

Features

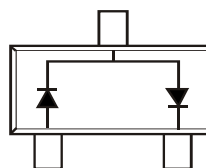
- Fast Switching Speed: Maximum of 4ns
- Low Total Capacitance: Maximum of 2pF
- Surface Mount Package Ideally Suited for Automated Insertion
- For General-Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/contact-us) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208 **(E3)**
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SOT23


Top View

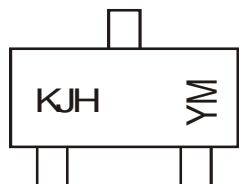

 Top View
Internal Schematic

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Quantity	Carrier
MMBD7000-7-F	SOT23	3,000	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



JH, KJH = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: L = 2024
 M = Month ex: 9 = September
 A Bar around the Date Code Marking Denotes Assembly Site

Date Code Key

Year	1999	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	K	J	K	L	M	N	P	R	S	T	U
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_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V _{RM}	100	V
Peak Repetitive Reverse Voltage	V _{RRM}	75	V
Working Peak Reverse Voltage	V _{RWM}		
Forward Continuous Current (Note 5)	I _{FM}	300	mA
Non-Repetitive Peak Forward Surge Current		@ t = 1.0μs	2.0
		@ t = 1.0s	1.0

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	350	mW
Thermal Resistance Junction to Ambient Air (Note 5)	R _{θJA}	357	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	75	—	V	I _R = 100μA
Forward Voltage	V _F	0.55	0.70	V	I _F = 1.0mA
		0.67	0.82		I _F = 10mA
		0.75	1.10		I _F = 50mA
		—	1.25		I _F = 150mA
Reverse Current (Note 6)	I _R	—	1.0	μA	V _R = 50V
			3.0	μA	V _R = 100V
			100	μA	V _R = 50V, T _J = +125°C
			25	nA	V _R = 20V
Total Capacitance	C _T	—	2.0	pF	V _R = 0, f = 1.0MHz
Reverse Recovery Time	t _{rr}	—	4.0	ns	I _F = I _R = 10mA, I _{rr} = 0.1 × I _R , R _L = 100Ω

Notes: 5. Part mounted on FR-4 substrate printed circuit board with 1 inch square 2oz copper pad area.
6. Short duration pulse test used to minimize self-heating effect.

