



**THE DATASHEET OF  
MMBD4448HADWQ-7-F**



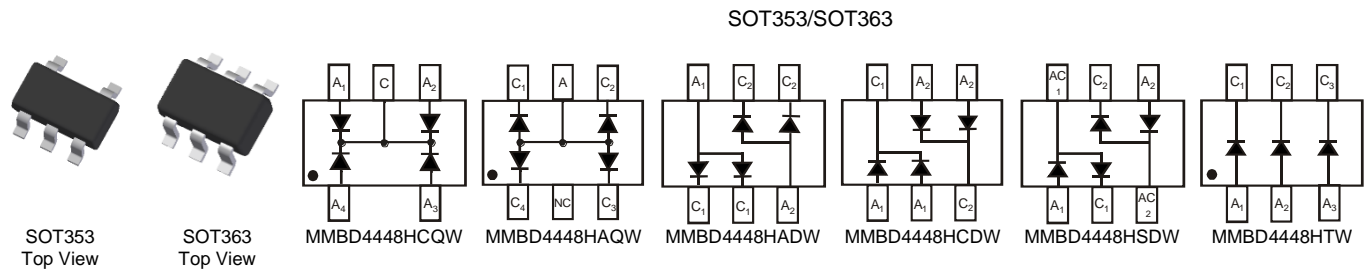
## Features

- Fast Switching Speed
- Low-Forward Voltage: Maximum of 0.72V at 5mA
- Low-Reverse Current: Maximum of 100nA at 70V
- Fast Reverse Recovery: Maximum of 4ns
- Low Capacitance: Maximum of 3.5pF
- Small Surface-Mount Package
- For General-Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The MMBD4448HADWQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Package: SOT353/SOT363
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 (E3)
- Orientation: See Diagrams Below
- Weight: 0.006 grams (Approximate)

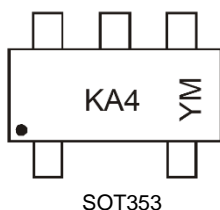


## Ordering Information (Note 4)

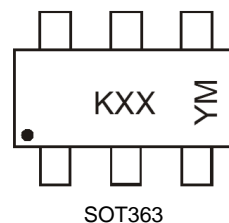
Orderable Part Number	Package	Packing	
		Qty.	Carrier
MMBD4448HADW-7-F	SOT363	3000	Tape & Reel
MMBD4448HADWQ-7-F	SOT363	3000	Tape & Reel
MMBD4448HAQW-7-F	SOT363	3000	Tape & Reel
MMBD4448HCDW-7-F	SOT363	3000	Tape & Reel
MMBD4448HCQW-7-F	SOT353	3000	Tape & Reel
MMBD4448HSDW-7-F	SOT363	3000	Tape & Reel
MMBD4448HTW-7-F	SOT363	3000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

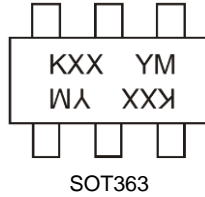


KA4 = Product Type Marking Code  
 KA4 = MMBD4448HCQW  
 YM = Date Code Marking  
 Y = Year (ex: L = 2024)  
 M = Month (ex: 9 = September)  
 A Bar around the Date Code Marking Denotes AT Site



KXX = Product Type Marking Code,  
 ex: KA5 = MMBD4448HAQW  
 KAA = MMBD4448HTW  
 YM = Date Code Marking  
 Y = Year (ex: L = 2024)  
 M = Month (ex: 9 = September)  
 A Bar around the Date Code Marking Denotes AT Site

## Marking Information (continued)



KXX = Product Type Marking Code,  
 ex: KA6 = MMBD4448HADW  
 KA7 = MMBD4448HCDW  
 KAB = MMBD4448HSDW  
 YM = Date Code Marking  
 Y = Year (ex: L = 2024)  
 M = Month (ex: 9 = September)  
 A Bar around the Date Code Marking Denotes AT Site

### Date Code Key

Year	2000	-	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	L	-	L	M	N	P	R	S	T	U	V	W

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V <sub>RM</sub>	100	V
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	80	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	57	V
Forward Continuous Current (Note 5)	I <sub>FM</sub>	500	mA
Non-Repetitive Peak Forward Surge Current		@ t = 1.0μs	4.0
		@ t = 1.0ms	1.0

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	80	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	0.62	0.72	V	I <sub>F</sub> = 5.0mA
		—	0.855		I <sub>F</sub> = 10mA
		—	1.0		I <sub>F</sub> = 100mA
		—	1.25		I <sub>F</sub> = 150mA
Reverse Current (Note 6)	I <sub>R</sub>	—	100	nA	V <sub>R</sub> = 70V
		—	50	μA	V <sub>R</sub> = 75V, T <sub>J</sub> = +150°C
		—	30	μA	V <sub>R</sub> = 25V, T <sub>J</sub> = +150°C
		—	25	nA	V <sub>R</sub> = 20V
Total Capacitance	C <sub>T</sub>	—	3.5	pF	V <sub>R</sub> = 6V, f = 1.0MHz
Reverse-Recovery Time	t <sub>rr</sub>	—	4.0	ns	V <sub>R</sub> = 6V, I <sub>F</sub> = 5mA

Notes: 5. Device mounted on FR-4 PCB with 1 inch square, 2oz copper pad layout.  
 6. Short duration pulse test used to minimize self-heating effect.

