ShinDengen

D3CE60K

Fast Recovery Diodes
600V, 3A

Feature

- Ultra-small SMD
- Ultra-thin PKG=1.0mm
- High Voltage
- Based on AEC-Q101
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): CE
Package (JEITA Code): SC-110B

Equivalent circuit

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

Item	Symbol	Conditions	Ratings	Unit
Storage temperrature	Tstg		-55 to 150	℃
Junction temperature	Tj		-55 to 150	℃
Repetitive peak reverse voltage	V_{RRM}		600	V
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, Tl=78℃	3	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, Tl=103℃	2.2	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25℃ ※	0.97	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25℃ ※	0.69	A
Surge forward current	I_{FSM}	50Hz sine wave, Non-repetitive 1 cycle, Peak value, Tj=25℃	50	A
Surge forward current	I_{FSM1}	tp=1ms, Sine wave, Non-repetitive, Peak value, Tj=25℃	95	A

※ ：See the original Specifications

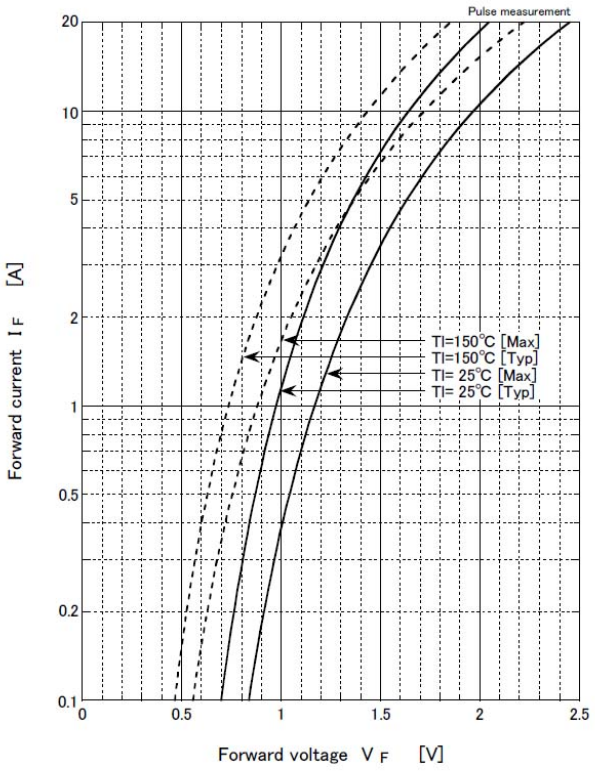
Electrical Characteristics (unless otherwise specified : Tl=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Forward voltage	V_F	IF=3A, Pulse measurement			1.45	V
Reverse current	I_R	VR=600V, Pulse measurement			10	μA
Reverse recovery time	trr	IF=0.5A, IR=1.0A, 0.25IR			80	ns
Reverse recovery time	trr	IF=1.0A, VR=30V, di/dt=-50A/μs, 0.25IR			64	ns
Reverse recovery time	trr	IF=1.0A, VR=420V, di/dt=-50A/μs, 0.25IR			76	ns
Total capacitance	Ct	f=1MHz, VR=10V		18		pF
Thermal resistance	Rth(j-l)	Junction to lead			15	℃/W
Thermal resistance	Rth(j-a)	Junction to ambient, On glass-epoxy substrate ※			115	℃/W
Thermal resistance	Rth(j-a)	Junction to ambient, On glass-epoxy substrate ※			172	℃/W

