 0.8

● Tj =150°C

$D=tp/T$

Derating curve

- $V_R = 20V$
  R-load
  Free in air
- Substrate detail

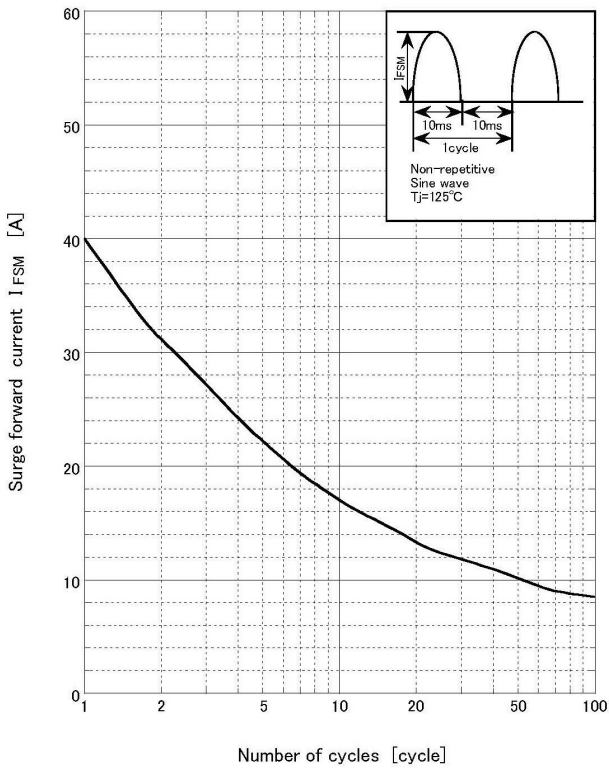| Type	Alumina
Size	1 inch²
Thickness	0.64mm
Conductor thickness	20 μm
Pattern area	47.8mm²

$D=tp/T$

Derating curve

- $V_R = 20V$
  R-load
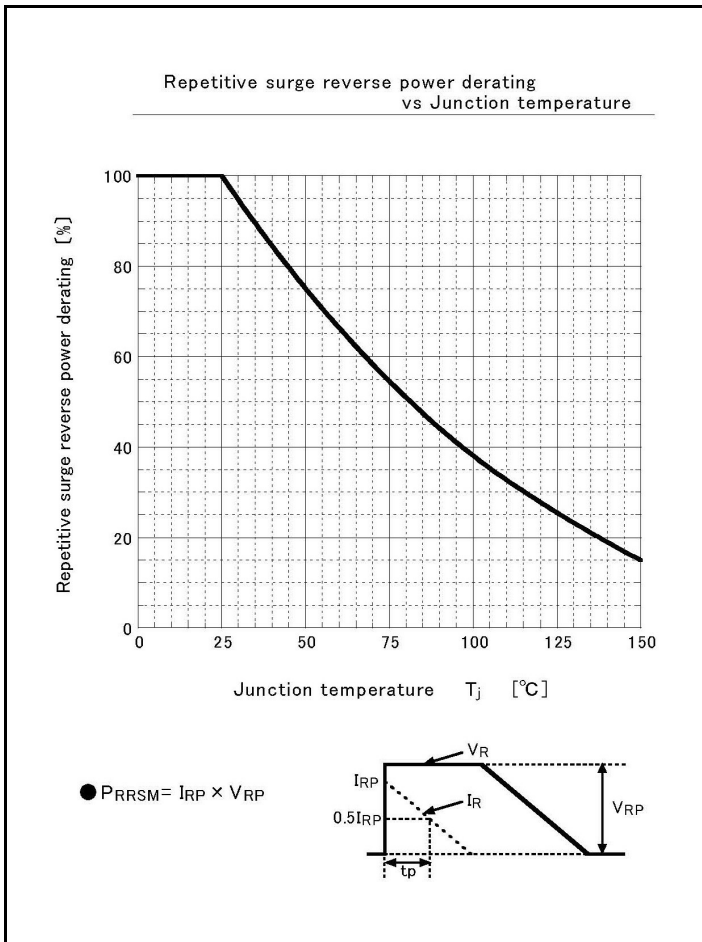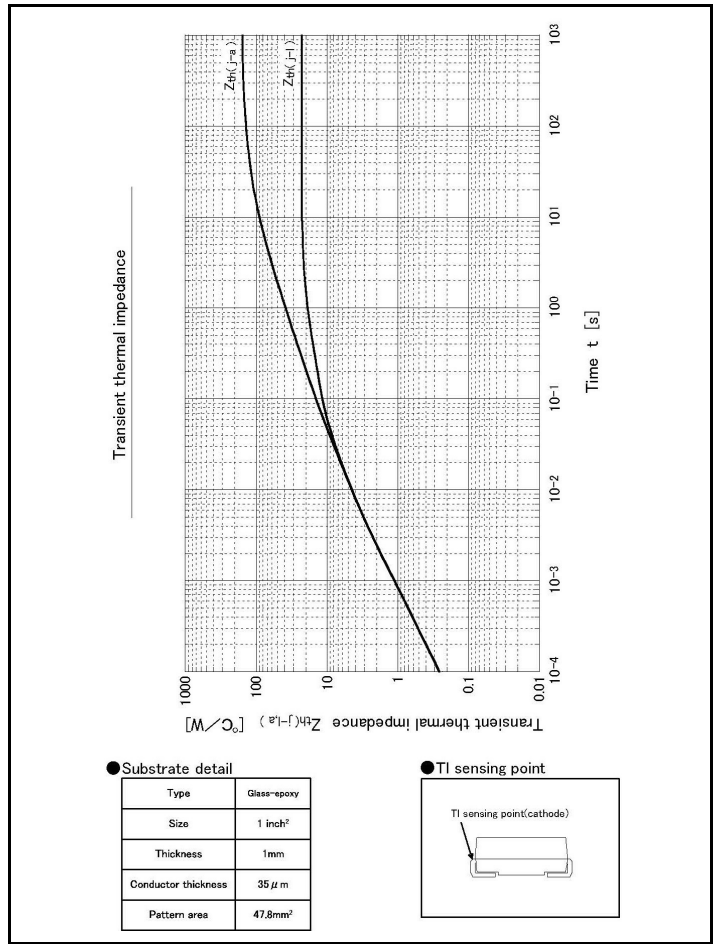 Free in air
- Substrate detail

