ShinDengen

M1FL40U

Fast Recovery Diodes
400V, 1.5A

Feature

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

OUTLINE

Package (House Name): M1F
Package (JEDEC Code): DO-219AA similar

Equivalent circuit

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

Item	Symbol	Conditions	Ratings	Unit
Storage temperrature	Tstg		-55 to 175	℃
Junction temperature	Tj		-55 to 175	℃
Repetitive peak reverse voltage	V_{RRM}		400	V
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, Tc=139℃	1.5	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, Tl=135℃	1.5	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On alumina substrate, Ta=54℃ ※	1	A
Average forward current	I_F(AV)	50Hz sine wave, Resistance load, On glass-epoxy substrate, Ta=25℃ ※	0.78	A
Surge forward current	I_{FSM}	50Hz sine wave, Non-repetitive 1 cycle, Peak value, Tj=25℃	30	A
Surge forward current	I_{FSM1}	tp=1ms, Sine wave, Non-repetitive, Peak value, Tj=25℃	90	A

※ ：See the original Specifications

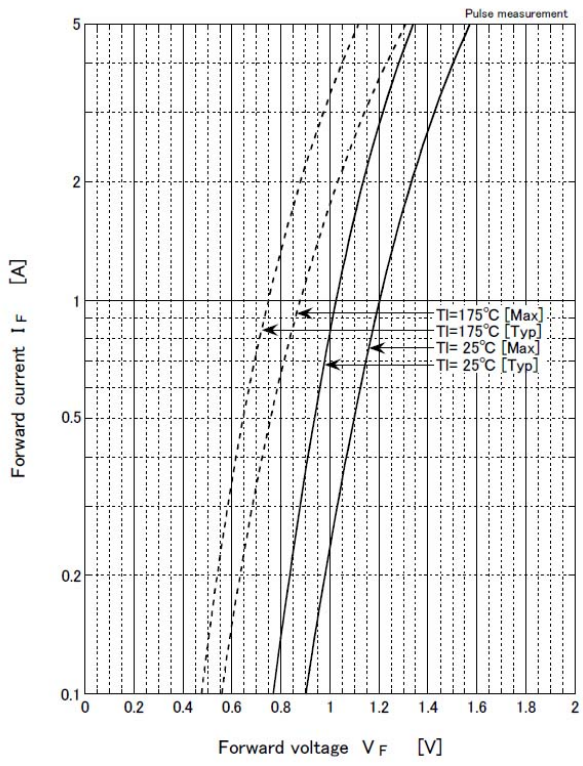
Electrical Characteristics (unless otherwise specified : Tl=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Forward voltage	V_F	IF=1A, Pulse measurement			1.2	V
Reverse current	I_R	VR=400V, Pulse measurement			10	μA
Reverse recovery time	trr	IF=0.5A, IR=1.0A, 0.25IR			25	ns
Total capacitance	Ct	f=1MHz, VR=10V		11		pF
Thermal resistance	Rth(j-c)	Junction to case			18	℃/W
Thermal resistance	Rth(j-l)	Junction to lead			20	℃/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 ※			186	℃/W

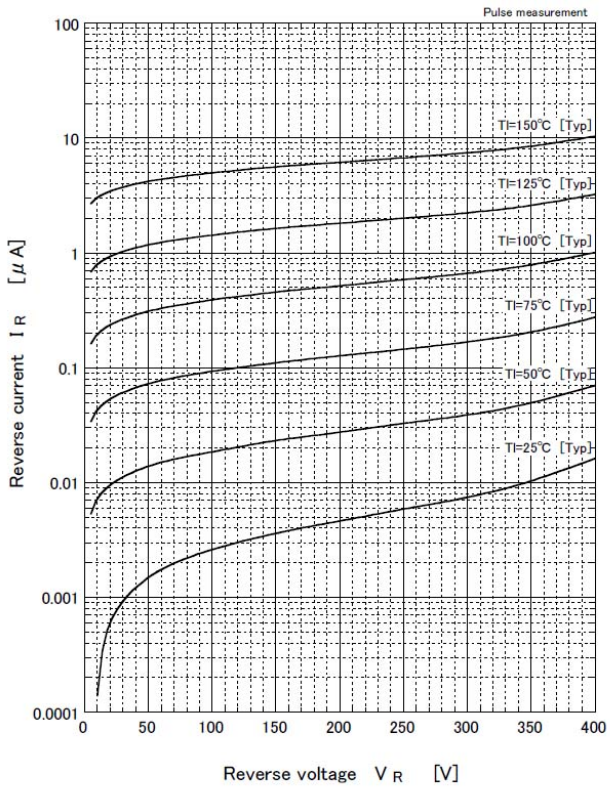
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

