ShinDengen

ST70-27MF

TVS

180A, 7000W

Feature

- Optimized for Multiple Protection Purposes
  [ESD],[Lighting Surge],[Automotove Transient Surge]
- Peak pulse power:7000W
- High Speed
- SMD
- Available for automotive use
- Pb free terminals
- RoHS_Yes

OUTLINE

Package (House Name): MCP

Equivalent circuit

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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-40 to 150	°C
Operating junction temperature	Tj		150	°C
Maximum surge reverse current	I_{RSM}	10/1000μs, Non-repetitive ※	180	A
Maximum surge reverse current	I_{RSM}	10/10000μs, Non-repetitive	100	A
Maximum surge reverse power	P_{RSM}	10/1000μs, Non-repetitive	7000	W
Maximum surge reverse power	P_{RSM}	10/10000μs, Non-repetitive	3500	W
Continuous (direct) reverse voltage	$V_{R(DC)}$		23	V
Power dissipation	P		5	W

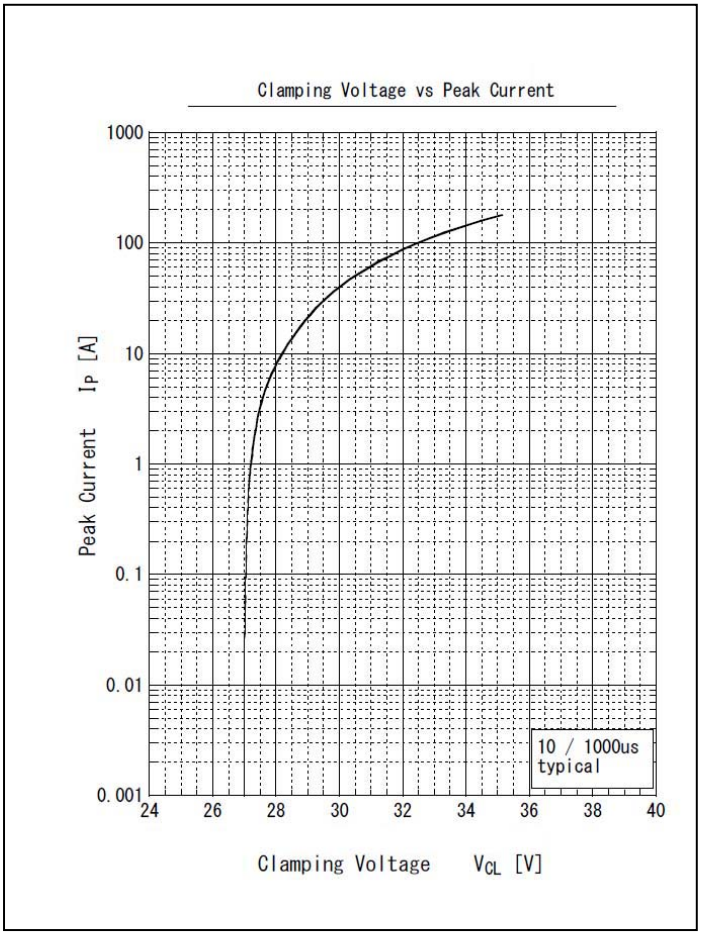
※ ：See the original Specifications

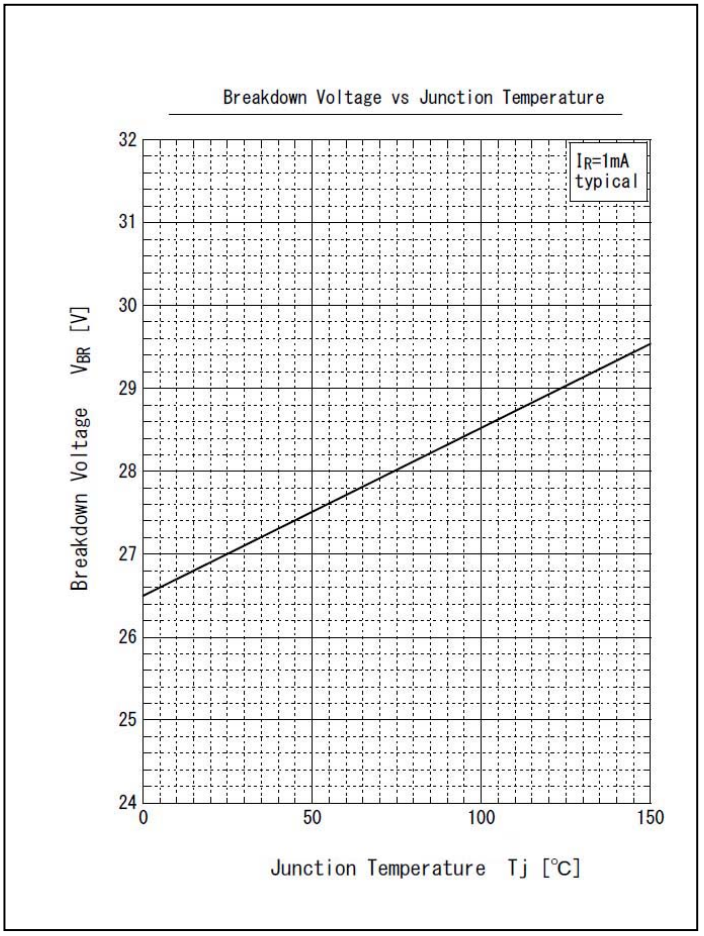
Electrical Characteristics (unless otherwise specified : Tl=25°C)

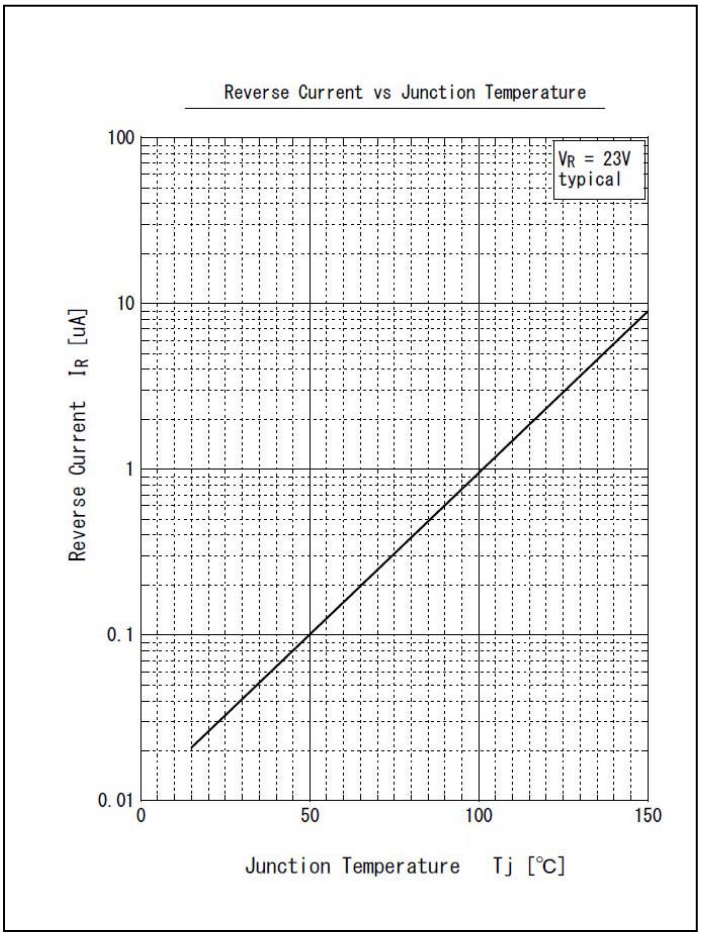
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Breakdown voltage	V_{BR}	IR=1mA	24.3		29.7	V
Reverse current	I_R	VR=23V, Pulse measurement			5	μA
Thermal resistance	Rth(j-l)	Junction to lead, On glass-epoxy substrate			5	°C/W
Thermal resistance	Rth(j-a)	Junction to ambient, On glass-epoxy substrate			45	°C/W
Forward voltage	V_F	IF=30A, Pulse Measurement			1.3	V
Temperature coefficient	rz				0.09	%/°C

