ShinDengen

D1FK100

Fast Recovery Diodes
1000V, 1A

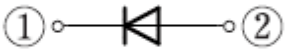
Feature

- Small SMD
- High Voltage
- Low Noise
- 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}		1000	V
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, Tl=97°C	1	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On alumina substrate, Ta=25°C ※	0.62	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25°C ※	0.47	A
Surge forward current	I_{FSM}	50Hz sine wave, Non-repetitive 1 cycle, Peak value, Tj=25°C	20	A
Surge forward current	I_{FSM1}	tp=1ms, Sine wave, Non-repetitive, Peak value, Tj=25°C	55	A

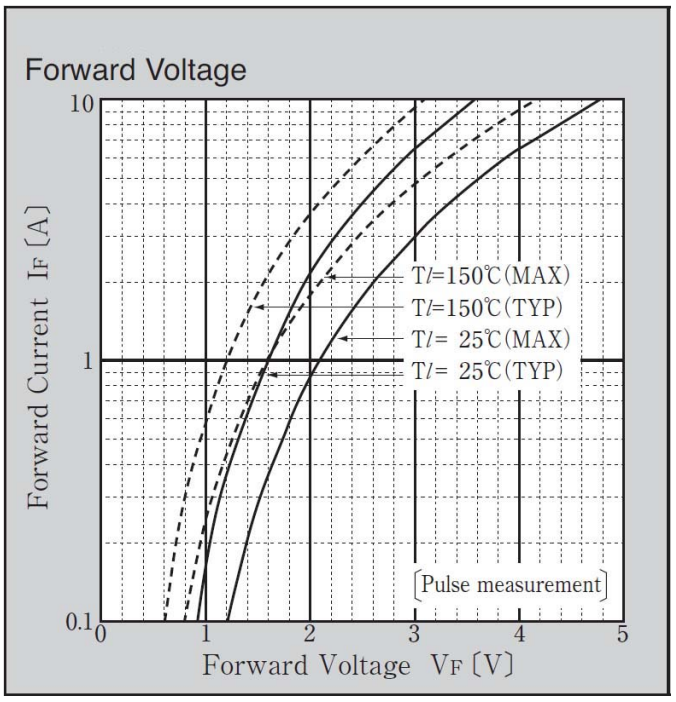
※ ：See the original Specifications

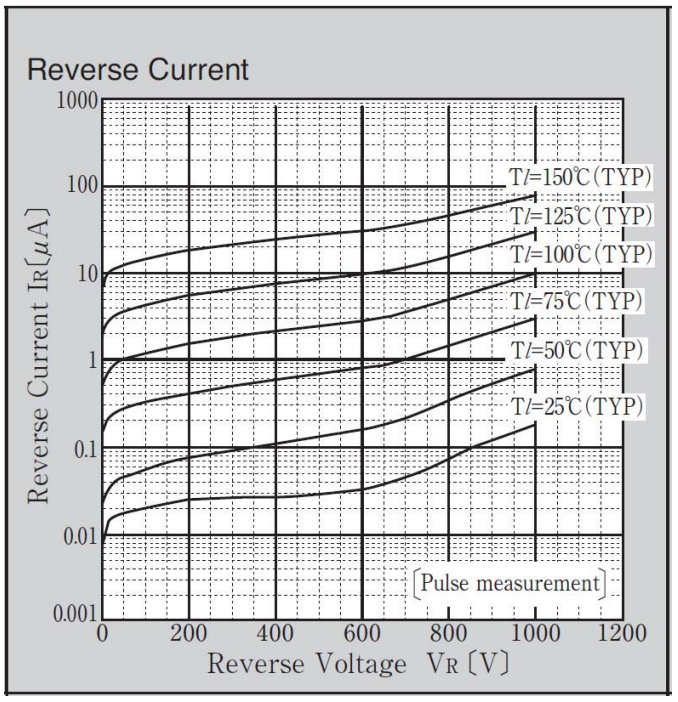
Electrical Characteristics (unless otherwise specified : Tl=25°C)