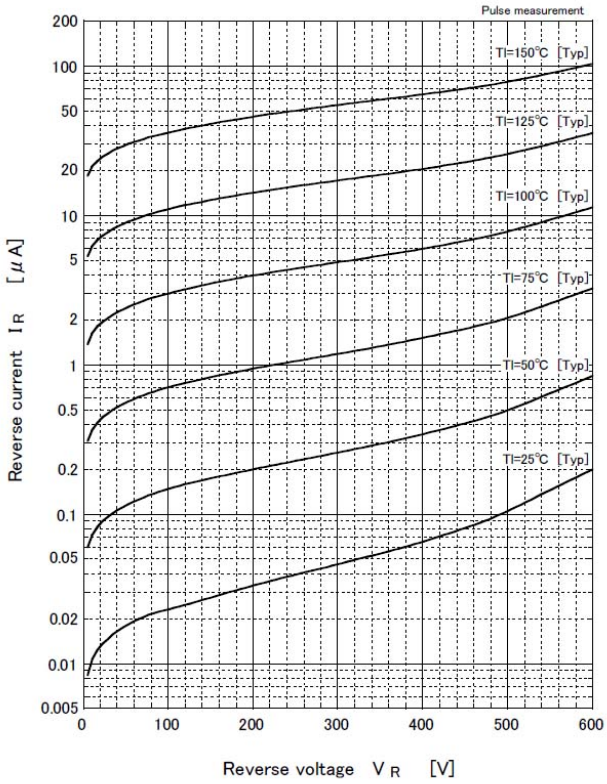
※ :See the original Specifications

CHARACTERISTIC DIAGRAMS

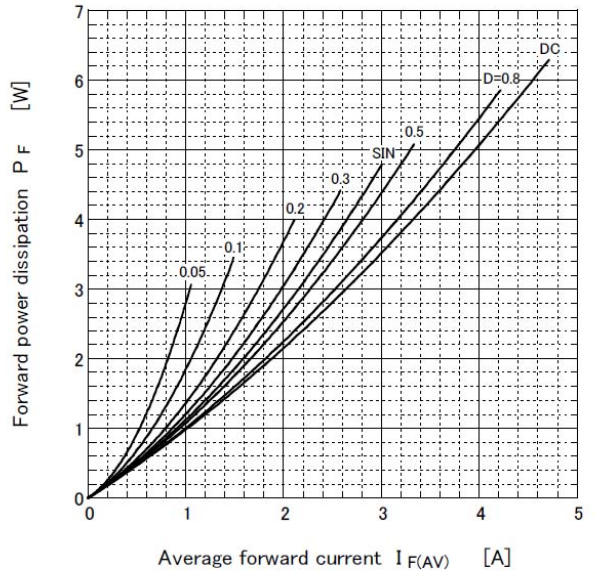
Forward voltage

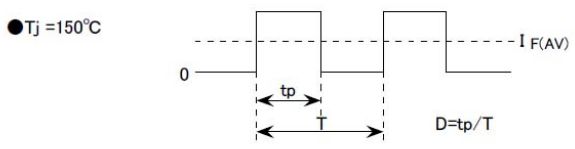


Reverse current

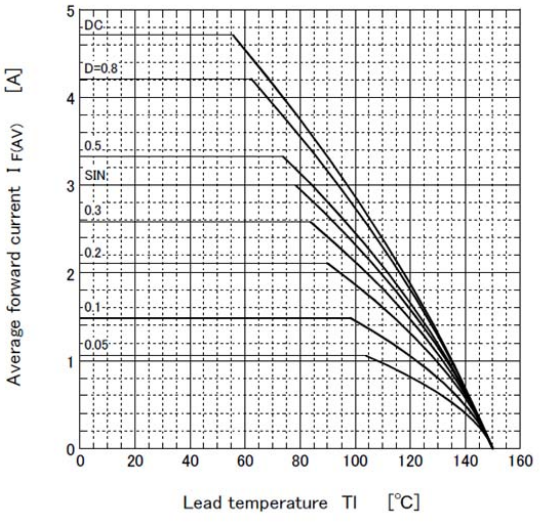


Forward power dissipation

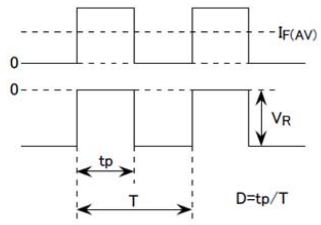




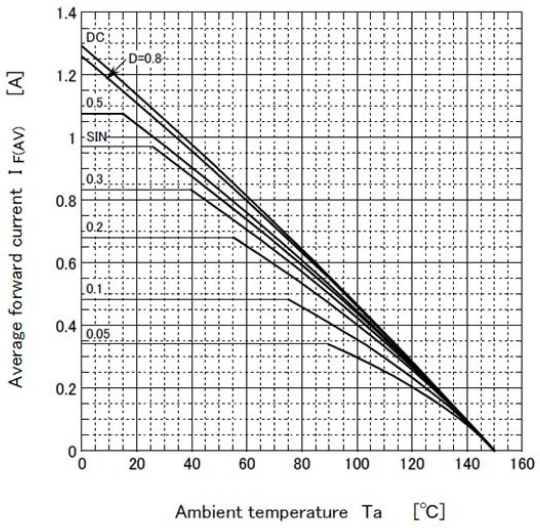
Derating curve



●V_R = 600V
R-load
Free in air



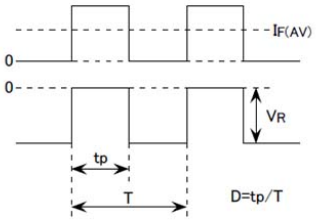