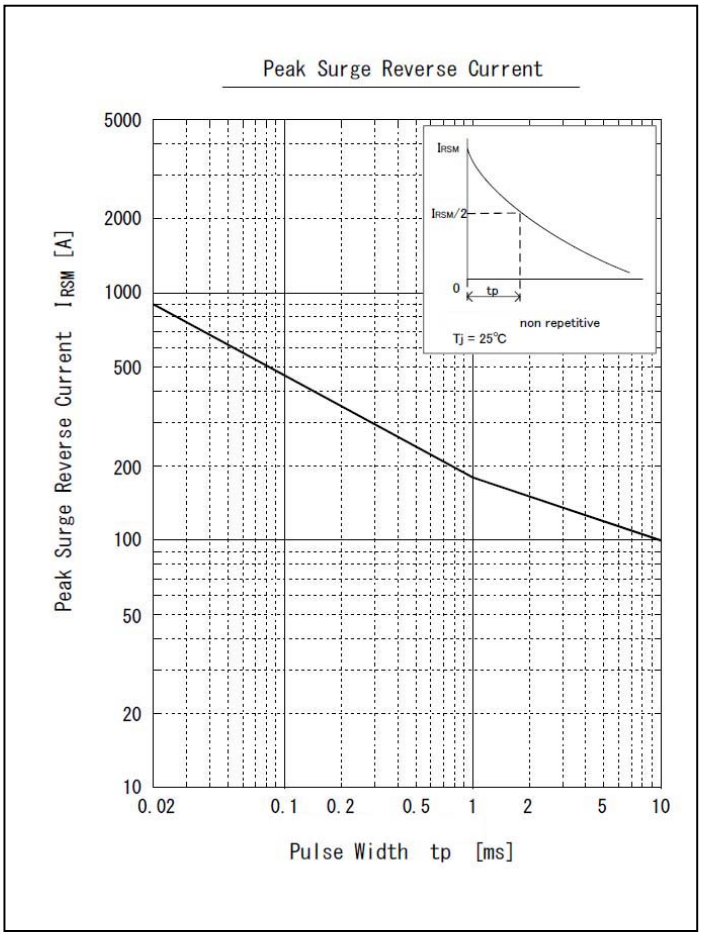
※ ：See the original Specifications

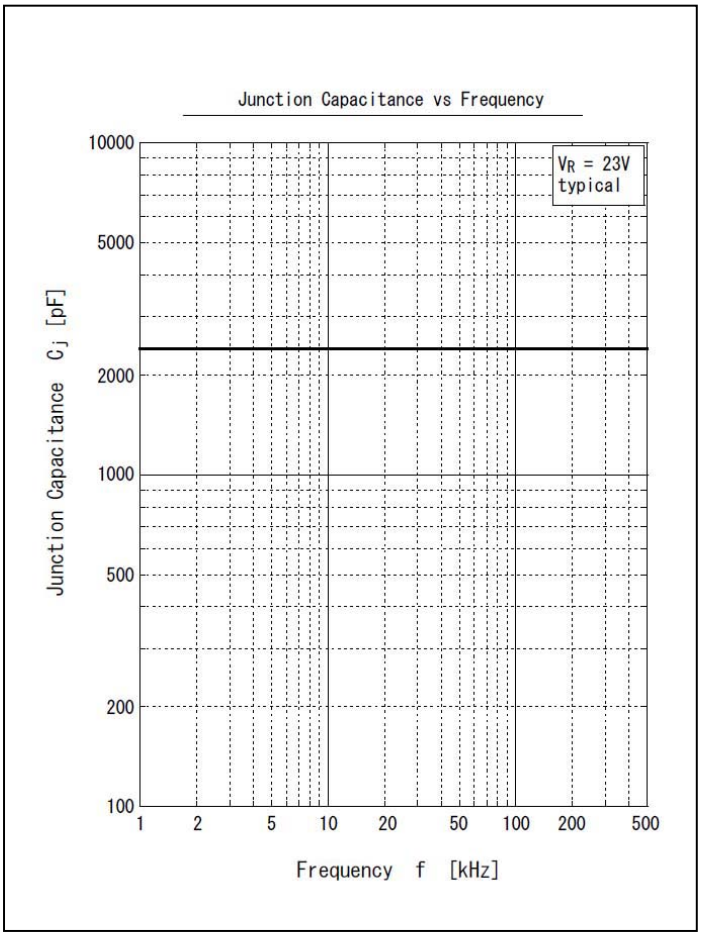
CHARACTERISTIC DIAGRAMS

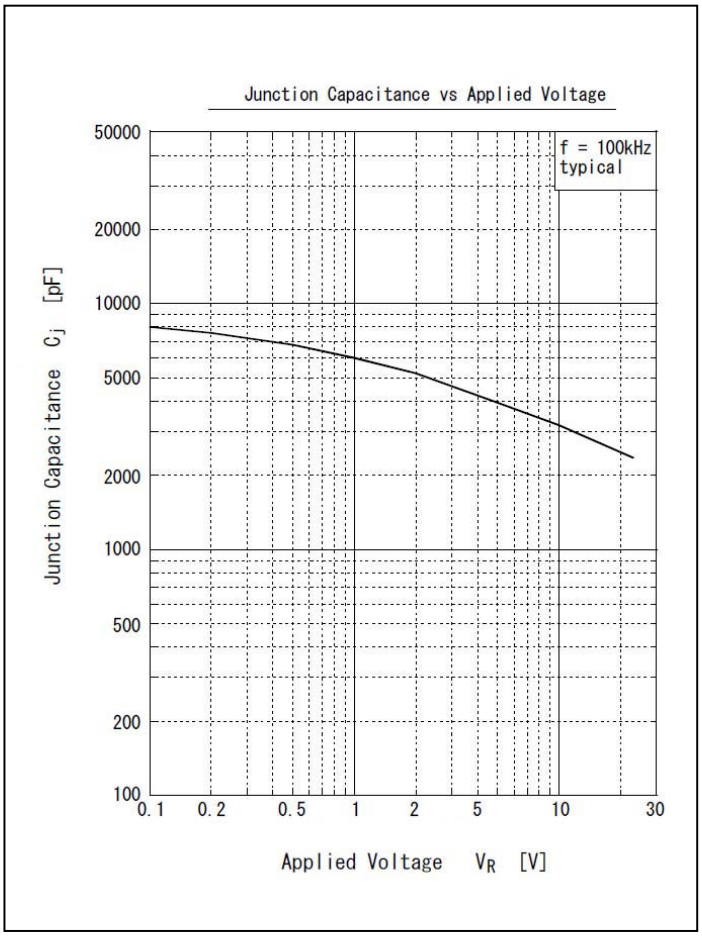


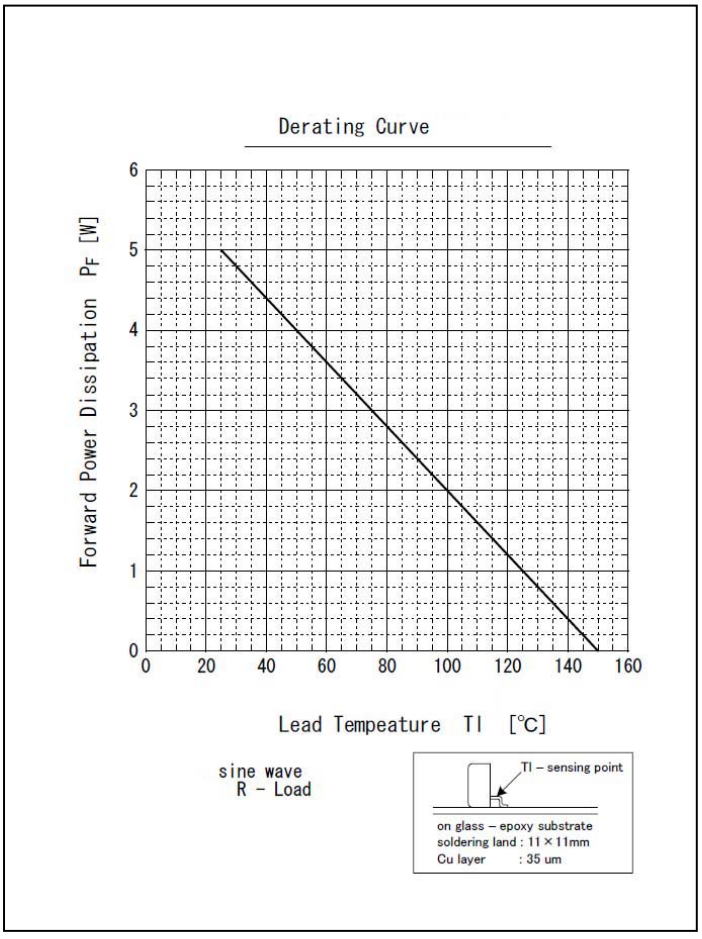


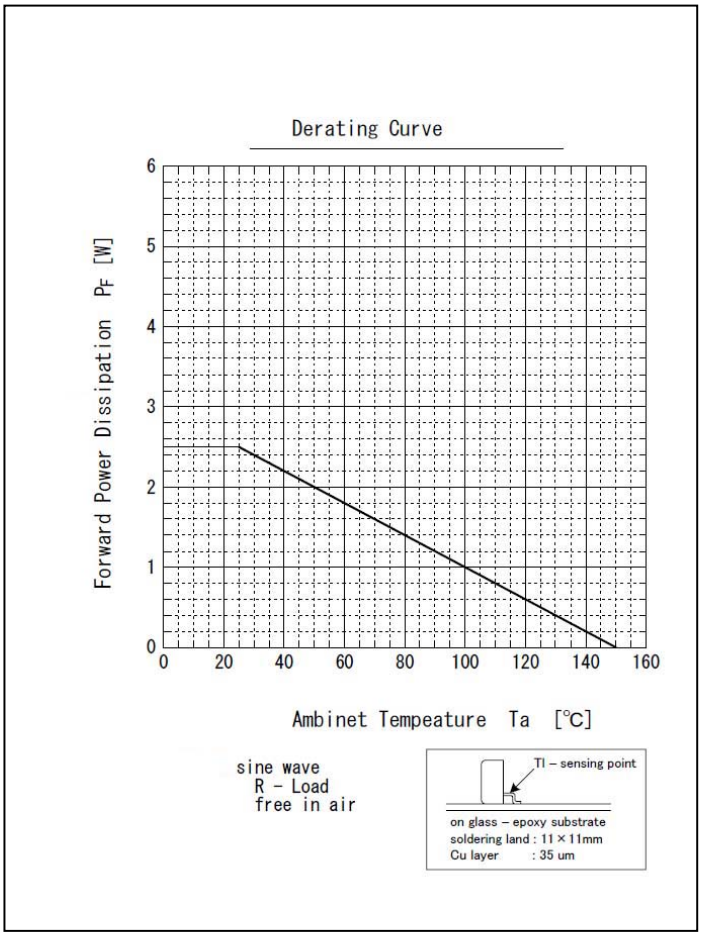


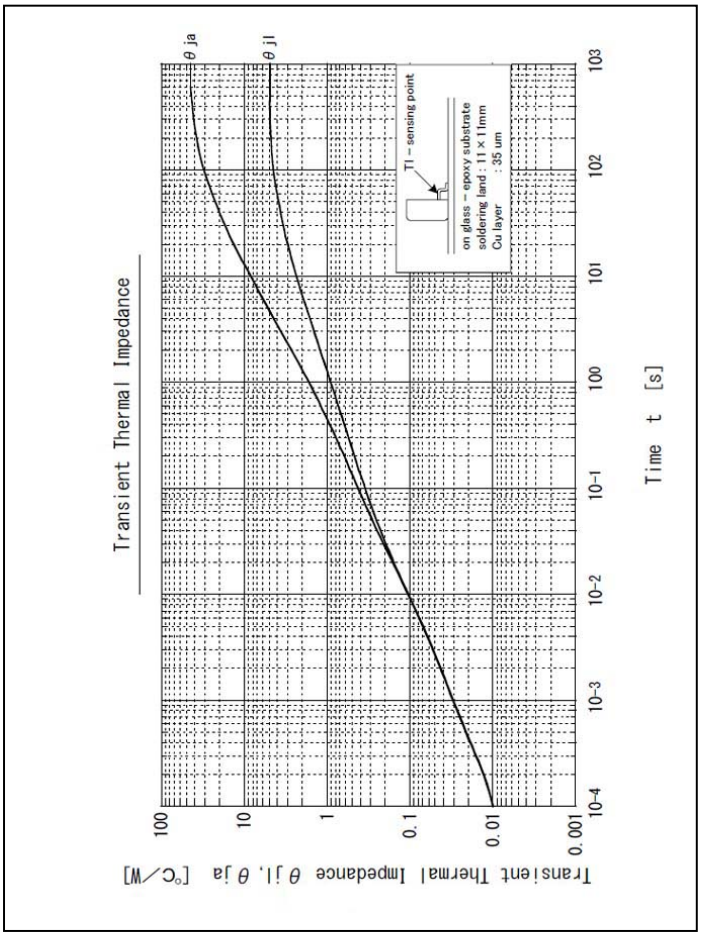


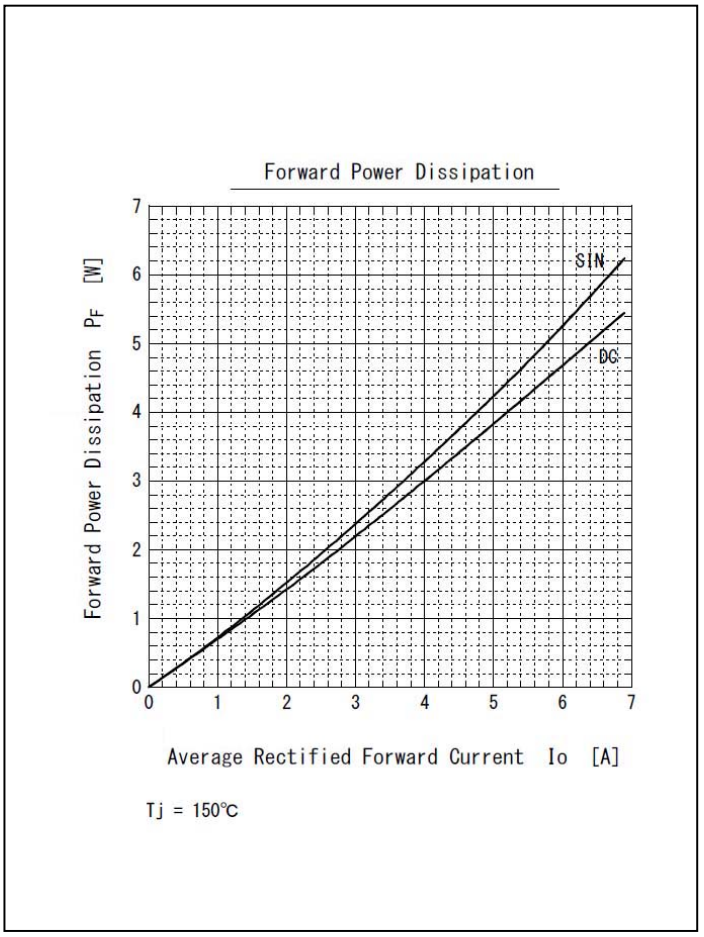

