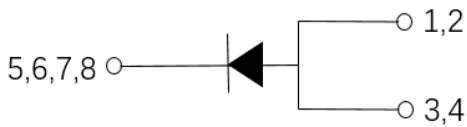
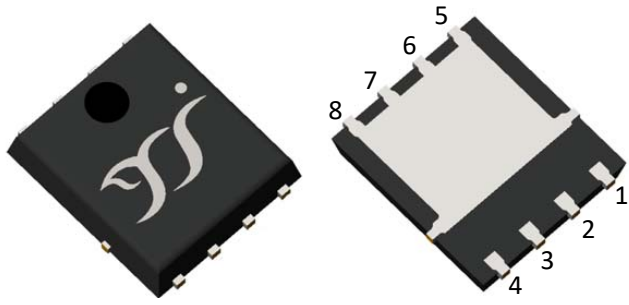


Schottky Diodes



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:** PDFN5060
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **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	MBR1045P5Q
Device marking code			MBR1045P5
Repetitive peak reverse voltage	V _{RRM}	V	45
Average Rectified Output Current @60Hz -sine wave, T _c =125°C	I _O	A	10
Forward Surge Current (Non-repetitive) @60Hz half-sine wave, 1 cycle, T _a =25°C	I _{FSM}	A	150
Current Squared Time @1ms≤t≤8.3ms T _J =25°C	I ² t	A ² s	93
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
			I _F	T _J		
Instantaneous forward voltage	V _F	V	I _F =10A	T _J =25°C	0.54	0.6
			I _F =10A	T _J =125°C	0.49	0.54
Typical junction capacitance	C _J	pF	V _R =4V, f=1 MHz		480	
Reverse recovery time	T _{RR}	ns	I _F =0.5A, I _R =1A, I _{rr} =0.25A		20	
Instantaneous reverse current	I _R	mA	V _R =45V	T _J =25°C	-	1
				T _J =125°C	-	50



MBR1045P5Q

■ Characteristics (Typical)