Derating curve



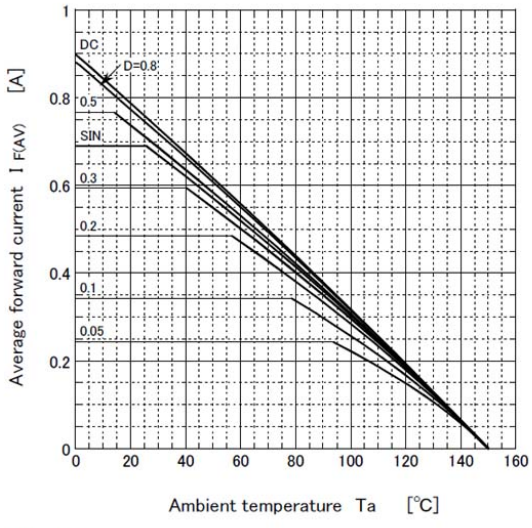
●V_R = 600V
R-load
Free in air

●Substrate detail

Type	Glass-epoxy
Size	2 inch²
Thickness	1mm
Conductor thickness	35μm
Pattern area	160mm²



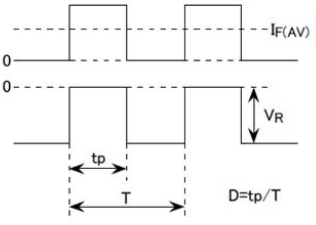
Derating curve



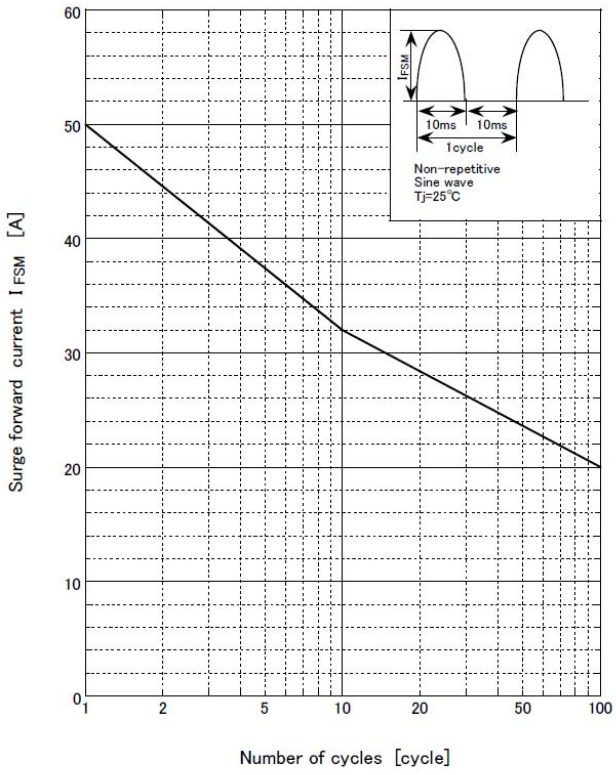
●V_R = 600V
R-load
Free in air

●Substrate detail

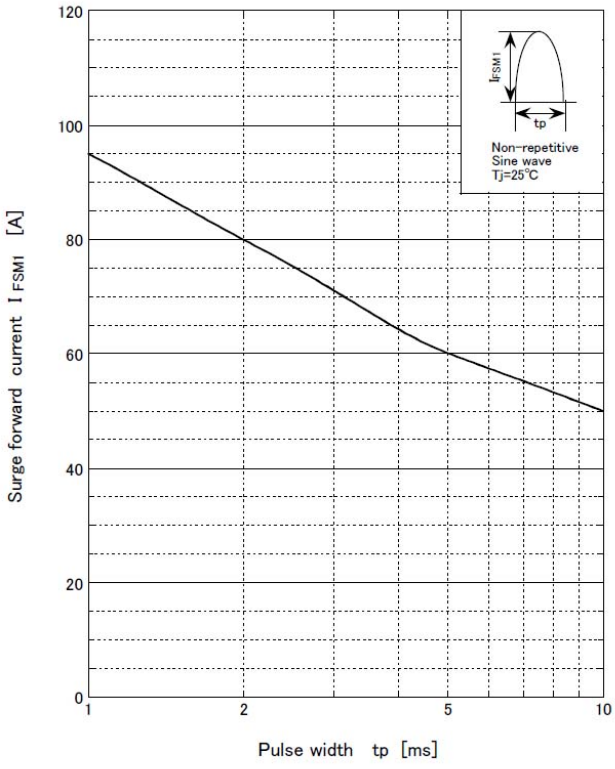
Type	Glass-epoxy
Size	2 inch²
Thickness	1mm
Conductor thickness	35μm
Pattern area	32mm²

