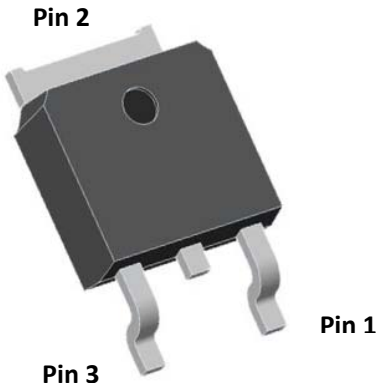
Schottky Diodes



Features

- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Part no. with suffix “Q” means AEC-Q101 qualified

Typical Applications

Typical applications are in switching power supplies, converters, automotive, freewheeling diodes, and reverse battery protection.

Mechanical Data

- **Package**: TO-252
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen free
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity**: As marked

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MBR20100CDQ
Device marking code	-	-	MBR20100CD
Repetitive peak reverse voltage	V_{RRM}	V	100
Average Rectified Output Current @60Hz -sine wave，T_C=140℃	I_O	A	20
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, T_a=25℃	I_{FSM}	A	130
Current Squared Time @1ms≤t≤8.3ms T_J=25℃	I^2t	A^2s	70
Storage Temperature	T_{stg}	℃	-55 ~ +175
Junction Temperature	T_J	℃	-55 ~ +175

■Electrical Characteristics（Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Typ	Max
Instantaneous forward voltage per diode	V_F	V	I_F=10A	T_J=25℃	0.81	0.85
				T_J=125℃	0.69	0.75
Typical junction capacitance per diode	C_J	pF	V_R=4V, f=1 MHz		200	-
Reverse recovery time per diode	T_{RR}	ns	I_F=0.5A,I_R=1A,Irr=0.25A		12	
Instantaneous reverse current per diode	I_R	mA	V_R=100V	T_J=25℃		0.01
				T_J=125℃	-	1

■Characteristics (Typical)

Fig.1:Forward Current Derating Curve

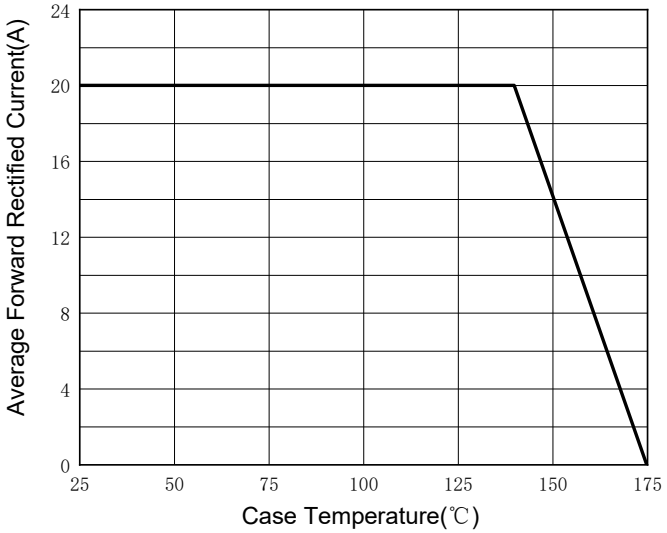


Fig.2: Forward Surge Current Capability(Per Diode)