Fig.1: Forward Current Derating Curve

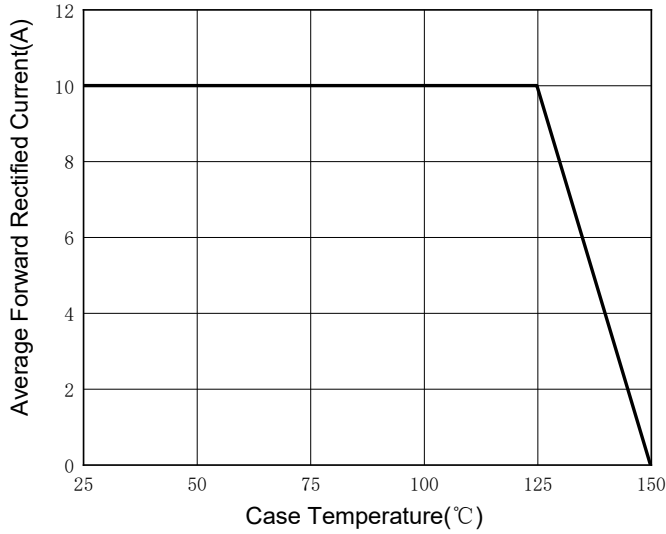


Fig.2: Forward Surge Current Capability

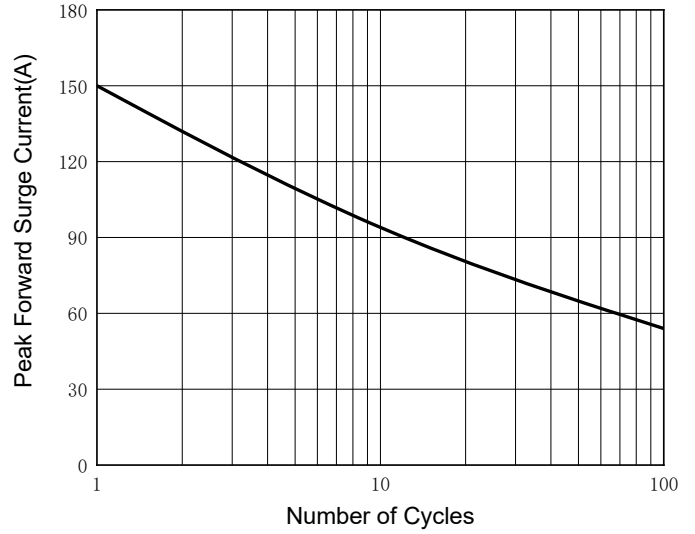


Fig.3: Typical Instantaneous Forward Characteristics

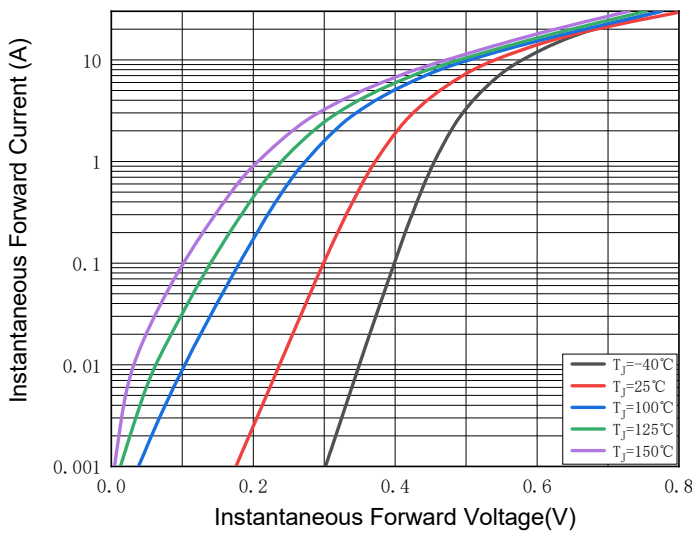


Fig.4: Typical Reverse Leakage Characteristics

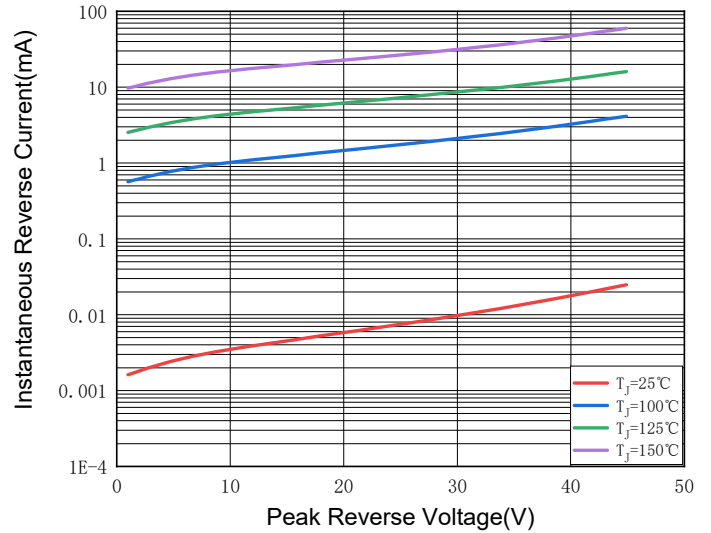


Fig.5: Typical Junction Capacitance

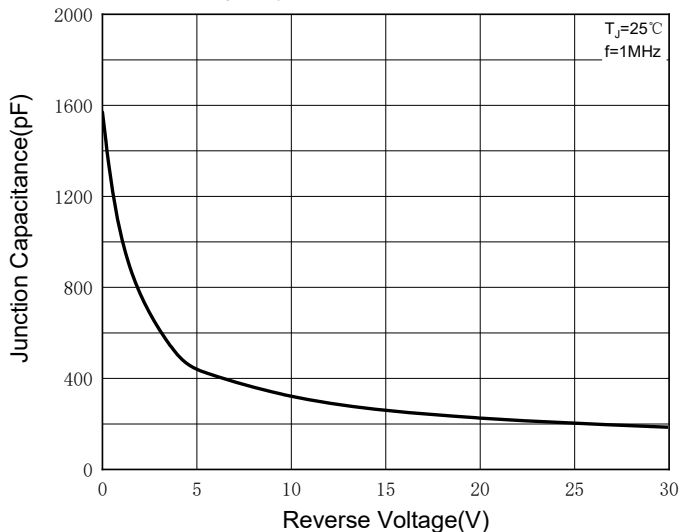
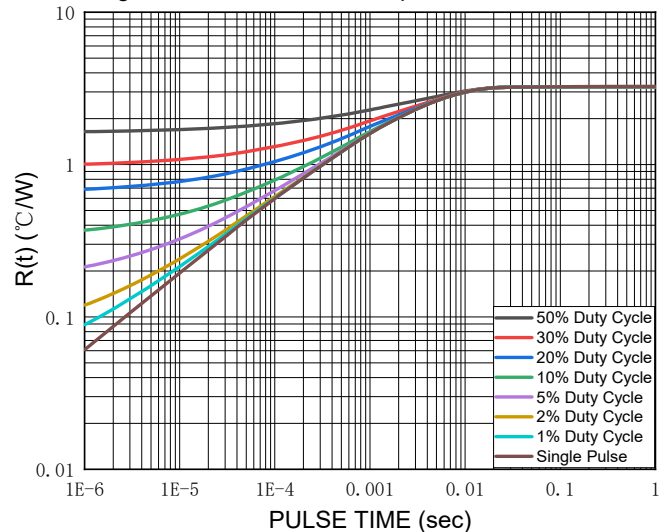