Type	Glass-epoxy
Size	1 inch²
Thickness	1mm
Conductor thickness	35 μm
Pattern area	47.8mm²

$D=tp/T$
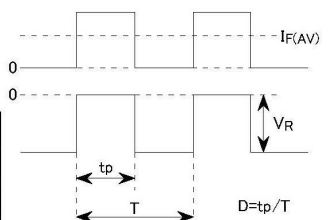
Surge forward current capability

Non-repetitive
Sine wave
Tj=125°C

f=1MHz
Tj=25°C
Typ

Transient thermal impedance

Transient thermal impedance $Z_{th(j-l_a)}$ [°C/W]

Time t [s]

$Z_{th(j-a)}$
$Z_{th(j-l)}$

● Substrate detail

Type	Alumina
Size	1 inch²
Thickness	0.64mm
Conductor thickness	20 μm
Pattern area	47.8mm²

● TI sensing point

TI sensing point(cathode)

Transient thermal impedance

Transient thermal impedance $Z_{th(j-l_a)}$ [°C/W]

Time t [s]

$Z_{th(j-a)}$
$Z_{th(j-l)}$

● Substrate detail

Type	Glass-epoxy
Size	1 inch²
Thickness	1mm
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● TI sensing point

TI sensing point(cathode)

Repetitive surge reverse power derating vs Junction temperature

Repetitive surge reverse power derating [%]

Junction temperature T_j [°C]

● $P_{RRSM} = I_{RP} \times V_{RP}$

Repetitive surge reverse power capability

Ratio of $P_{RRSM}(tp) / P_{RRSM}(tp=10\mu s)$

Pulse width tp [μs]

● $P_{RRSM} = I_{RP} \times V_{RP}$

unit:mm

scale: 10/1

B3

JEDEC Code	DO-214AC
JEITA Code	–
House Name	1F, CF

4.4±0.3

① 1.5±0.2 2.5±0.3

②

5.0±0.3

2.0±0.3

(0.9)

1.2±0.3   1.2±0.3

(0.2)

0.1±0.1

(4.2)

(2.0)

(2.0)
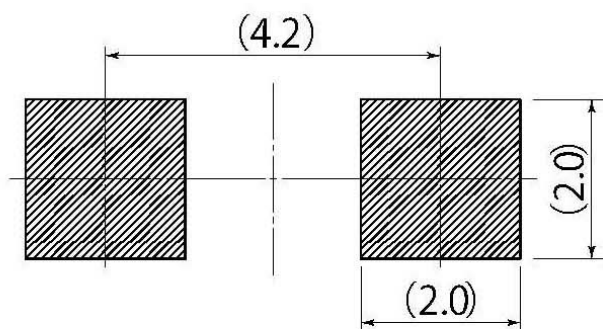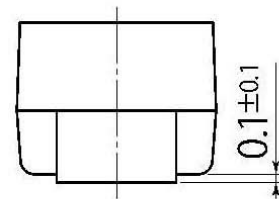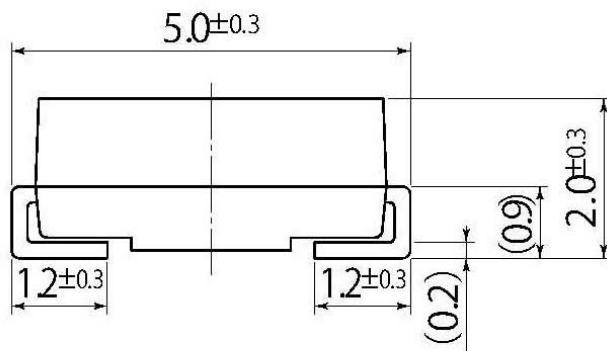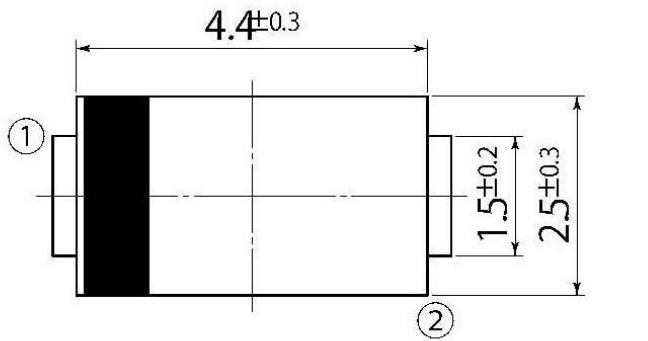
Referential Soldering Pad

・ Optimize soldering pad to the board design and soldering condition.