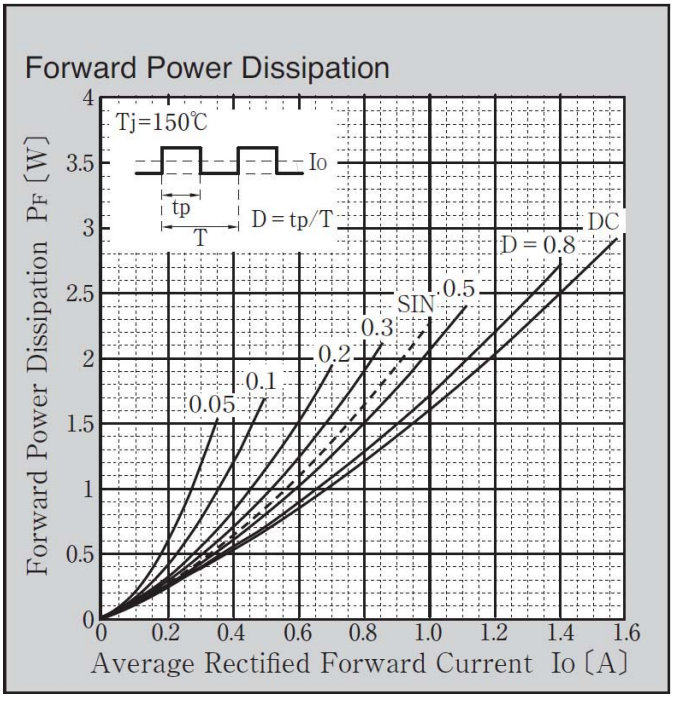
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Forward voltage	V_F	IF=1A, Pulse measurement			2.1	V
Reverse current	I_R	VR=1000V, Pulse measurement			10	μA
Reverse recovery time	trr	IF=0.5A, IR=1.0A, 0.25IR			75	ns
Total capacitance	Ct	f=1MHz, VR=10V		7.5		pF
Thermal resistance	Rth(j-l)	Junction to lead			23	°C/W
Thermal resistance	Rth(j-a)	Junction to ambient, On alumina substrate ※			108	°C/W
Thermal resistance	Rth(j-a)	Junction to ambient, On glass-epoxy substrate ※			157	°C/W