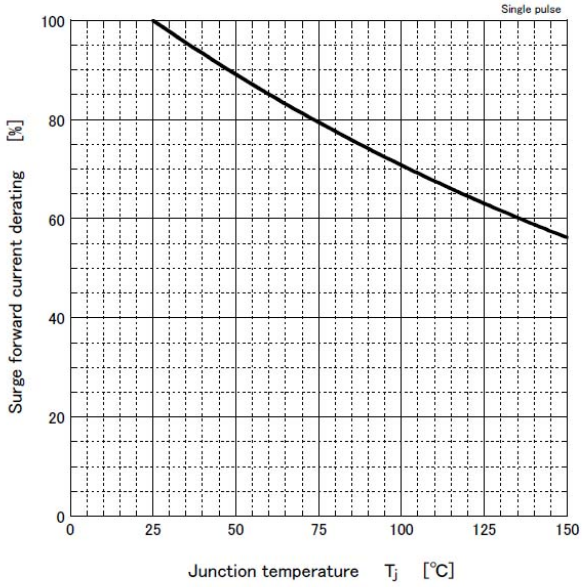


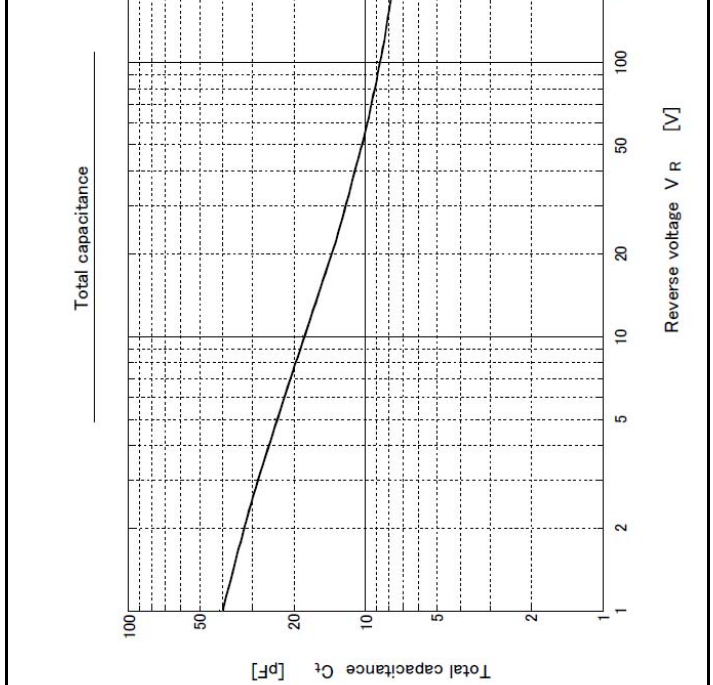
Surge forward current capability

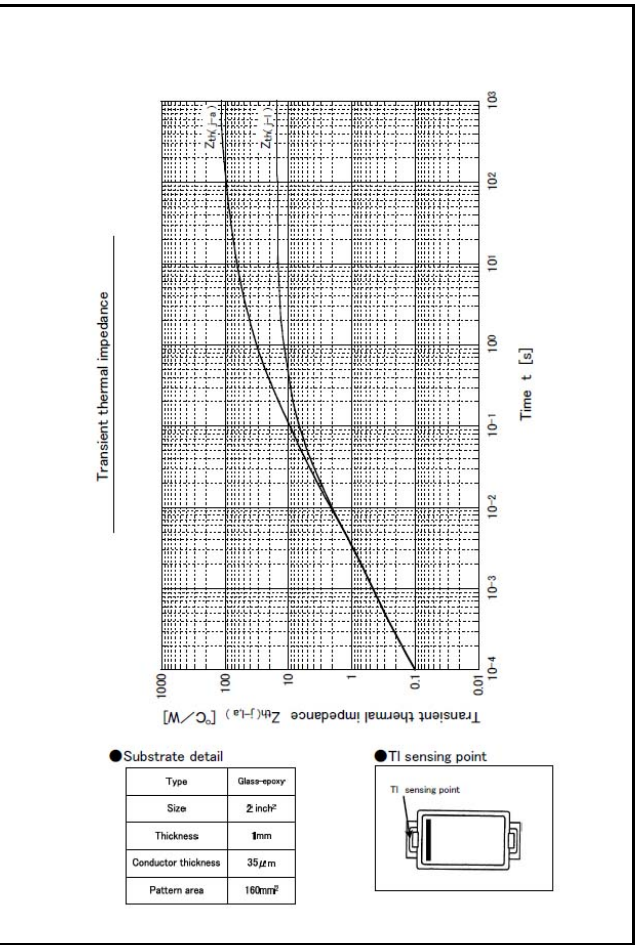


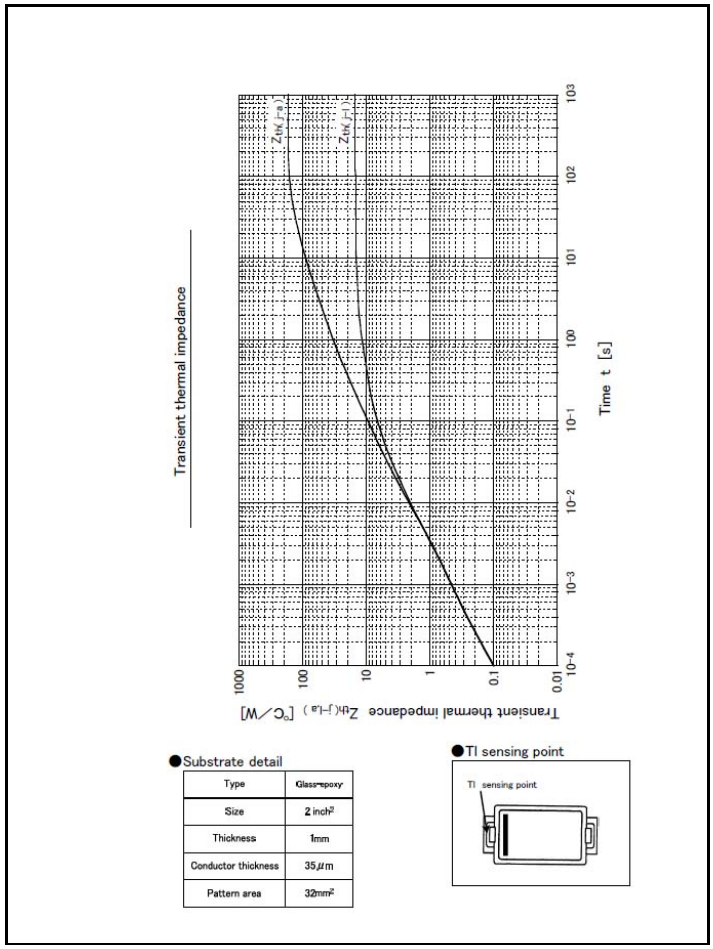
Surge forward current capability




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


Total capacitance
f=1MHz
TI=25℃
Typ
600
200
100
50
20
10
5
2
1
Reverse voltage VR [V]
100
50
20
10
5
2
1
Total capacitance Ct [pF]


Transient thermal impedance
Zth(j-a)
Zth(j-l)
10³
10²
10¹
10⁰
10⁻¹
10⁻²
10⁻³
10⁻⁴
Time t [s]
1000
100
10
1
0.1
0.01
Transient thermal impedance Zth(j-a) [℃/W]
●Substrate detail
Type Glass-epoxy
Size 2 inch²
Thickness 1mm
Conductor thickness 35μm
Pattern area 160mm²
●TI sensing point
TI sensing point


Transient thermal impedance
Zth(j-a)
Zth(j-l)
10³
10²
10¹
10⁰
10⁻¹
10⁻²
10⁻³
10⁻⁴
Time t [s]
1000
100
10
1
0.1
0.01
Transient thermal impedance Zth(j-a) [℃/W]
●Substrate detail
Type Glass-epoxy
Size 2 inch²
Thickness 1mm
Conductor thickness 35μm
Pattern area 32mm²
●TI sensing point
TI sensing point

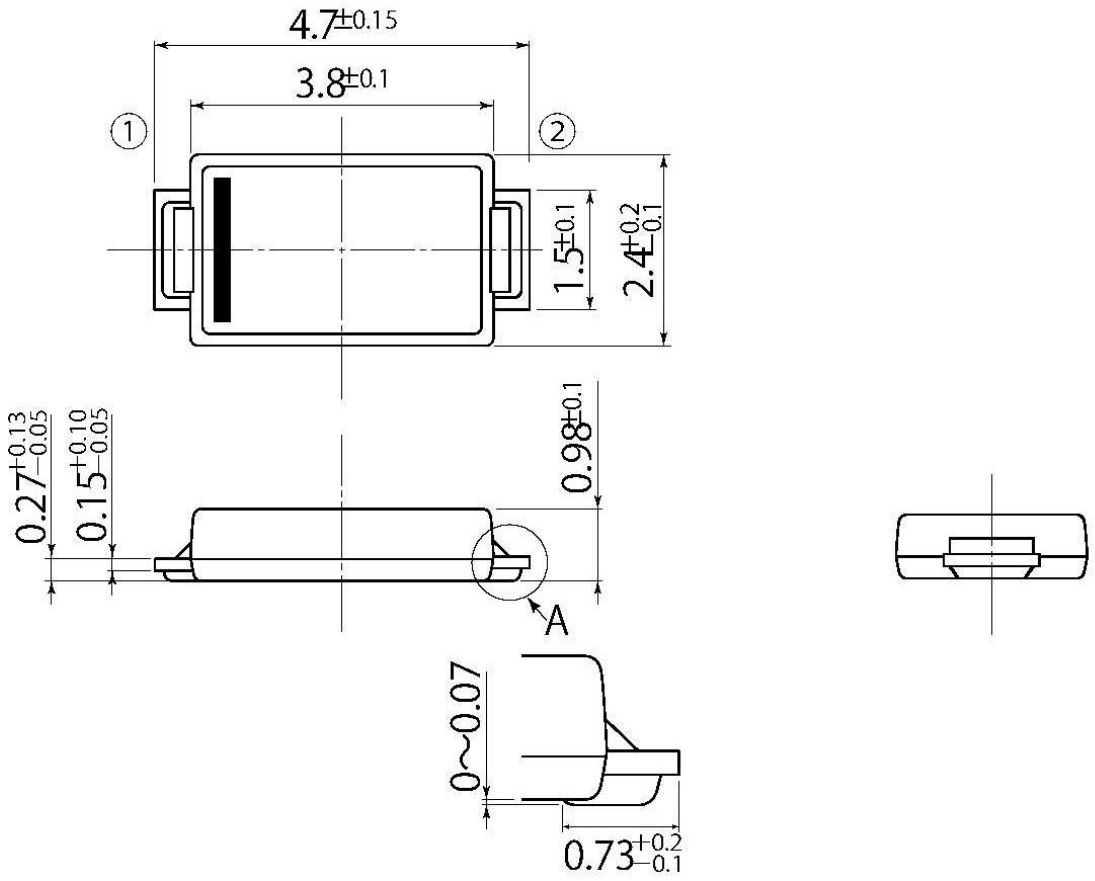
Outline Dimensions

unit:mm

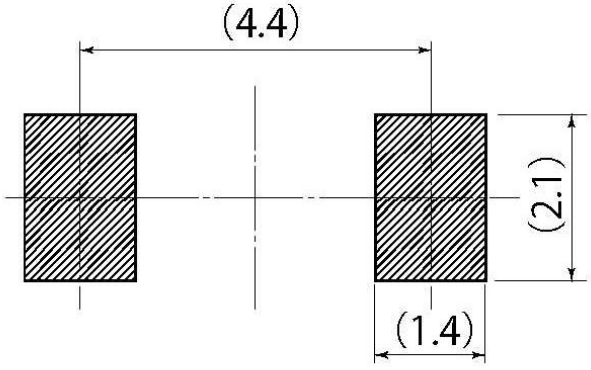
scale: 10/1

B5

JEDEC Code	–
JEITA Code	SC-110B
House Name	CE



Detail A



Referential Soldering Pad

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