Junction Capacitance vs Frequency
V_R = 23V
typical
Junction Capacitance C_j [pF]
10000
5000
2000
1000
500
200
100
1
2
5
10
20
50
100
200
500
Frequency f [kHz]


Junction Capacitance vs Applied Voltage
f = 100kHz
typical
Junction Capacitance C_j [pF]
50000
20000
10000
5000
2000
1000
500
200
100
0.1
0.2
0.5
1
2
5
10
30
Applied Voltage V_R [V]


Derating Curve
Forward Power Dissipation P_F [W]
6
5
4
3
2
1
0
0
20
40
60
80
100
120
140
160
Lead Tempeature Tl [℃]
sine wave
R - Load
Tl – sensing point
on glass – epoxy substrate
soldering land : 11×11mm
Cu layer : 35 um


Derating Curve
Forward Power Dissipation P_F [W]
6
5
4
3
2
1
0
0
20
40
60
80
100
120
140
160
Ambinet Tempeature Ta [℃]
sine wave
R - Load
free in air
Tl – sensing point
on glass – epoxy substrate
soldering land : 11×11mm
Cu layer : 35 um


Transient Thermal Impedance
θ ja
θ jl
T1 – sensing point
on glass – epoxy substrate
soldering land : 11×11mm
Cu layer : 35 um
Transient Thermal Impedance θ jl, θ ja [℃/W]
100
10
1
0.1
0.01
0.001
10-4
10-3
10-2
10-1
100
101
102
103
Time t [s]