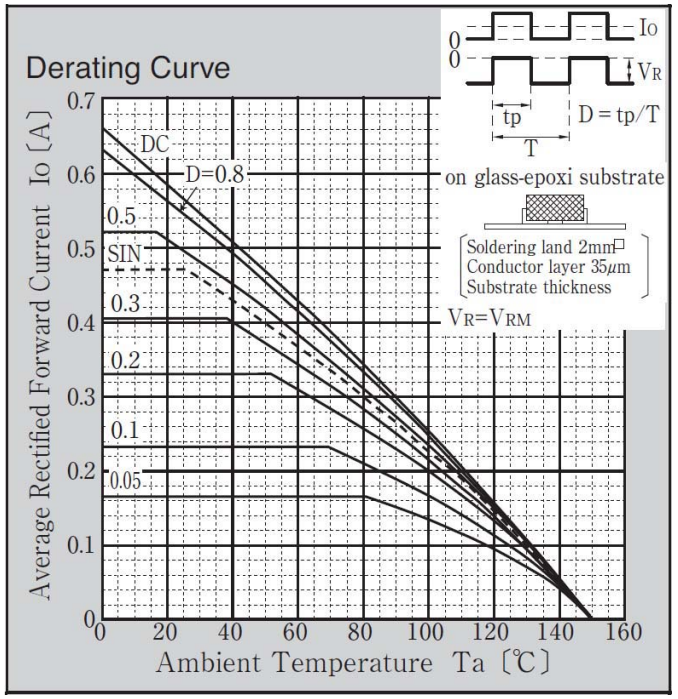
※ ：See the original Specifications

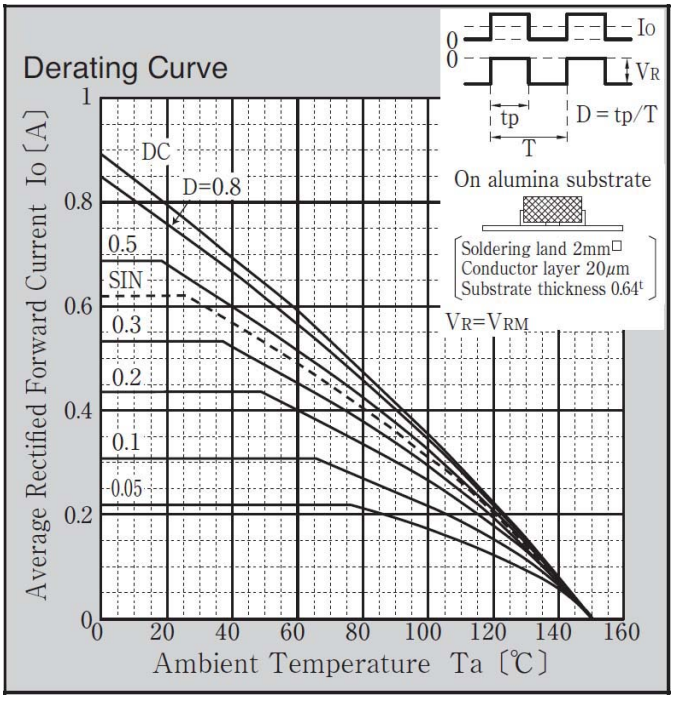
CHARACTERISTIC DIAGRAMS

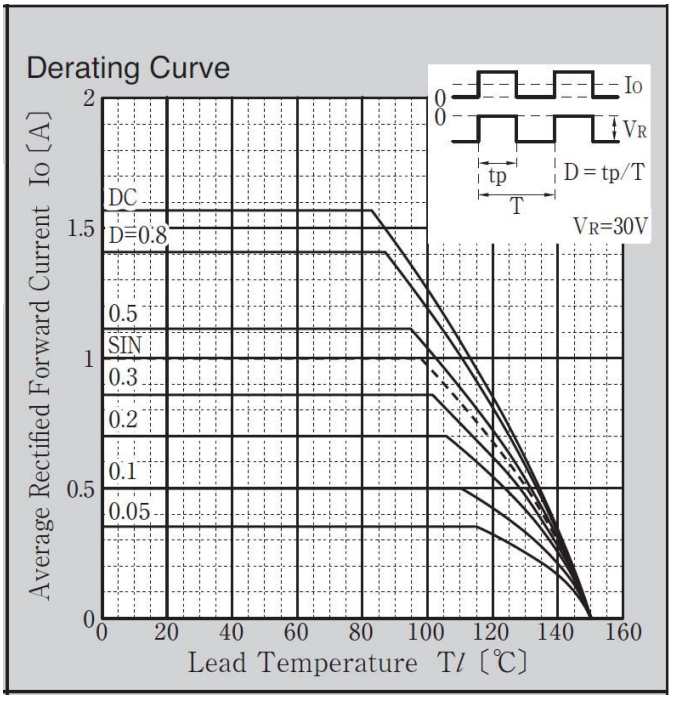


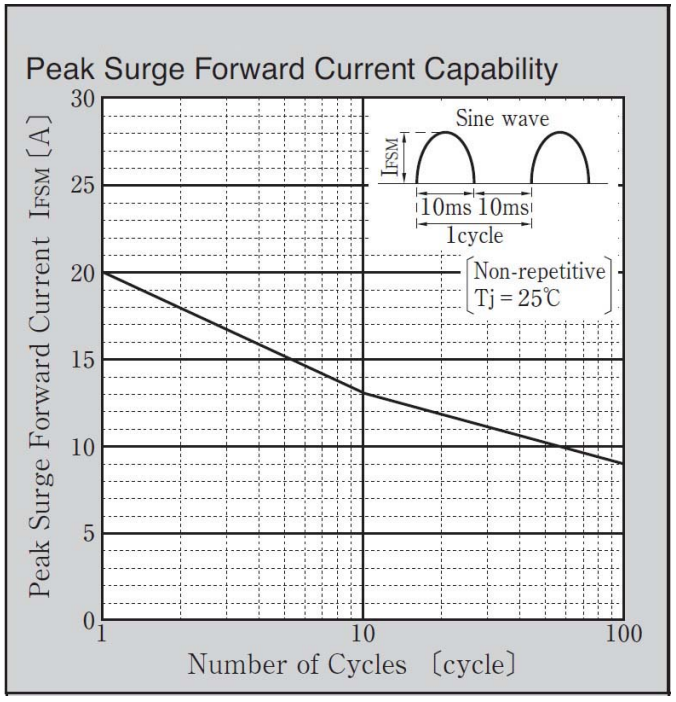


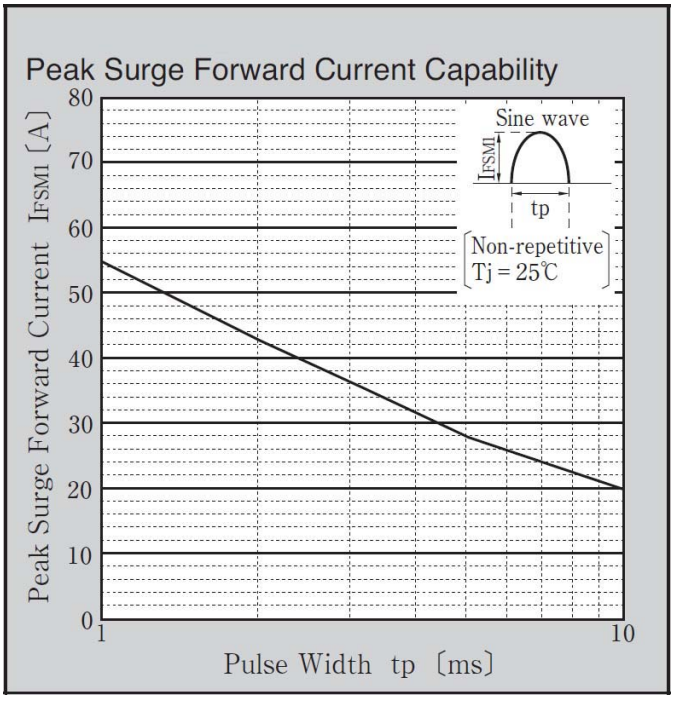


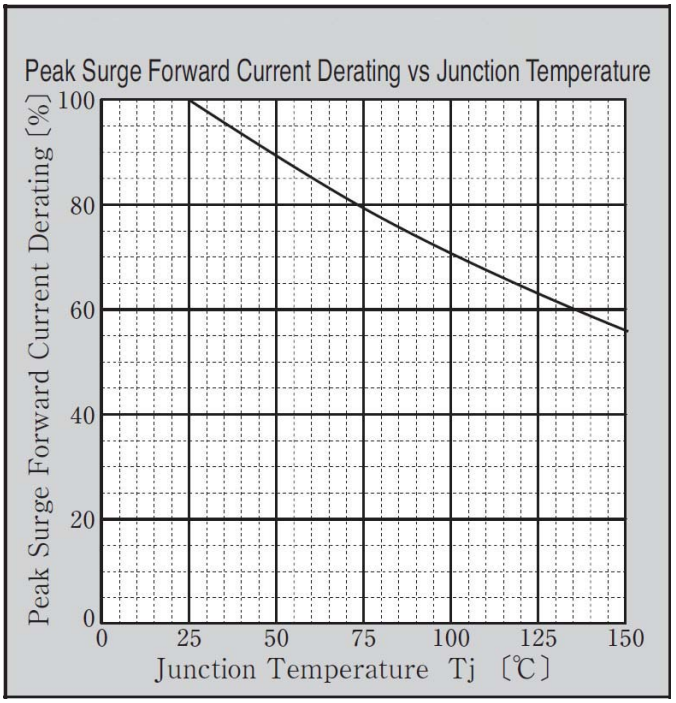