Fig.6: Transient Thermal Response, Junction to Case





MBR1045P5Q

■ Thermal Characteristics

PARAMETER	SYMBOL	UNIT	MBR1045P5Q
Typical thermal resistance	$R_{\theta J-A}$	°C/W	55 ⁽¹⁾
	$R_{\theta J-C}$	°C/W	3.5 ⁽²⁾

Note:

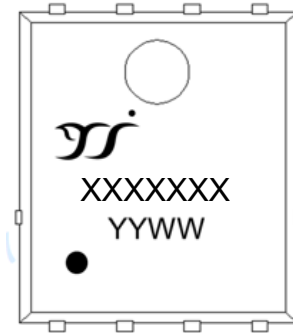
(1) Thermal resistance between junction and ambient mounted on P.C.B with 25.4mm*25.4mm copper pad areas.

(2) Thermal resistance between junction and case(bottom).

■ Ordering Information (Example)

PREFERED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MBR1045P5Q	Approximate 0.105	5000	10000	100000	13" reel

■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXXXXX is marking code, like MBR1045P5Q marking code is MBR1045P5
4. Body color: Black
5. YYWW is date code, "YY" is year. "WW" is week.

For instance:

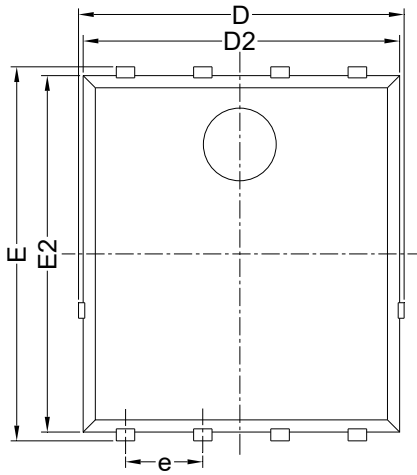
The 17th week of 2022, date code is 2217

The 17th week of 2023, date code is 2317

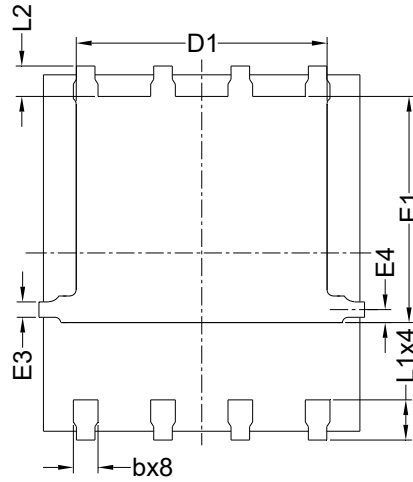


MBR1045P5Q

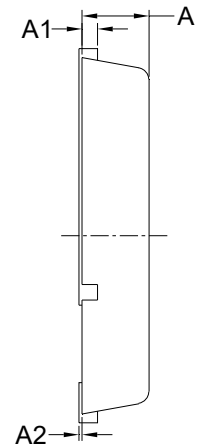
■ Outline Dimensions & Suggested Pad Layout



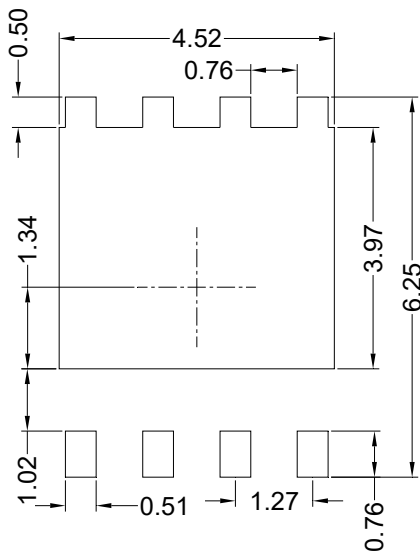
Top View



Bottom View



Side View



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1	0.254 BSC		
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
E3	0.254 REF		
E4	0.21 REF		
L1	0.56	0.66	0.76
L2	0.50 BSC		
b	0.31	0.41	0.51
e	1.27 BSC		

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.10 mm.
3. The pad layout is for reference purposes only.



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