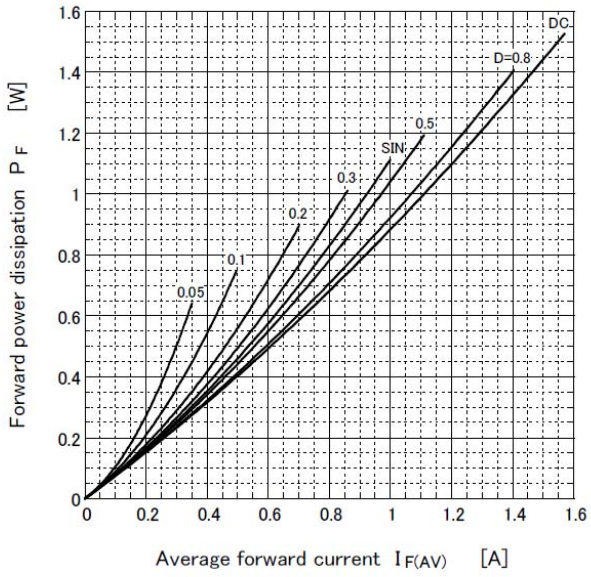
Forward voltage

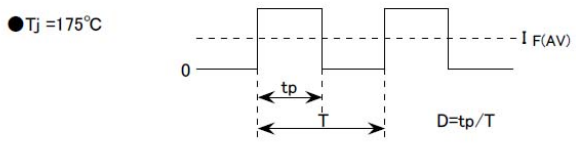


Reverse current

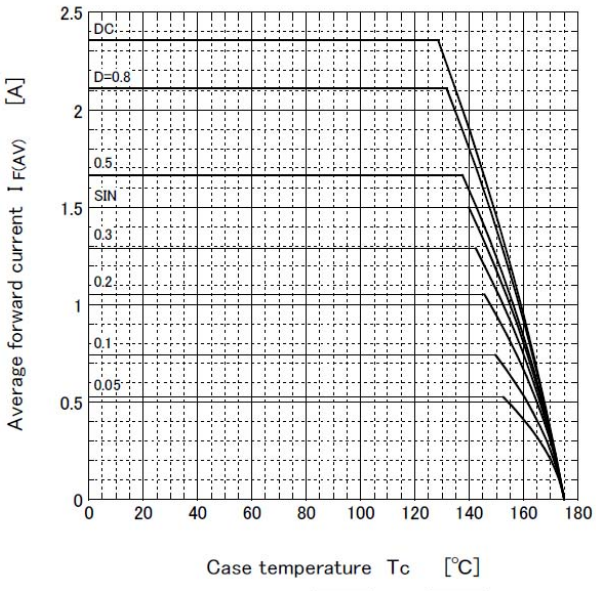


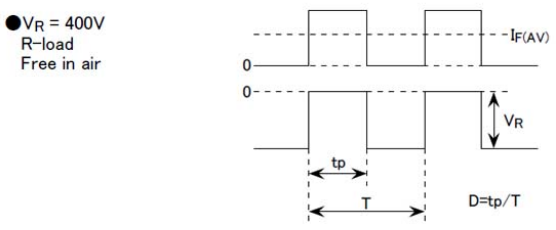
Forward power dissipation



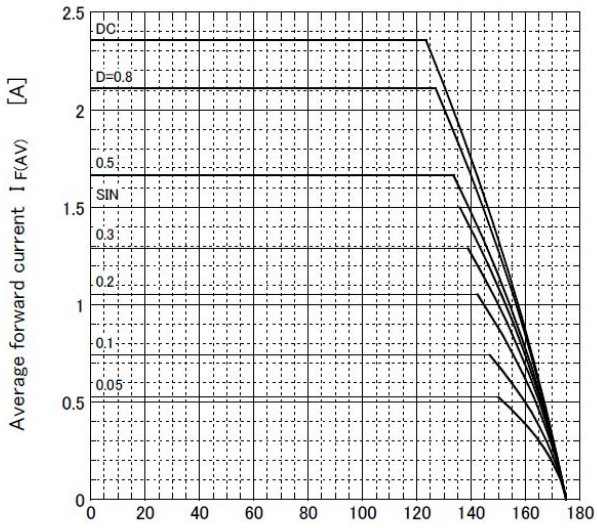


Derating curve

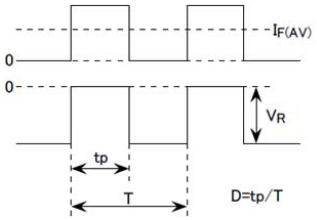




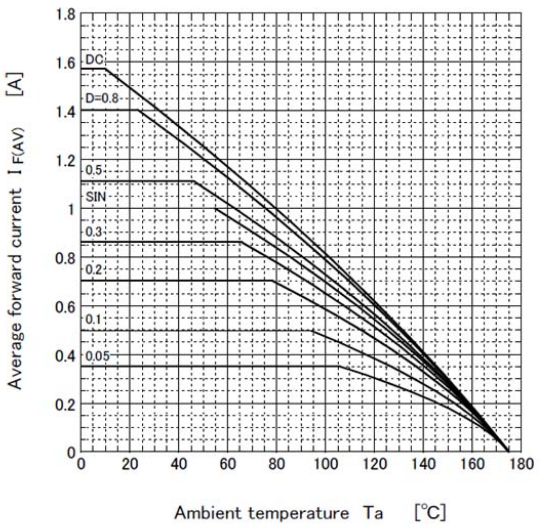
Derating curve



●V_R = 400V
R-load
Free in air



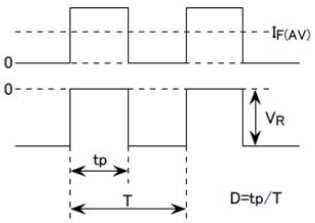
Derating curve



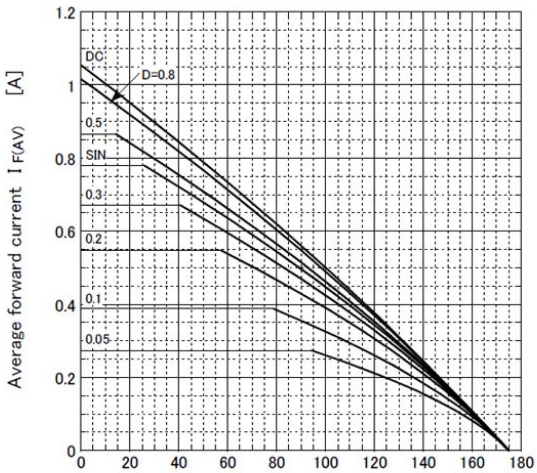
●V_R = 400V
R-load
Free in air

●Substrate detail

Type	Alumina
Size	1 inch²
Thickness	0.64mm
Conductor thickness	20 μm
Pattern area	43.4mm²