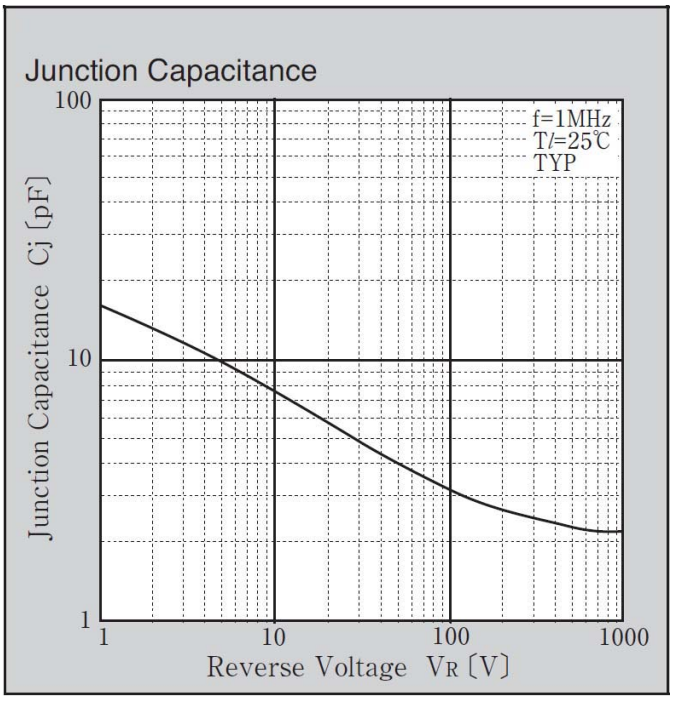

Derating Curve
Average Rectified Forward Current Io〔A〕
Ambient Temperature Ta〔℃〕
DC
D=0.8
0.5
SIN
0.3
0.2
0.1
0.05
Io
VR
tp
T
D = tp/T
On alumina substrate
Soldering land 2mm□
Conductor layer 20μm
Substrate thickness 0.64t
VR=VRM

