0IMD2-001

Schottky Barrier Diodes

These Schottky barrier diodes are designed for high−speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Miniature surface mount package is ideal for medical applications where space is limited.

Features

- Extremely Fast Switching Speed
- Low Forward Voltage − 0.35 V (Typ) @ I_F = 10 mA
- Device Meets MSL1 Requirements
- AEC−Q101 Qualified and Built In a Medical Flow
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_J = 125°C unless otherwise noted)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board, (Note 1) T_A = 25°C Derate above 25°C	P_D	200 1.57	mW mW/°C
Forward Current (DC)	I_F	200 Max	mA
Non−Repetitive Peak Forward Current, t_p < 10 msec	I_{FSM}	600	mA
Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66%	I_{FRM}	300	mA
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	635	°C/W
Junction and Storage Temperature	T_J, T_{stg}	−55 to 125	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR−4 Minimum Pad.

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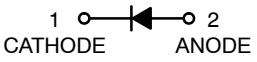
30 VOLT SILICON HOT−CARRIER DETECTOR AND SWITCHING DIODES



SOD−523
CASE 502
PLASTIC

MARKING DIAGRAM

M2 = Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending up-on manufacturing location.

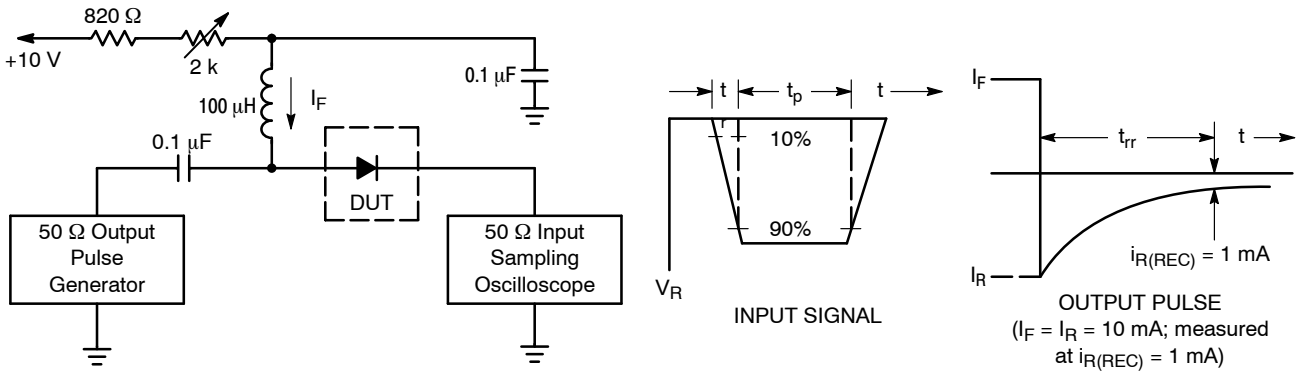
ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	30	–	–	V
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T	–	7.6	10	pF
Reverse Leakage (V_R = 100 mV)	I_R	–	–	50	nA
Reverse Leakage (V_R = 5 V)	I_R	–	–	200	nA
Reverse Leakage (V_R = 25 V)	I_R	–	0.5	2.0	μA
Forward Voltage (I_F = 1 μA)	V_F	–	–	0.1	V
Forward Voltage (I_F = 0.1 mA)	V_F	–	0.22	0.24	V
Forward Voltage (I_F = 1.0 mA)	V_F	–	0.29	0.32	V
Forward Voltage (I_F = 10 mA)	V_F	–	0.35	0.40	V
Forward Voltage (I_F = 30 mA)	V_F	–	0.41	0.5	V
Forward Voltage (I_F = 50 mA)	V_F	–	–	0.625	V
Forward Voltage (I_F = 100 mA)	V_F	–	0.52	0.8	V
Forward Voltage (I_F = 150 mA)	V_F	–	–	0.845	V
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA) Figure 1	t_{rr}	–	–	5.0	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