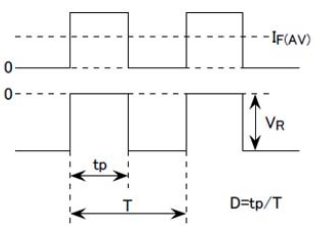
Derating curve



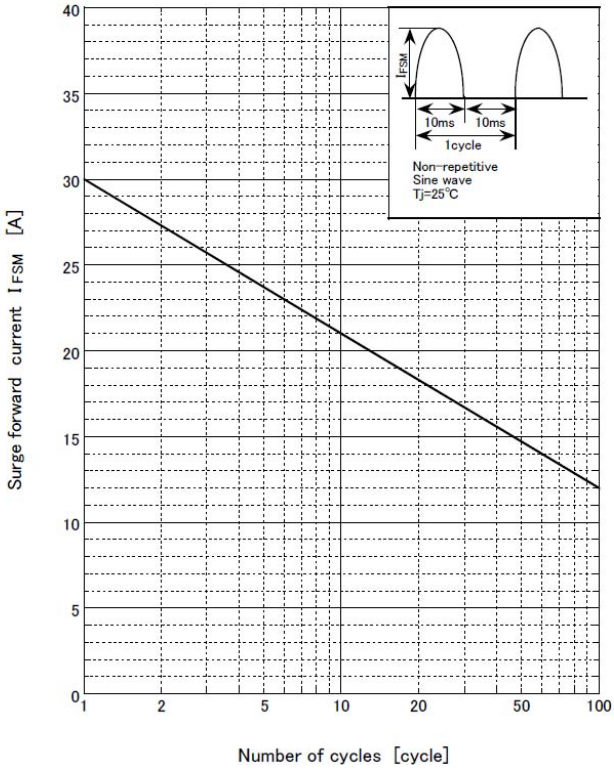
●V_R = 400V
R-load
Free in air

●Substrate detail

Type	Glass-epoxy
Size	1 inch²
Thickness	1.6mm
Conductor thickness	35 μm
Pattern area	43.4mm²



