

MMBD4448HAQW / MMBD4448HADW MMBD4448HCDW / MMBD4448HSDW MMBD4448HTW

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250mA Surface Mount Switching Diode Array100V

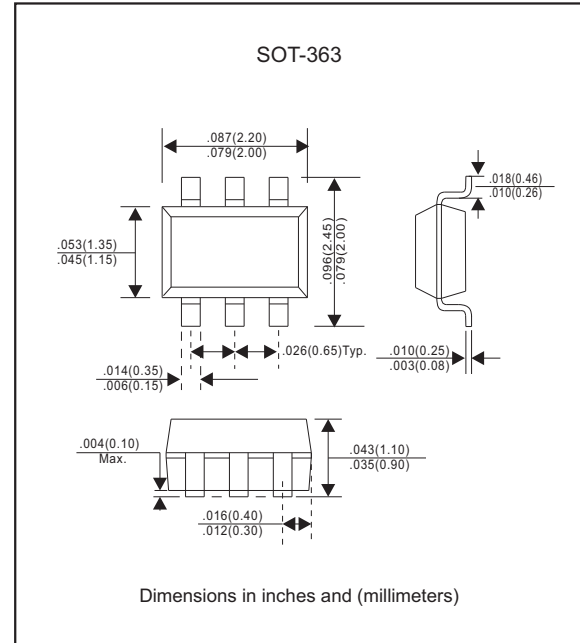
Features

- 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 $T_A=25^{\circ}\text{C}$ unless otherwise noted)

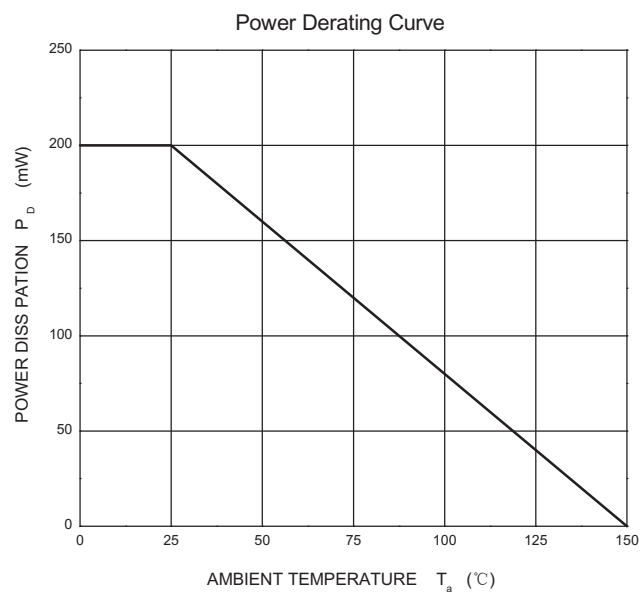
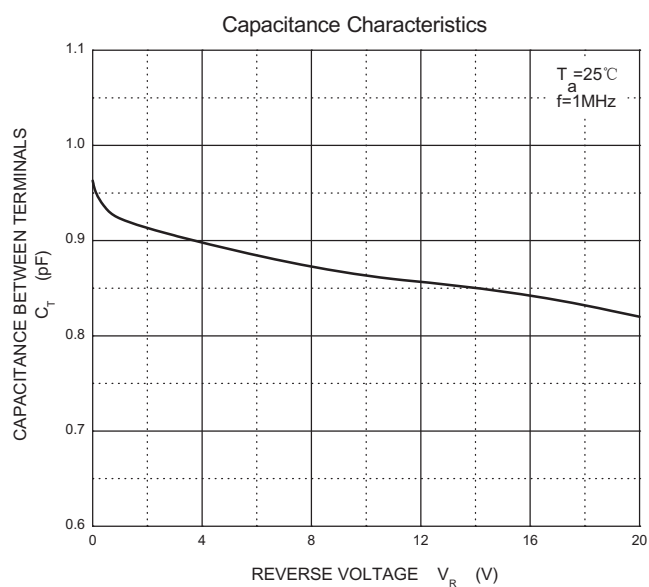
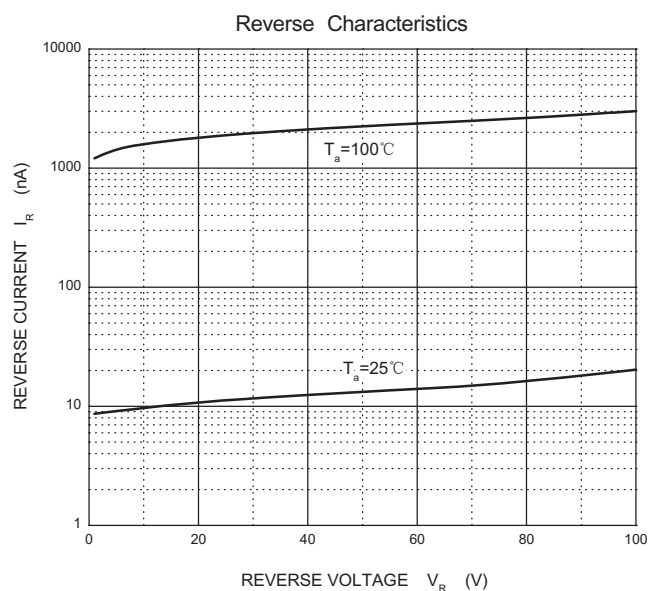
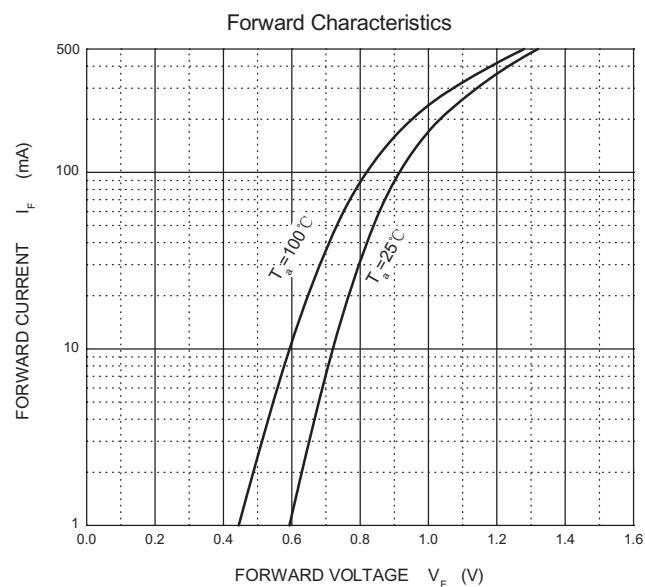
Parameter	Symbol	Limit	Unit
Non-repetitive peak reverse voltage	V_{RM}	100	V
Peak repetitive reverse voltage Working peak reverse voltage DC blocking voltage	V_{RRM} V_{RWM} V_R	80	V
RMS reverse voltage	$V_R(RMS)$	56	V
Forward continuous current	I_{FM}	500	mA
Average rectified output current	I_O	250	mA
Non-repetitive peak forward surge current @ $t = 8.3\text{ms}$	I_{FSM}	2.0	A
Total device dissipation, note 1	P_D	200	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Reverse breakdown voltage	$I_R=100\mu\text{A}$	V_{BR}	80			V
Forward voltage	$I_F=5\text{mA}$	V_F	0.62		0.72	V
	$I_F=10\text{mA}$				0.855	
	$I_F=100\text{mA}$				1.0	
	$I_F=150\text{mA}$				1.25	
Reverse leakage current	$V_R=70\text{V}$	I_R			100	nA
	$V_R=20\text{V}$				25	nA
Capacitance between terminals	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$	C_T			3.5	pF
Reverse recovery time	$I_F = I_R = 10\text{mA}$, $I_{rr} = 0.1 \times I_R$, $R_L = 100\Omega$	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)**

