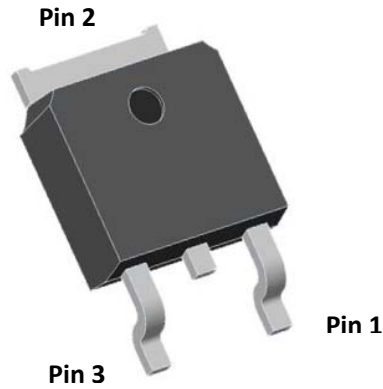




Schottky Diodes

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 (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MBR2045CDQ
Device marking code	-	-	MBR2045CD
Repetitive peak reverse voltage	V _{RRM}	V	45
Average Rectified Output Current @60Hz -sine wave, T _c =120°C	I _O	A	20
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T _a =25°C	I _{FSM}	A	130
Current Squared Time @1ms≤t≤8.3ms T _J =25°C	I ² t	A ² s	70
Storage Temperature	T _{stg}	°C	-55 ~ +150
Junction Temperature	T _J	°C	-55 ~ +150

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Typ	Max
Instantaneous forward voltage per diode	V _F	V	I _F =10A	T _J =25°C	0.56	0.63
				T _J =125°C	0.51	0.58
Typical junction capacitance per diode	C _J	pF	V _R =4V, f=1 MHz		390	-
Reverse recovery time per diode	T _{RR}	ns	I _F =0.5A, I _R =1A, I _{rr} =0.25A		20	
Instantaneous reverse current per diode	I _R	mA	V _R =45V	T _J =25°C	-	0.2
				T _J =125°C	-	100



■ Characteristics (Typical)

Fig.1: Forward Current Derating Curve

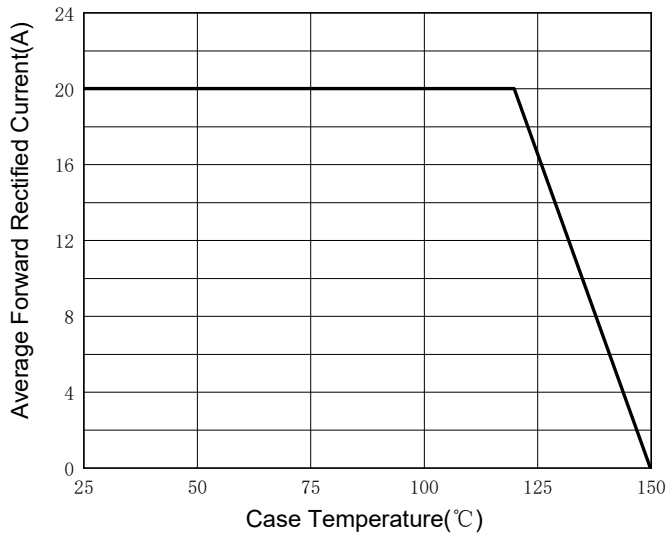


Fig.2: Forward Surge Current Capability(Per Diode)

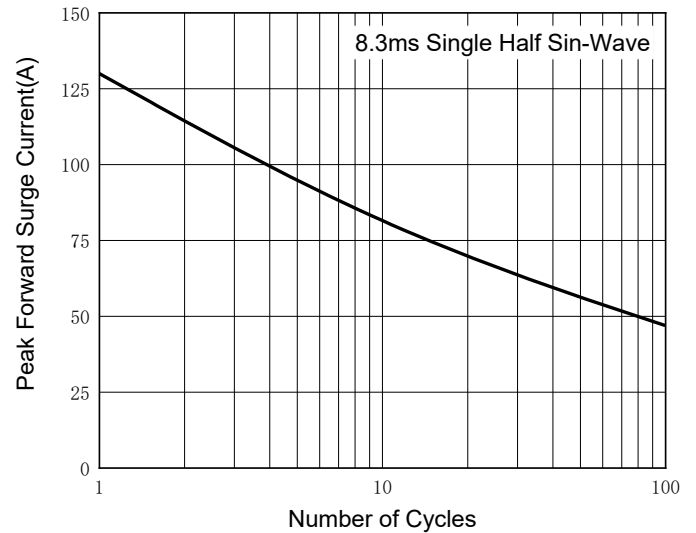


Fig.3: Typical Instantaneous Forward Characteristics(Per Diode)

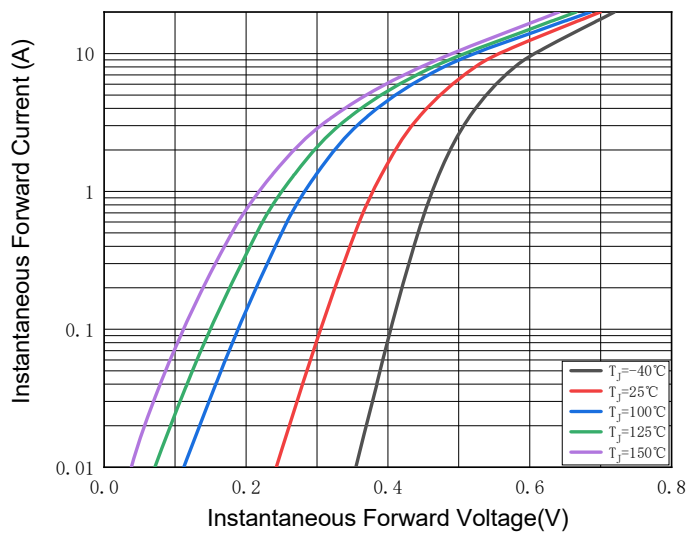


Fig.4: Typical Reverse Leakage Characteristics(Per Diode)