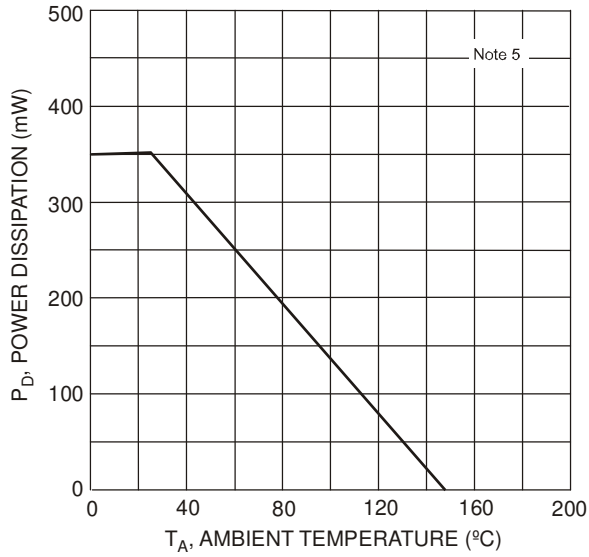


Figure 1 Power Derating Curve, Total Package

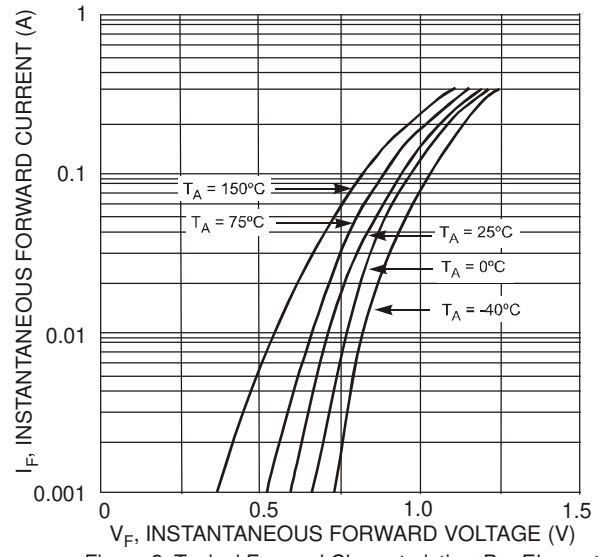


Figure 2 Typical Forward Characteristics, Per Element

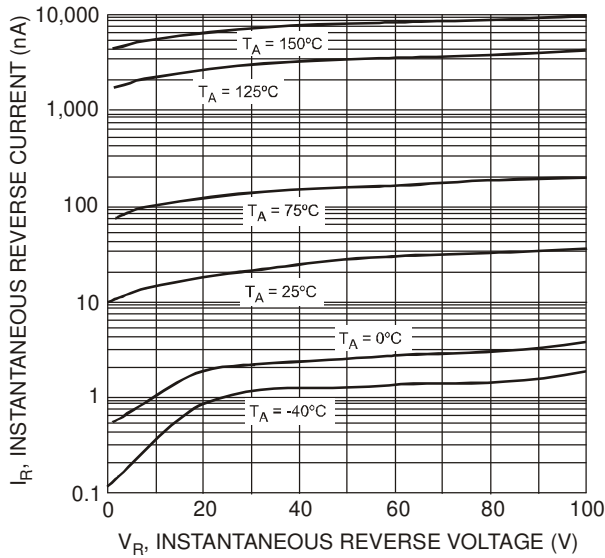


Figure 3 Typical Reverse Characteristics, Per Element

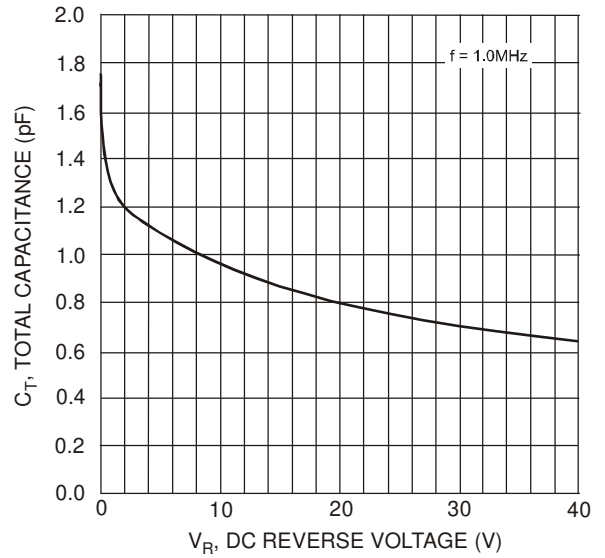
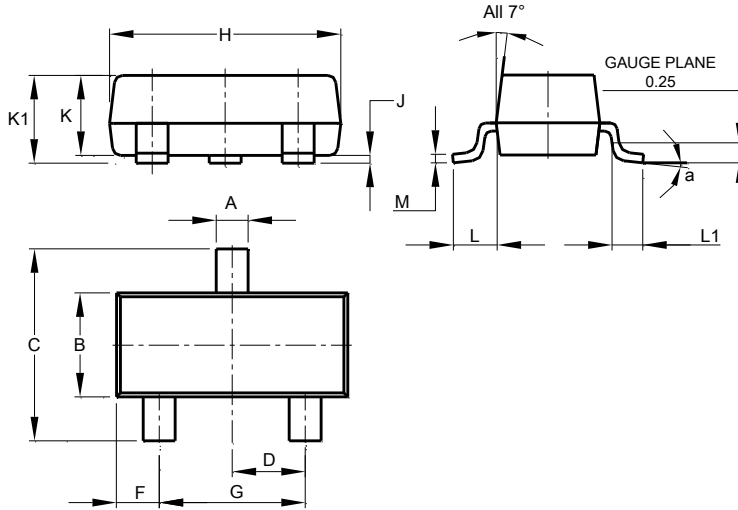


Figure 4 Total Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

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

SOT23

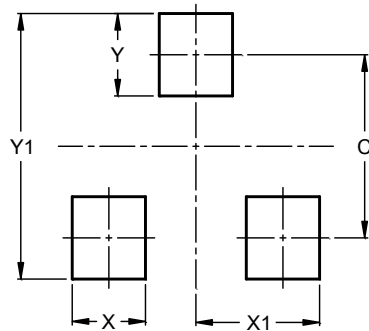


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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