Surge forward current capability



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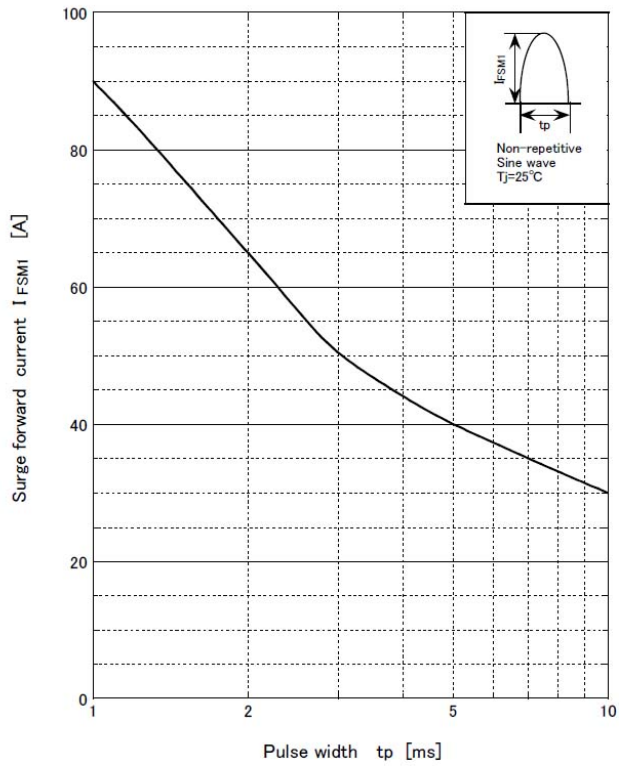
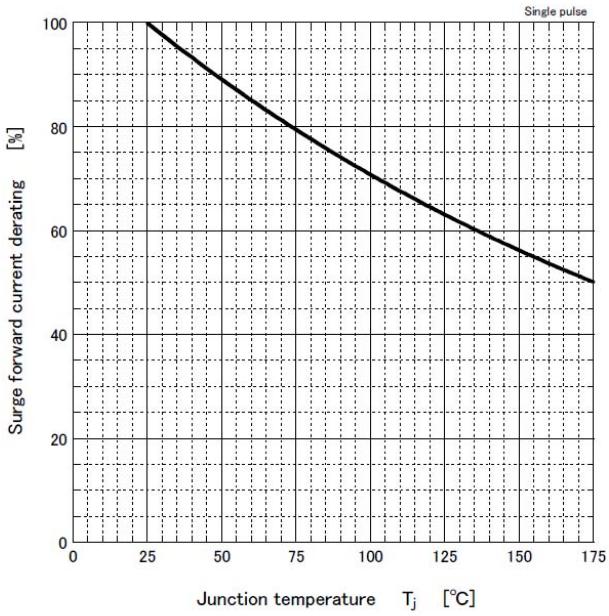
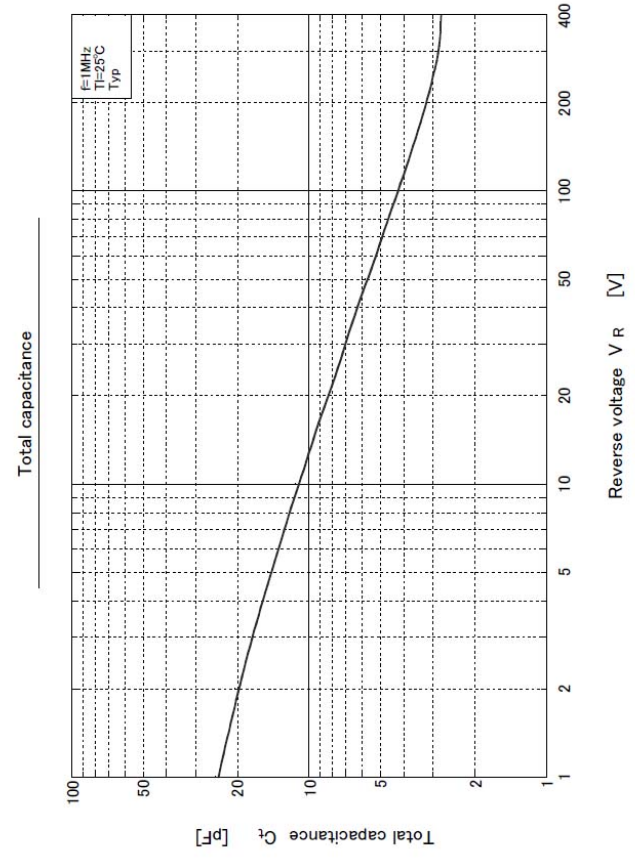
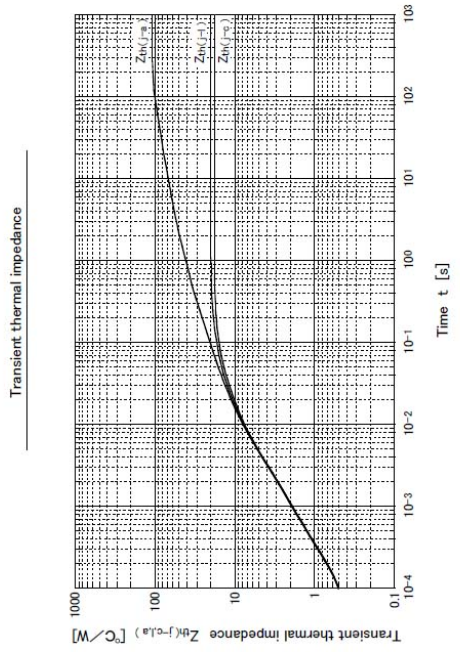


Surge forward current derating
vs Junction temperature







●Substrate detail

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Size	1 inch²
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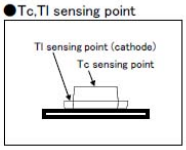
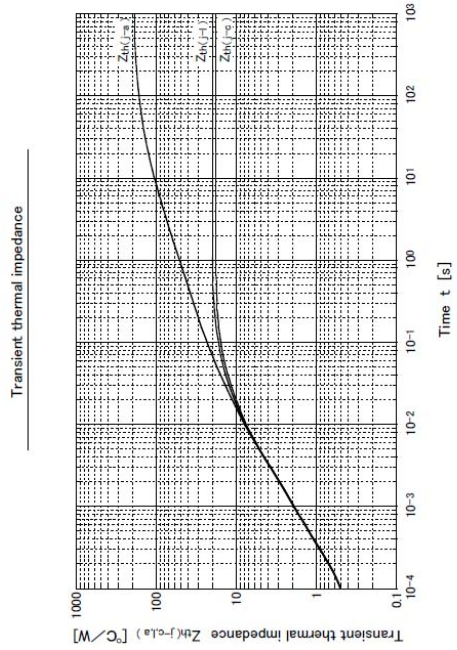
●Tc,Tl sensing point