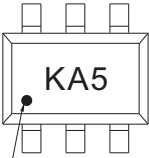
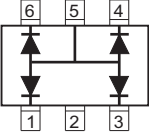
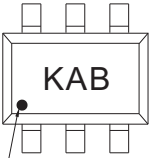
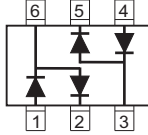
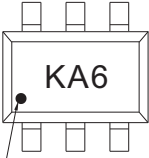
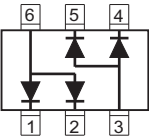
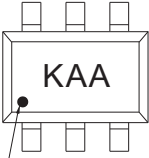
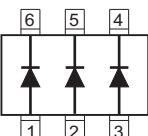
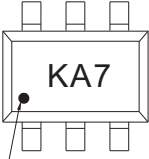
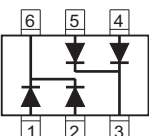


MMBD4448HAQW / MMBD4448HADW

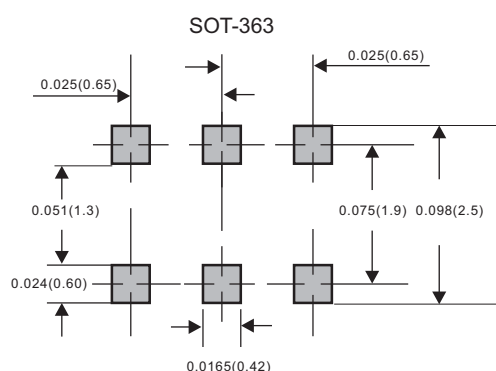
MMBD4448HCDW / MMBD4448HSDW

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



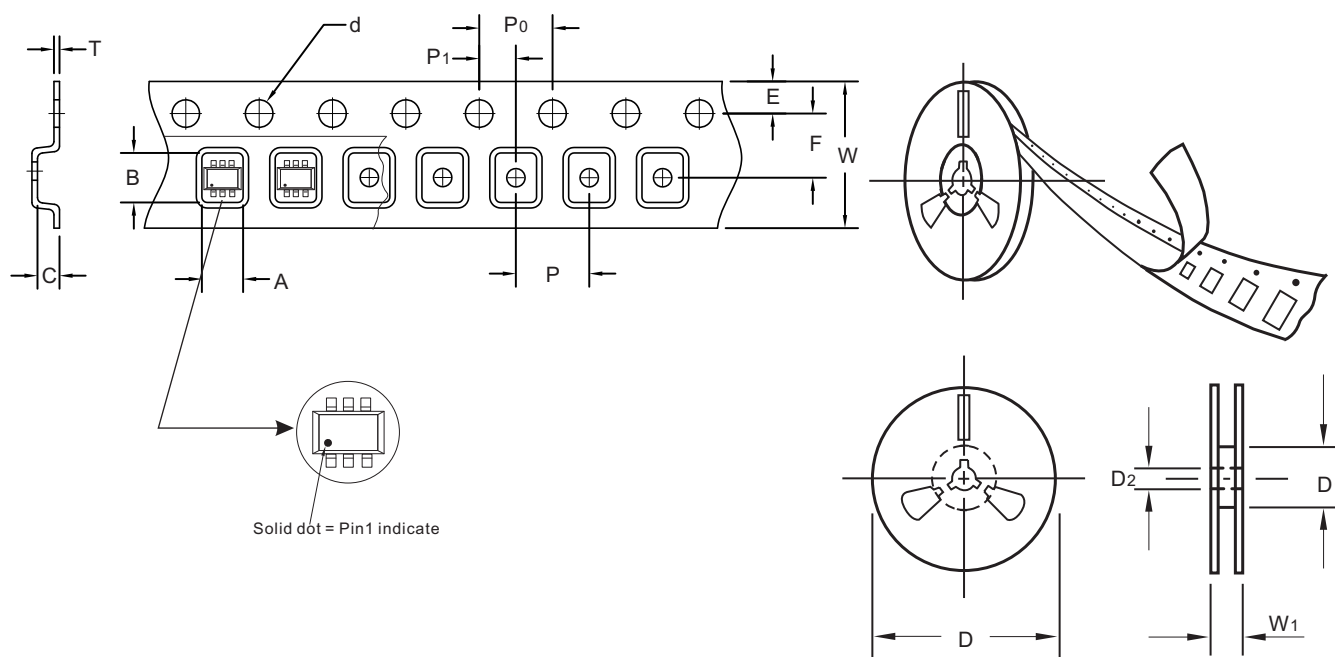
Dimensions in inches and (millimeters)

MMBD4448HAQW / MMBD4448HADW

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MMBD4448HTW

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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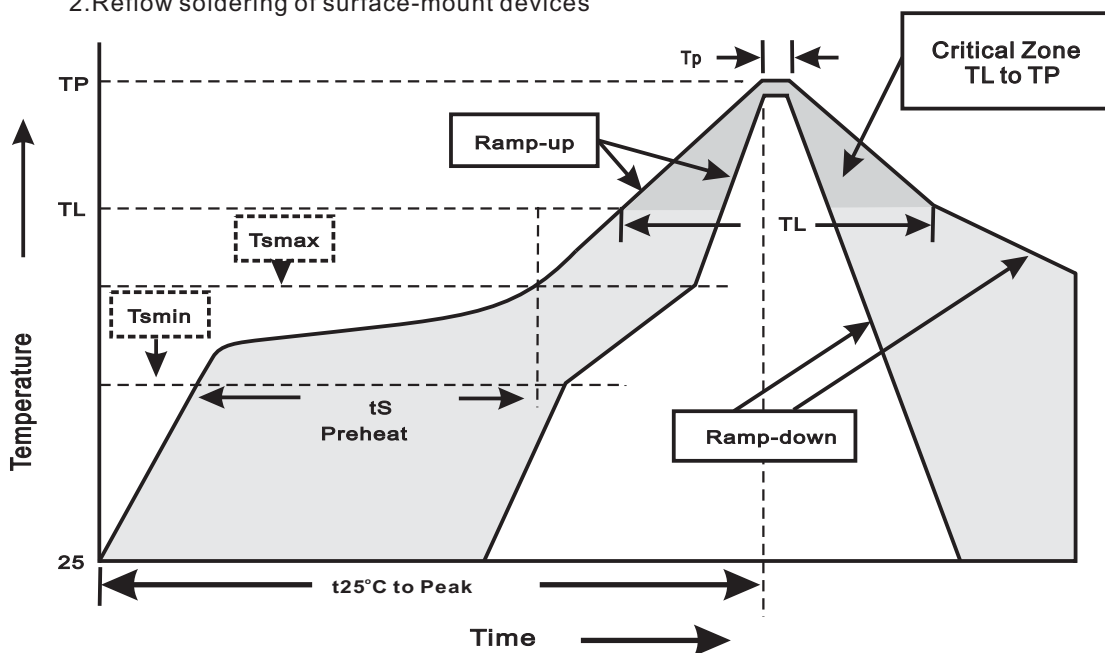
MMBD4448HTW

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(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _p)	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 $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec}$.	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ 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 $+125^\circ\text{C}$ 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