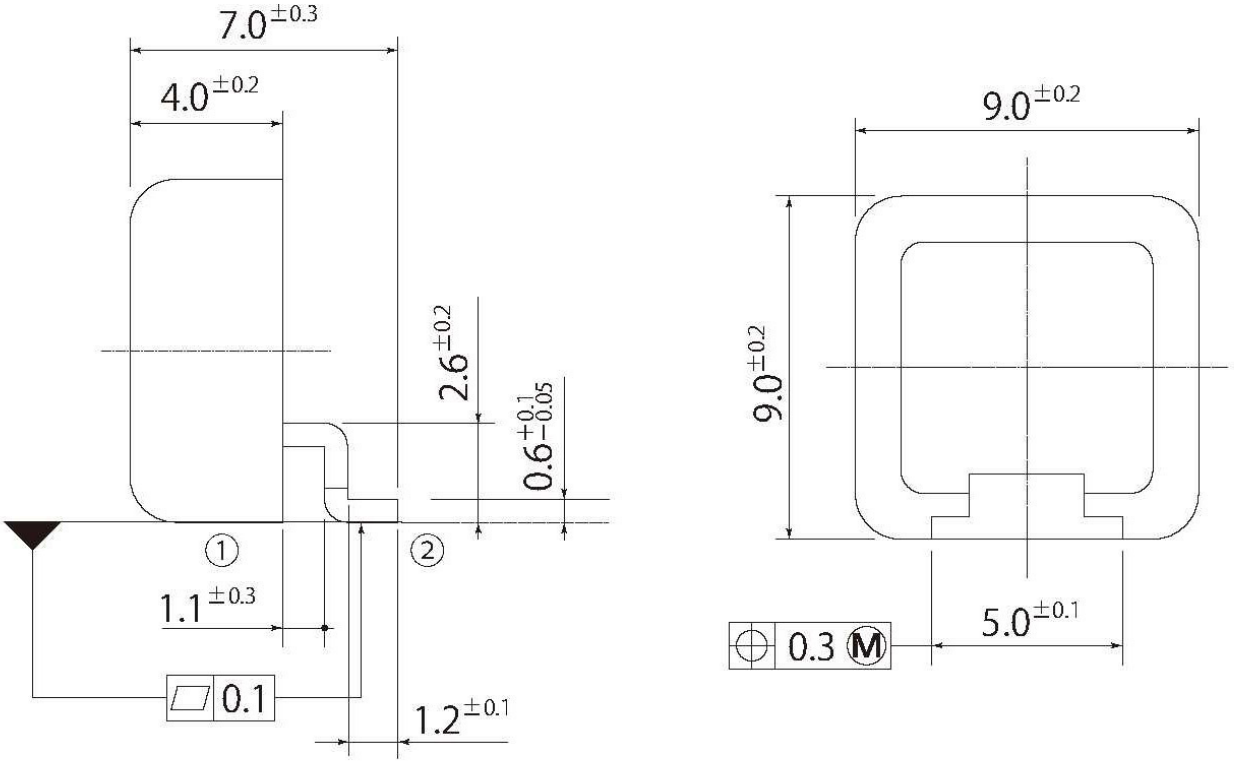

Forward Power Dissipation
Forward Power Dissipation PF [W]
SIN
DC
0
1
2
3
4
5
6
7
Average Rectified Forward Current Io [A]
Tj = 150℃

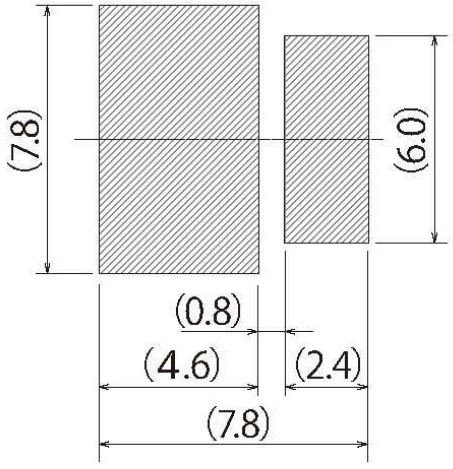
Outline Dimensions

unit:mm

E1

JEDEC Code	–
JEITA Code	–
House Name	MCP





Referential Soldering Pad

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

Notes

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