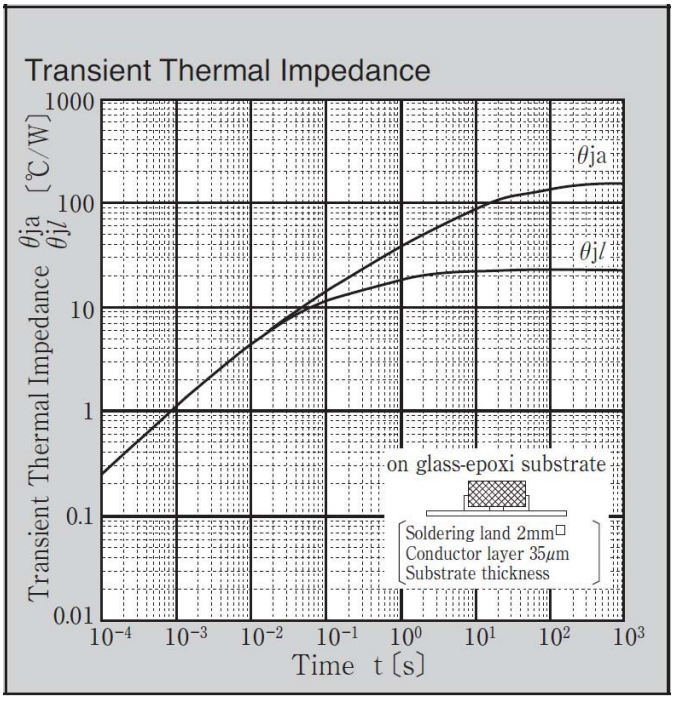

Derating Curve
Average Rectified Forward Current Io〔A〕
Lead Temperature Tl〔℃〕
DC
D=0.8
0.5
SIN
0.3
0.2
0.1
0.05
Io
VR
tp
T
D = tp/T
VR=30V

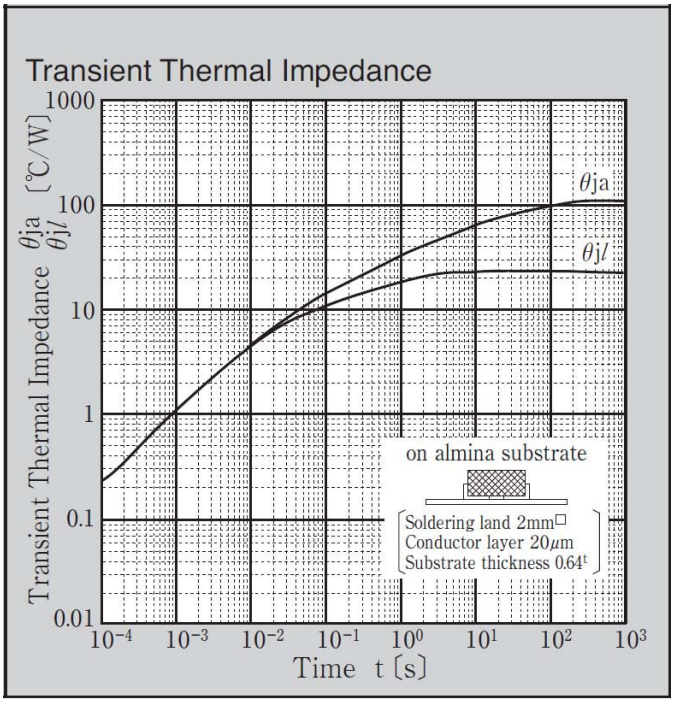

Peak Surge Forward Current Capability
Peak Surge Forward Current IFSM〔A〕
Number of Cycles 〔cycle〕
Sine wave
IFSM
10ms 10ms
1cycle
Non-repetitive
Tj = 25℃


Peak Surge Forward Current Capability
Peak Surge Forward Current IFSM1〔A〕
Pulse Width tp 〔ms〕
Sine wave
IFSM1
tp
Non-repetitive
Tj = 25℃


Peak Surge Forward Current Derating vs Junction Temperature
Peak Surge Forward Current Derating 〔%〕
100
80
60
40
20
0
0
25
50
75
100
125
150
Junction Temperature Tj 〔℃〕