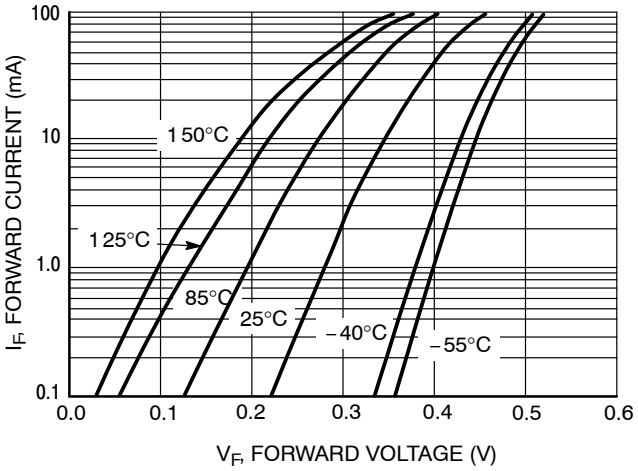


Figure 2. Forward Voltage

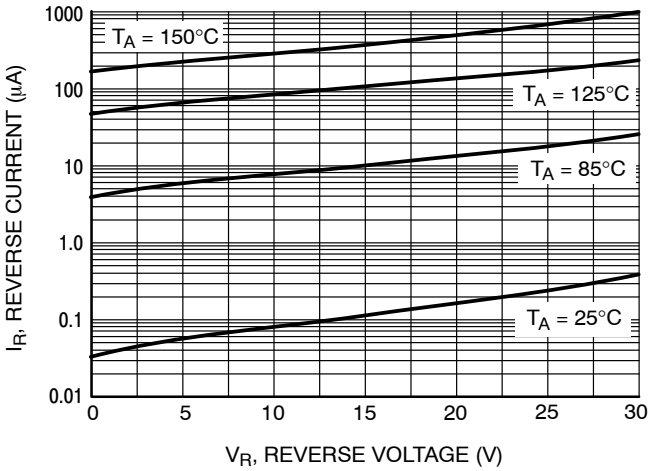


Figure 3. Leakage Current

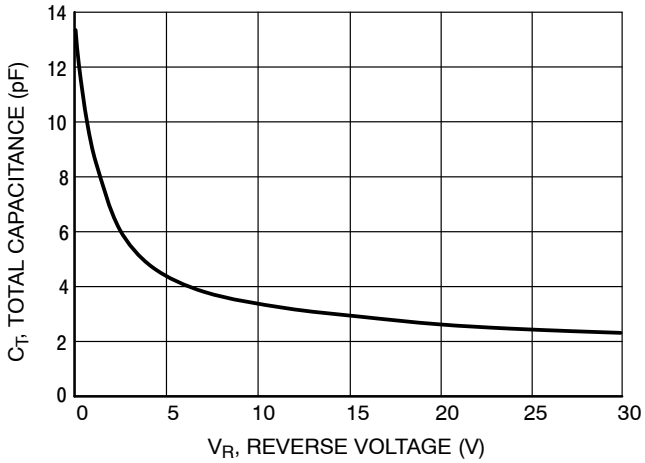


Figure 4. Total Capacitance

ORDERING INFORMATION

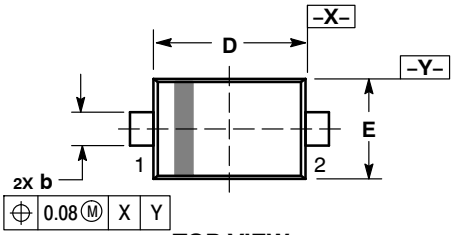
Device	Wirebond	Package	Shipping†
0IMD2−001−XTP	Au (Gold)	SOD−523 (Pb−Free)	8000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

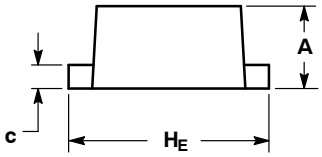
0IMD2−001

PACKAGE DIMENSIONS

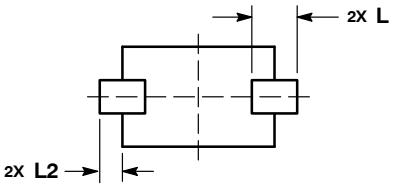
SOD−523
CASE 502
ISSUE E



TOP VIEW



SIDE VIEW

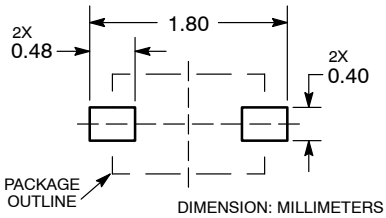


BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.50	0.60	0.70
b	0.25	0.30	0.35
c	0.07	0.14	0.20
D	1.10	1.20	1.30
E	0.70	0.80	0.90
H_E	1.50	1.60	1.70
L	0.30 REF		
L2	0.15	0.20	0.25

RECOMMENDED SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative