

**MMBD4448HAQW / MMBD4448HADW
MMBD4448HCDW / MMBD4448HSDW
MMBD4448HTW**

List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings and Electrical characteristics 2

Rating and characteristic curves..... 3

Pinning information..... 4

Marking..... 4

Suggested solder pad layout..... 4

Packing information..... 5

Reel packing..... 5

Suggested thermal profiles for soldering processes..... 6

High reliability test capabilities..... 7

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250mA Surface Mount Switching Diode Array 100V

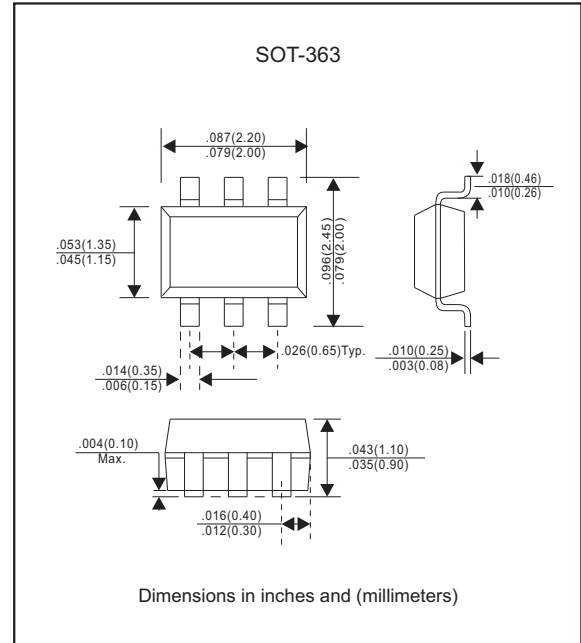
Features

- Fast speed switching
- For general purpose switching application
- High conductance
- Easily connected as full wave bridge
- Silicon epitaxial planar chip
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free part, ex. MMBD4448HAQW-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-363
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.006 gram

Package outline



Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Non-repetitive peak reverse voltage	V _{RM}	100	V
Peak repetitive reverse voltage	V _{RRM}	80	V
Working peak reverse voltage	V _{RWM}		
DC blocking voltage	V _R		
RMS reverse voltage	V _{R(RMS)}	56	V
Forward continuous current	I _{FM}	500	mA
Average rectified output current	I _O	250	mA
Non-repetitive peak forward surge current @ t = 8.3ms	I _{FSM}	2.0	A
Total device dissipation, note 1	P _D	200	mW
Thermal resistance junction to ambient	R _{θJA}	625	°C/W
Operating junction temperature range	T _J	-55 to +150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

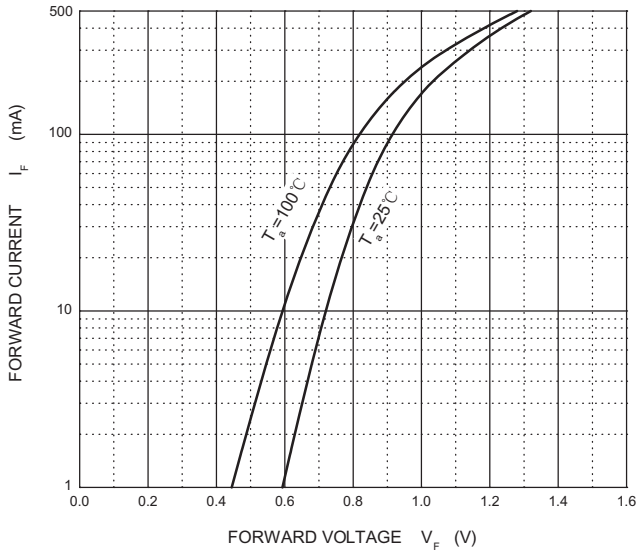
Electrical characteristics (AT T_A=25°C unless otherwise noted)

Parameter	Test Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Reverse breakdown voltage	I _R =100μA	V _{BR}	80			V
Forward voltage	I _F =5mA	V _F	0.62		0.72	V
	I _F =10mA				0.855	
	I _F =100mA				1.0	
	I _F =150mA				1.25	
Reverse leakage current	V _R =70V	I _R			100	nA
	V _R =20V				25	nA
Capacitance between terminals	V _R = 0 V, f = 1.0MHz	C _T			3.5	pF
Reverse recovery time	I _F = I _R = 10mA, I _{rr} = 0.1 X I _R , R _L = 100Ω	t _{rr}			4.0	ns

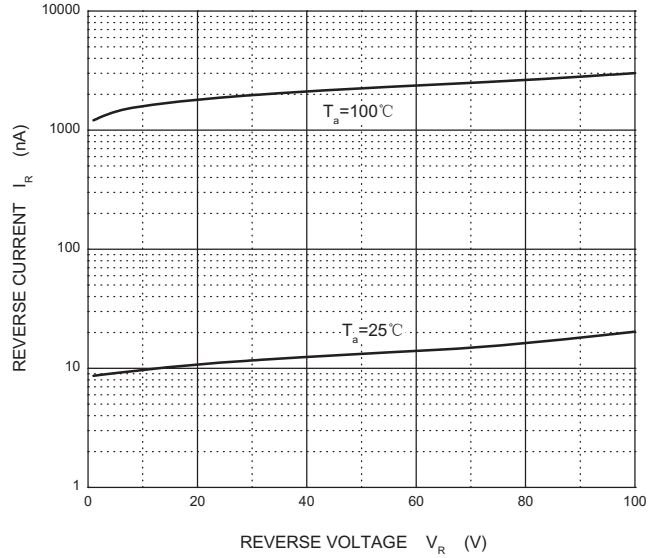
Note 1: Parts Mounted on FR-4 PC Board with recommended pad layout.

**Rating and characteristic curves for each diode
(MMBD4448HAQW / MMBD4448HADW MMBD4448HCDW
MMBD4448HSDW MMBD4448HTW)**

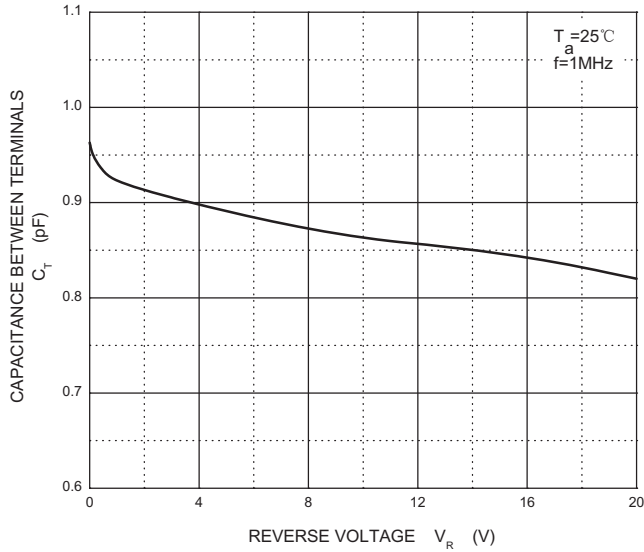
Forward Characteristics



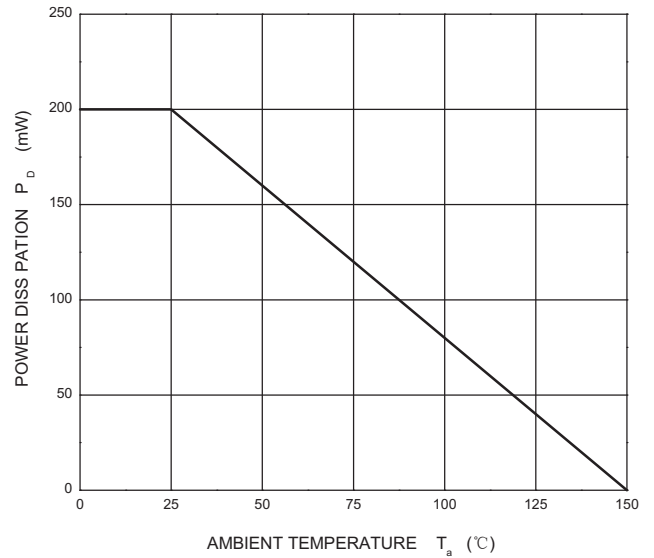
Reverse Characteristics



Capacitance Characteristics

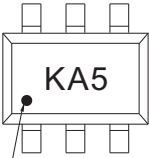
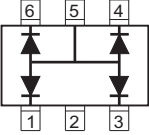
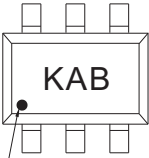
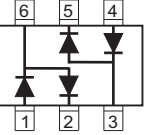
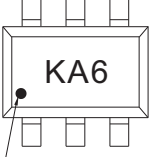
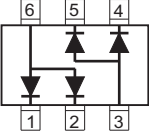

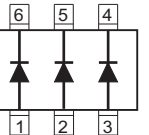
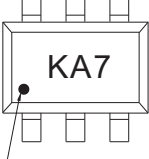
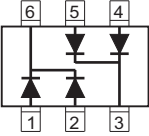


Power Derating Curve

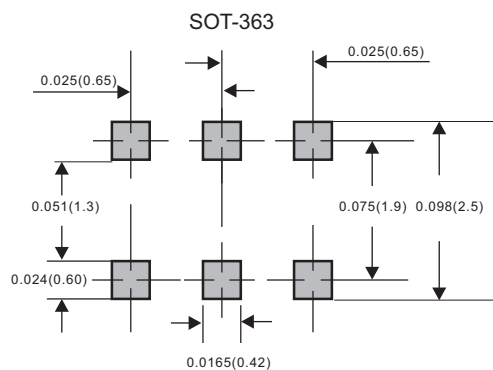


MMBD4448HAQW / MMBD4448HADW
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MMBD4448HTW

Pinning information

Type number	Marking code	Symbol	Type number	Marking code	Symbol
MMBD4448 HAQW	 Solid dot = Pin1 indicate		MMBD4448 HSDW	 Solid dot = Pin1 indicate	
MMBD4448 HADW	 Solid dot = Pin1 indicate		MMBD4448 HTW	 Solid dot = Pin1 indicate	
MMBD4448 HCDW	 Solid dot = Pin1 indicate				

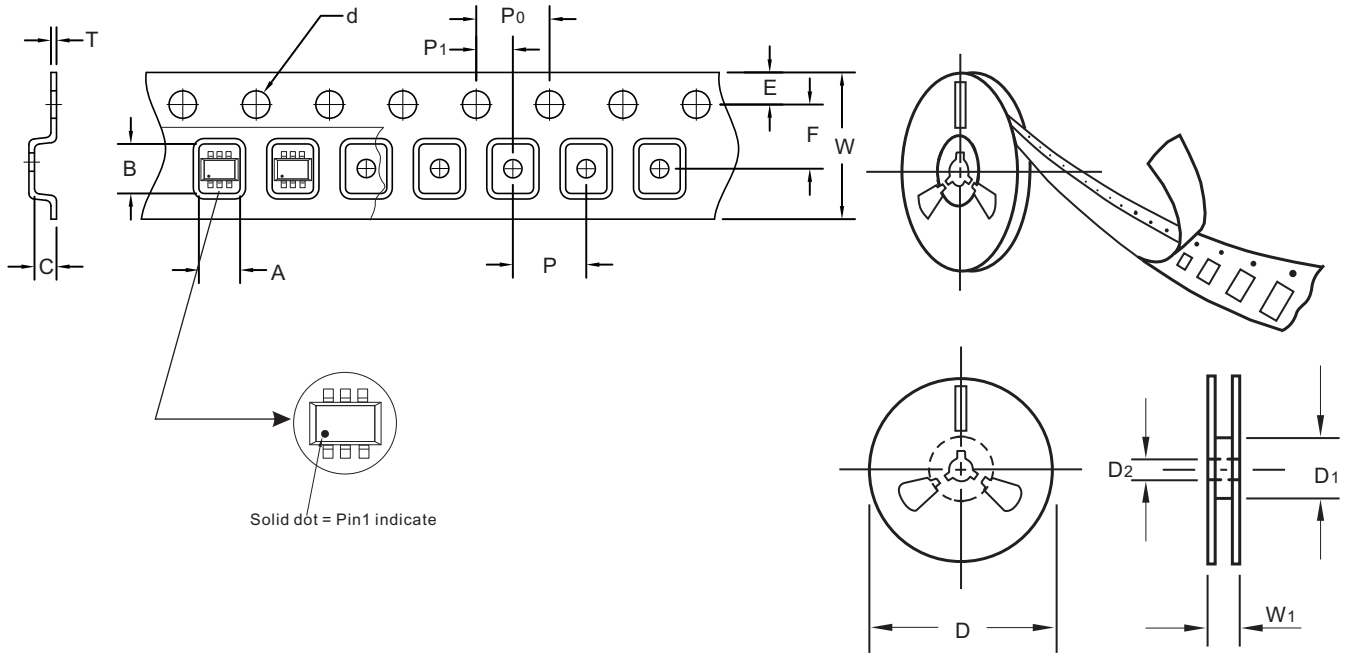
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-363
Carrier width	A	0.1	2.25
Carrier length	B	0.1	2.55
Carrier depth	C	0.1	1.20
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	54.40
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	12.3