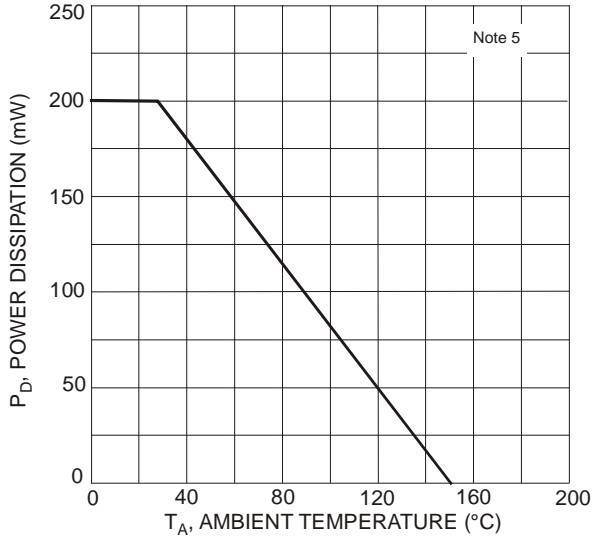


Figure 1 Power Derating Curve, Total Package

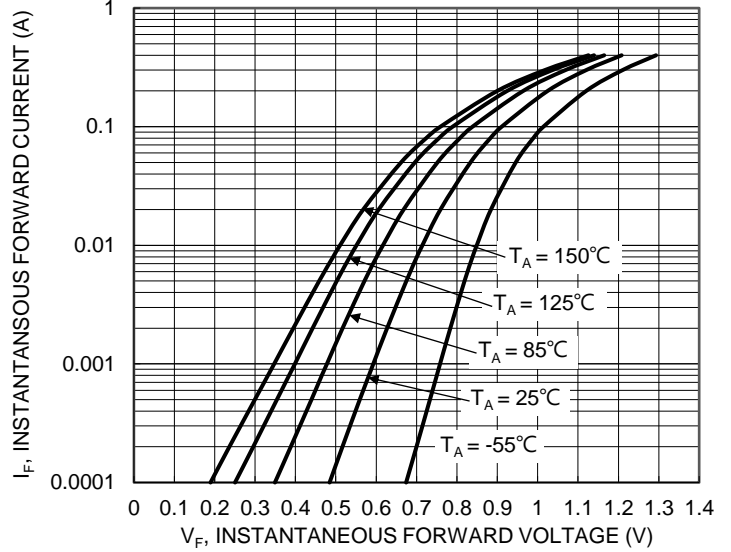


Figure 2 Typical Forward Characteristics, per Element

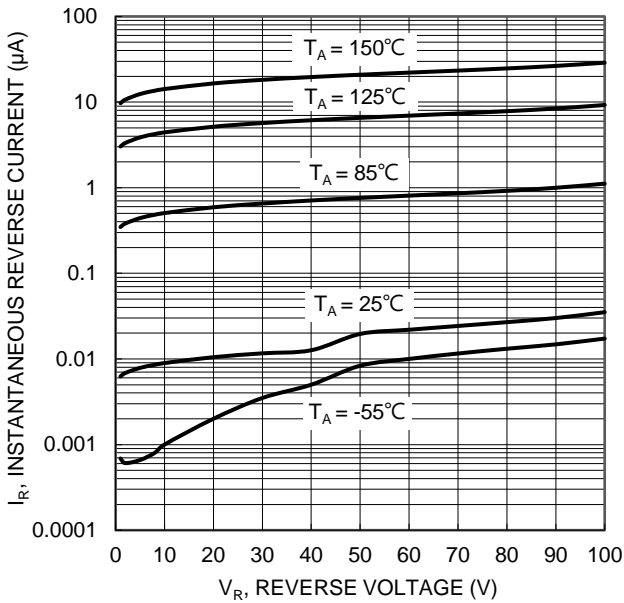


Figure 3 Typical Reverse Characteristics, per Element

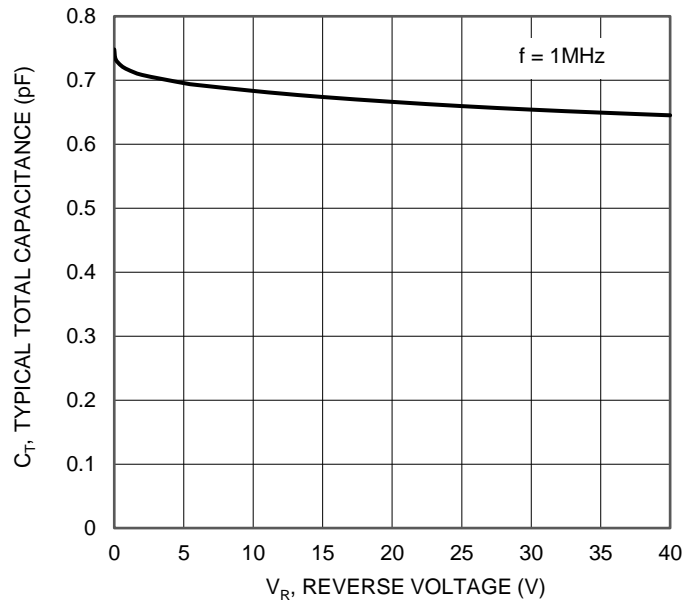
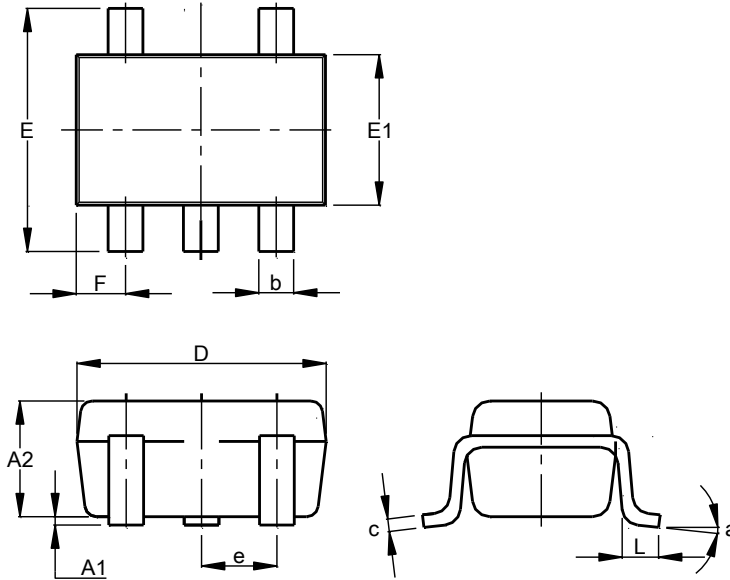


Figure 4 Typical Total Capacitance, per Element

**Package Outline Dimensions**

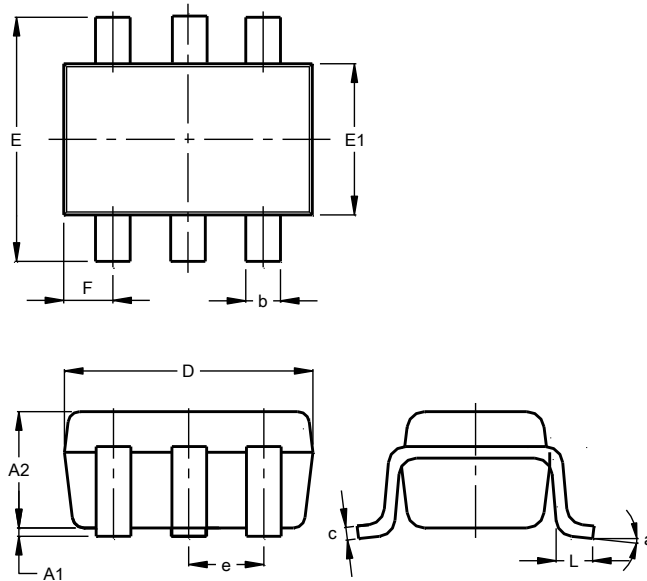
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT353**