Junction Capacitance
Junction Capacitance Cj 〔pF〕
100
10
1
1
10
100
1000
Reverse Voltage VR 〔V〕
f=1MHz
T/=25℃
TYP


Transient Thermal Impedance
Transient Thermal Impedance θja θj/ 〔℃/W〕
1000
100
10
1
0.1
0.01
θja
θj/
on glass-epoxi substrate
Soldering land 2mm□
Conductor layer 35μm
Substrate thickness
10−4
10−3
10−2
10−1
100
101
102
103
Time t 〔s〕


Transient Thermal Impedance
Transient Thermal Impedance θja θj/ 〔℃/W〕
1000
100
10
1
0.1
0.01
θja
θj/
on almina substrate
Soldering land 2mm□
Conductor layer 20μm
Substrate thickness 0.64t
10−4
10−3
10−2
10−1
100
101
102
103
Time t 〔s〕

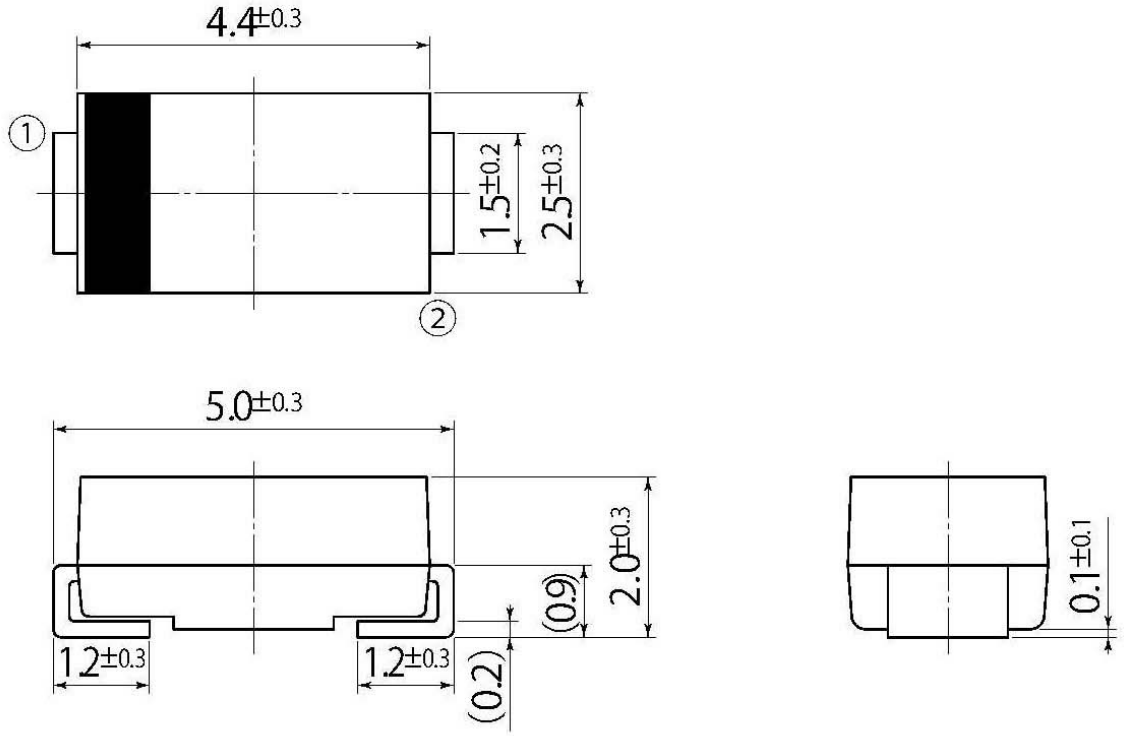
Outline Dimensions

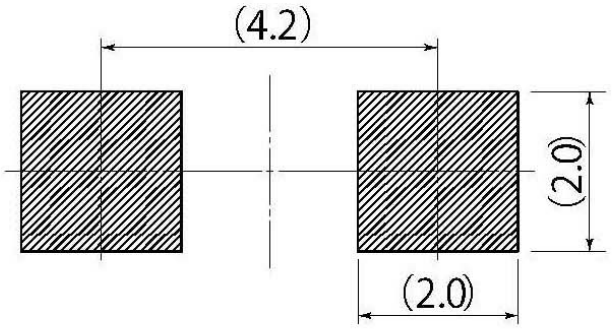
unit:mm

scale: 10/1

B3

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





Referential Soldering Pad

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

Notes

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