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

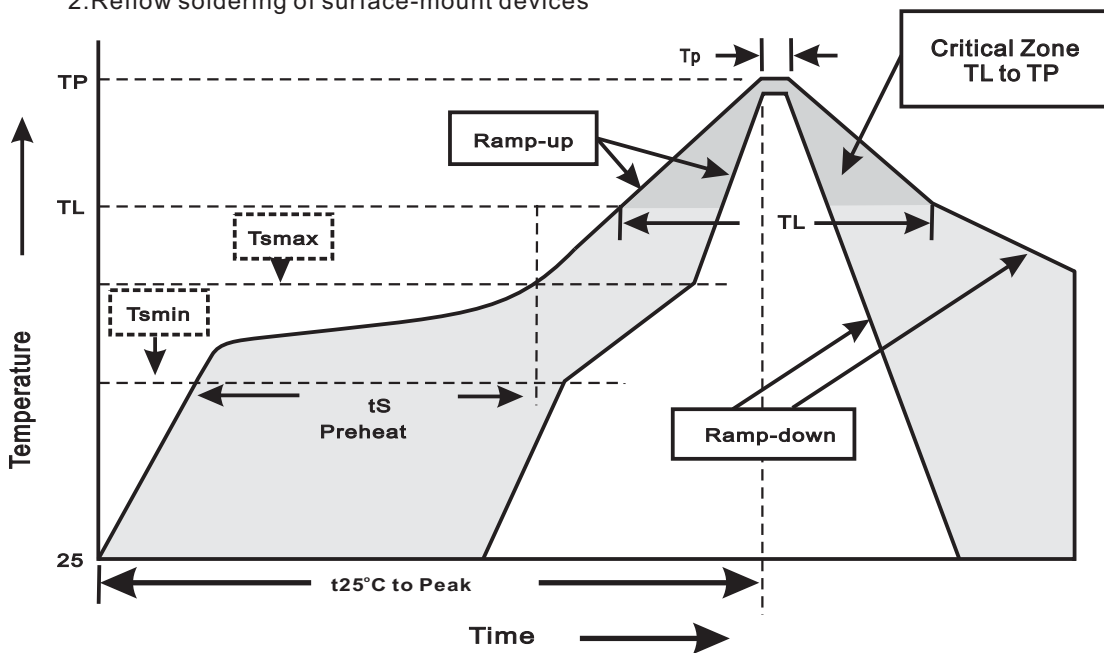
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-363	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.50

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A=25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A=121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	Peak Forward Current	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A=85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031