SOT353			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
<b>All Dimensions in mm</b>			

**SOT363**

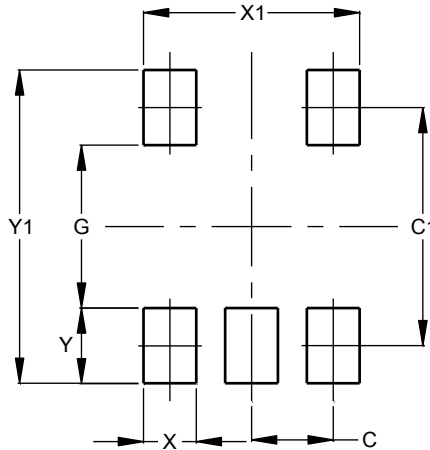


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

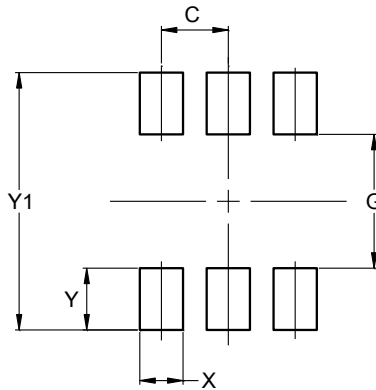
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT353**



Dimensions	Value (in mm)
C	0.650
C1	1.900
G	1.300
X	0.420
X1	1.720
Y	0.600
Y1	2.500

**SOT363**



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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