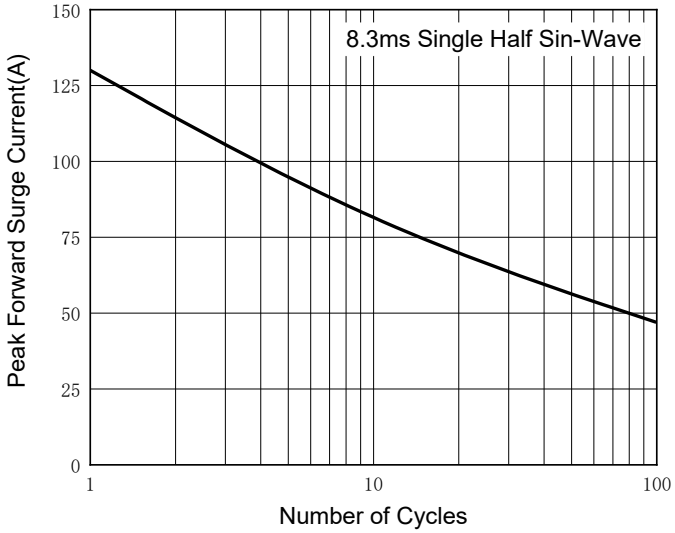


Fig.3:Typical Instantaneous Forward Characteristics(Per Diode)

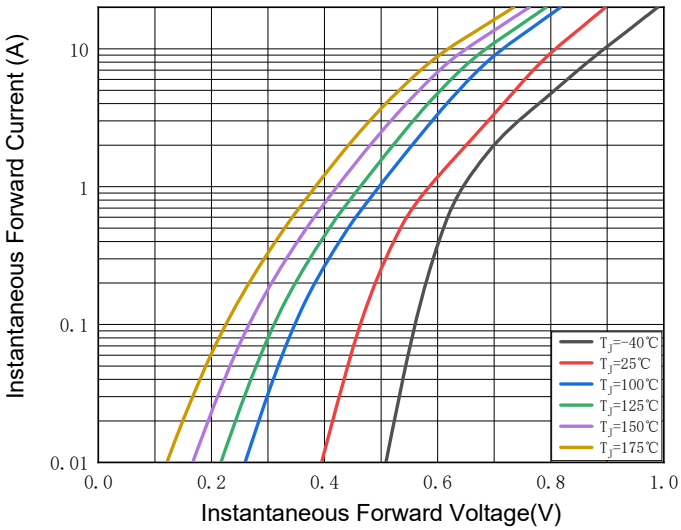


Fig.4:Typical Reverse Leakage Characteristics(Per Diode)

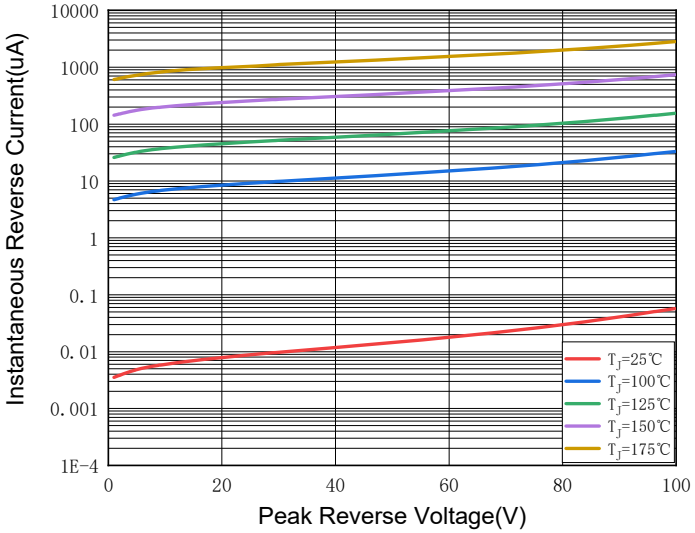
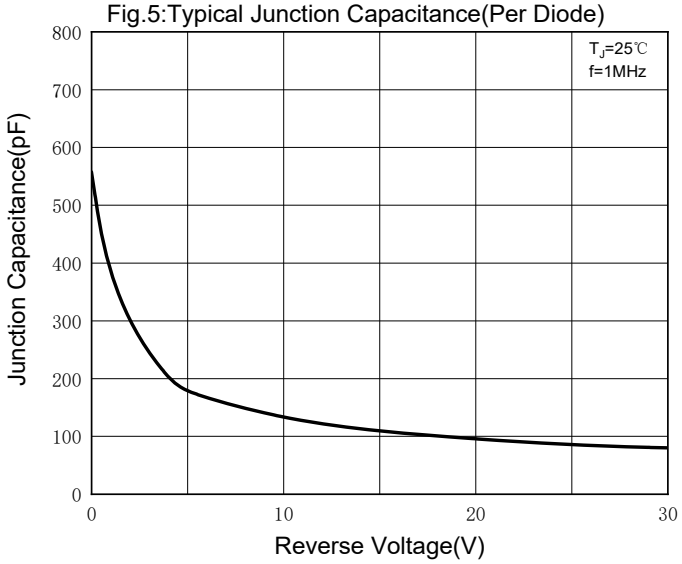