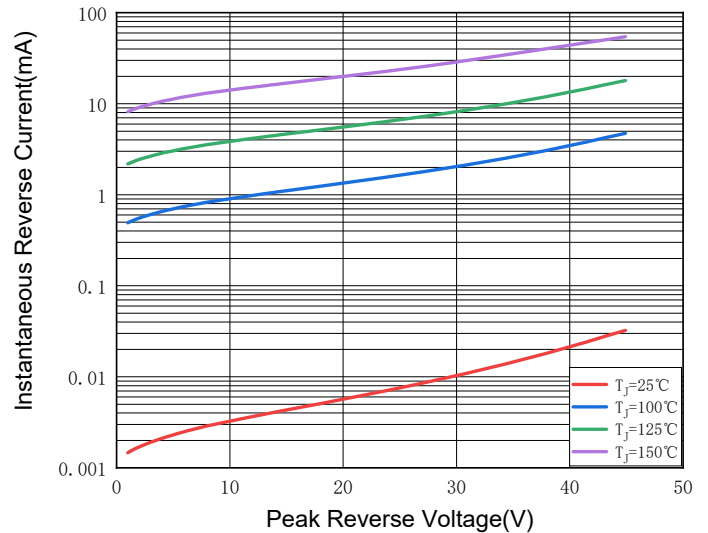
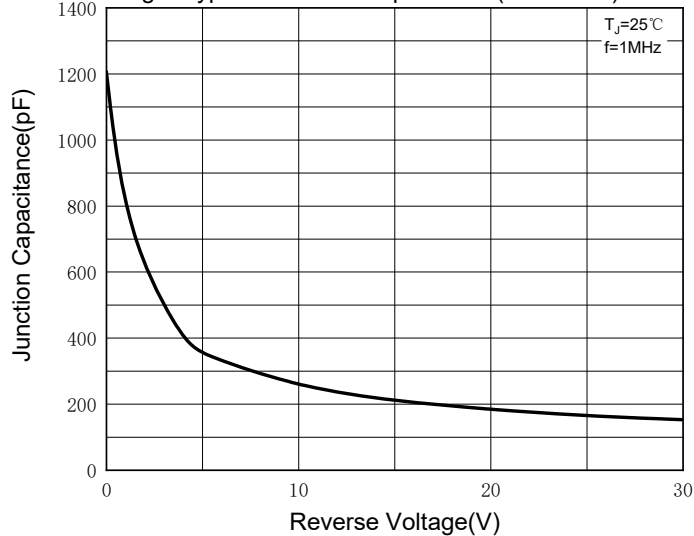


Fig.5: Typical Junction Capacitance(Per Diode)





MBR2045CDQ

■ Thermal Characteristics

PARAMETER	SYMBOL	UNIT	MBR2045CDQ
Typical thermal resistance per diode	$R_{\theta J-A}$	$^{\circ}\text{C/W}$	45 ⁽¹⁾
	$R_{\theta J-C}$	$^{\circ}\text{C/W}$	4 ⁽¹⁾

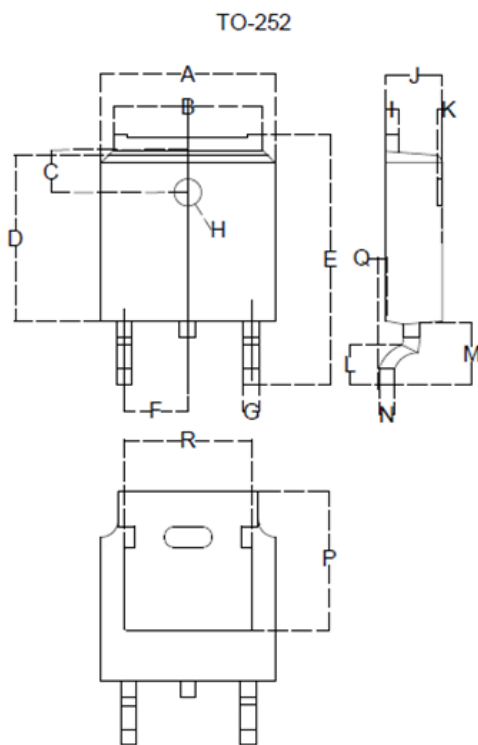
Note:

(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)

PREFERRED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MBR2045CDQ	Approximate 0.32	2500	2500	25000	Reel

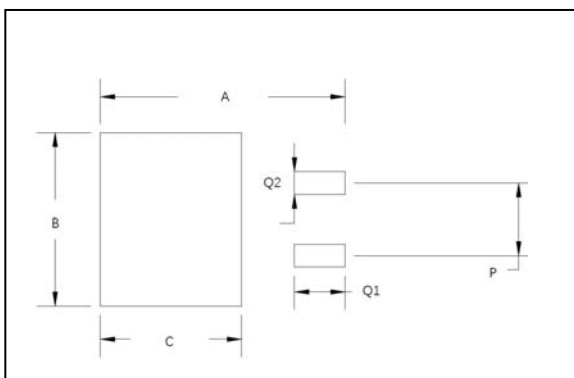
■ Outline Dimensions



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	$\Phi 1.050$	$\Phi 1.350$
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
P	5.15	5.45
Q	0	0.2
R	4.500	5.100

■ Suggested Pad Layout



Dim	Millimeters
A	10.70
B	5.70
C	6.23
P	4.532
Q1	2.25
Q2	1.21



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