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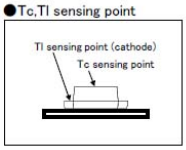
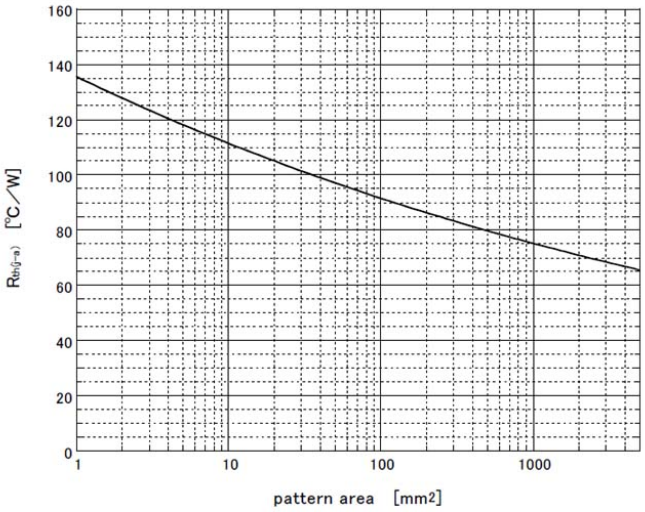


Rth(j-a) – pattern area



●Substrate detail

Type	Glass-epoxy
Size	1 inch²
Thickness	1.6mm
Conductor thickness	35μm

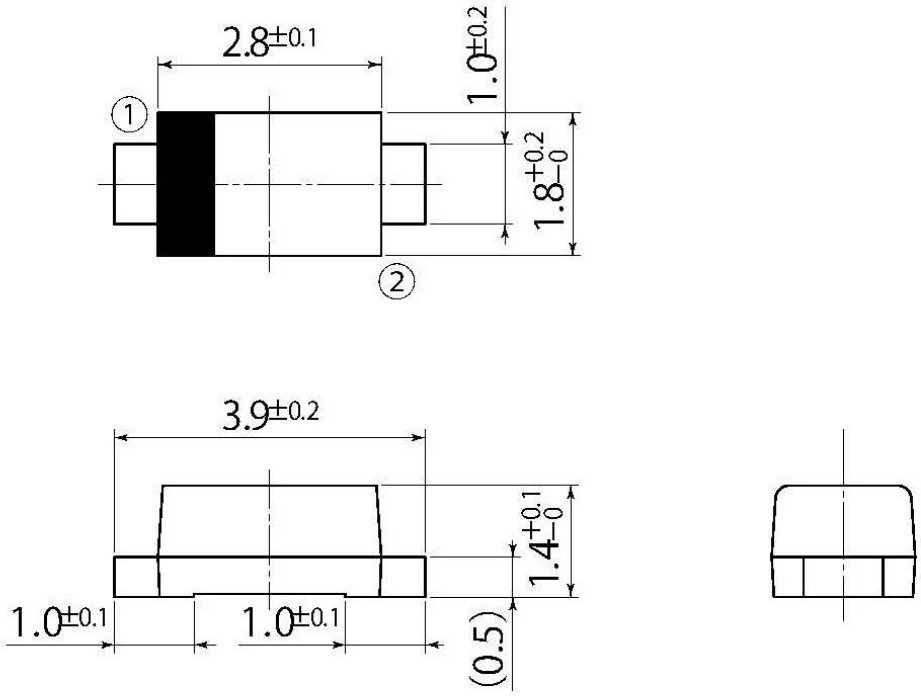
Outline Dimensions

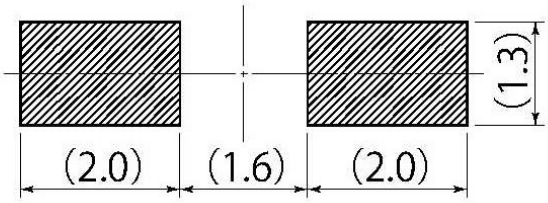
unit:mm

scale: 10/1

B2

JEDEC Code	DO-219AA similar
JEITA Code	–
House Name	M1F





Referential Soldering Pad

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

Notes

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