Fig.5:Typical Junction Capacitance(Per Diode)



■Thermal Characteristics

PARAMETER	SYMBOL	UNIT	MBR20100CDQ
Typical thermal resistance per diode	$R_{\theta J-A}$	℃/W	45(1)
	$R_{\theta J-C}$	℃/W	4(1)

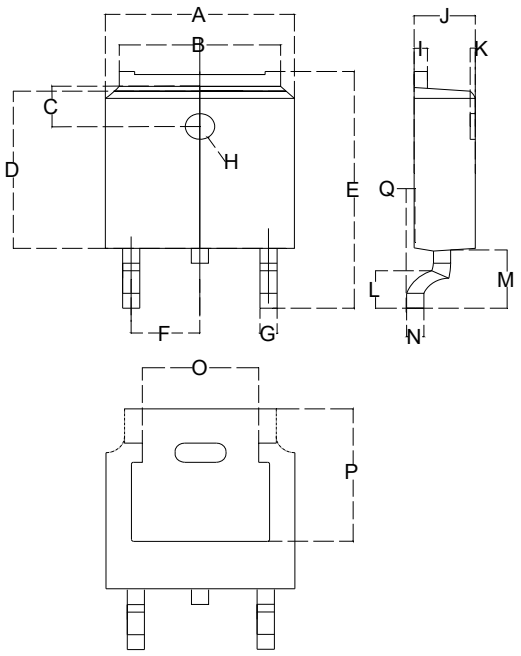
Note:
(1)Thermal resistance from junction to ambient and from junction to case mounted on P.C.B with 25.4mm*25.4mm copper pad areas.

■Ordering Information (Example)

PREFERED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MBR20100CDQ	Approximate 0.32	2500	2500	25000	Reel

■Outline Dimensions

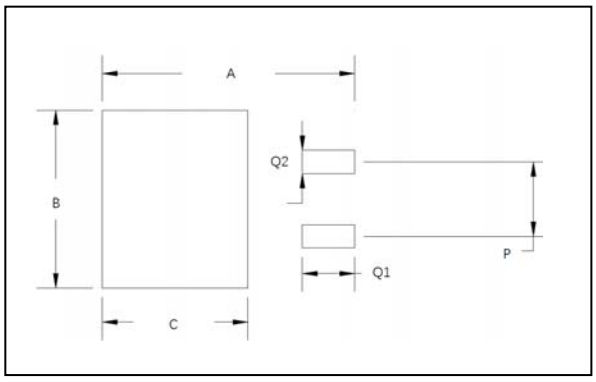
TO-252



Dimensions in millimeters

TO-252		
Dim	Min	Max
A	6.500	6.700
B	5.100	5.460
C	1.400	1.800
D	6.000	6.200
E	10.000	10.400
F	2.166	2.366
G	0.660	0.860
H	Φ1.050	Φ1.350
I	0.460	0.580
J	2.200	2.400
K	0	0.300
L	0.890	2.290
M	2.730	3.080
N	0.430	0.580
O	4.20	4.95
P	5.15	5.45
Q	0	0.2

■Suggested Pad Layout



Dim	Millimeters
A	11.4
B	6.74
C	6.23
P	4.56
Q1	2.28
Q2	1.52

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