Issue Number | 001
May 2015

New Product Announcement

SOD123F Rectifiers

SOD123F High-Voltage Rectifiers Enable Compact Dimensions for Portable Products

Diodes Incorporated announces the introduction of a glass-passivated rectifier series which is housed in the low-profile and small form-factor "SOD123F" package. The state-of-the-art small package technology enables very compact dimensions for portable products which adopt this series of rectifier devices.

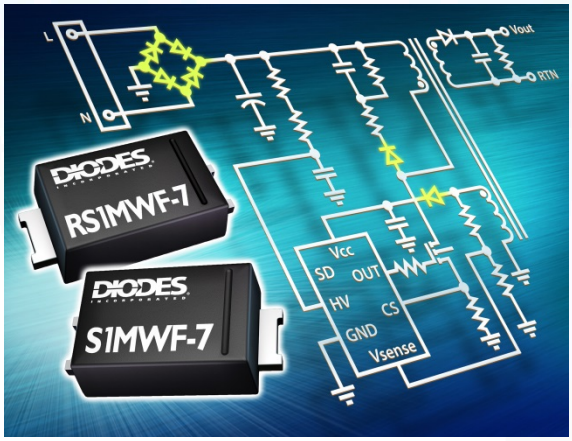
The rectifier series is comprised of two rectifier devices, each exhibiting high reverse breakdown voltage (V_{RRM} ≥1000V) and high forward-current surge capability (I_{FSM} ≥30A). The glass passivated die construction ensures robust performance and high reliability.

The initial release of the rectifier series includes the S1MWF which is a standard rectifier device, and the RS1MWF which is a fast-recovery rectifier device. Both are well suitable for power supply and adapter applications.

The fast switching frequency and the low reverse-recovery time of the RS1MWF reduce the switching loss and increase the power conversion efficiency of the power supply in which the device is applied. Either of these devices can be used in a full-wave bridge configuration for AC-to-DC rectification from the main AC supply.

Delivering superior performance, these devices are ideally suited for today's high-speed fully-automated assembly processes.

The SOD123F package is fully green and RoHS-compliant. (See diodes.com for further details).



The Diodes' Advantage

- **Low-Profile Package, Small Form-Factor Package**
  The low profile (1.15mm maximum) and small form factor of the SOD123F package (3.5mm x 1.8mm typical) enable lower z-height of the adopting portable products.
- **Low Reverse Leakage Current**
  The devices have low reverse leakage current (IR<5uA @ VR=1,000V) which improves the efficiency of the rectifier during both reverse-mode and switch-mode operation.
- **High Forward Surge Current Capability**
  The clip die-attach structure used in the assembly of the devices enable them to withstand high surge currents (up to 30A), resulting in improved reliability and product lifetime.
- **Fast Switching Speed for High Power Efficiency**
  The fast switching speed of the RS1MWF reduces switching loss and increases power efficiency. It is ideally suited for applications like switched-mode power supplies, PFC (power factor correction) and other fast switching applications.

Circuit Functions

- AC-DC Rectification
- DC-DC Conversion
- Power Factor Correction (PFC)

Target Markets

- SMPS for PC and Servers
- LED Lighting
- Power Supplies
- Charger/Adaptors
- TV & Monitor Power Supplies

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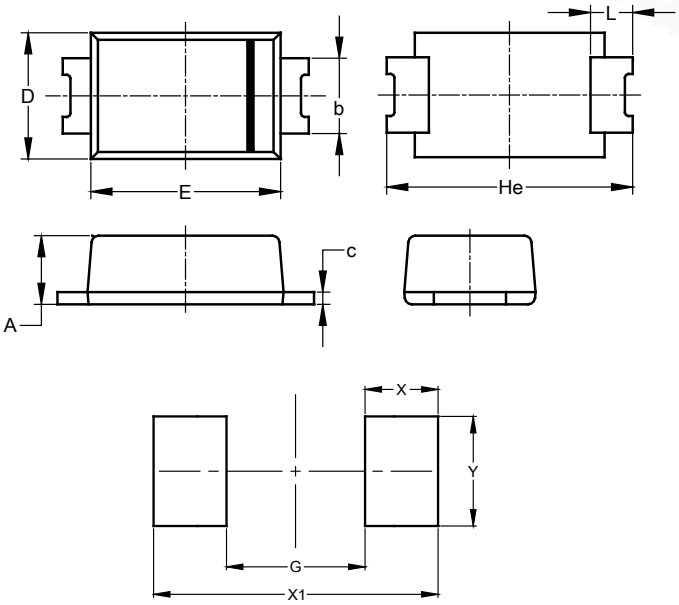
Product Portfolio

Part Number	Recovery Switching Speed	Max Average Rectified Current I_O (A)	Peak Repetitive Reverse Voltage V_{RRM} (V)	Maximum Forward Voltage Drop V_F (V)	Maximum Reverse Current I_R (μA)	Maximum Peak Forward Surge Current I_{FSM} (A)	Maximum Reverse Recovery Time try (ns)	Typical Total Capacitance C_T (pF)	Maximum Power Dissipation Pd (W)
S1MWF-7	Standard	1	1,000	1.1	5.0	30	3,000	7	1.1
RS1MWF-7	Fast	1	1,000	1.3	5.0	30	500	8	1.3

Package Outline Dimensions & Suggested Pad Layout



SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	--
b	0.80	1.35	--
c	0.05	0.30	--
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	--
All Dimensions in mm			

Dimensions	Value (in mm)
G	1.90
X	1.00
X1	3.90
Y	1.50

Cross Reference

Diodes Device	Competitors	Cross Reference
S1MWF-7	Vishay, MCC, Comchip, Taiwan Semi, Rectron, Good Ark, Toshiba	S1FLM, SM4007PL, CGRKM4007, S1ML, 05A7, R20MH, F7DS, CRG05
RS1MWF-7	Vishay, MCC, Comchip, Taiwan Semi, Rectron, Toshiba, Good Ark, SIYU	RS07K, FSM17PL, CFRM107, RS1ML, 05F5, FF7, RS12ML

Deviations may exist between the specifications of the Diodes devices and the specifications of the competitor devices listed above. The customer is encouraged to carefully review the Diodes Inc. and competitor datasheets to verify the suitability of the Diodes device as a cross for any given competitor product. It is solely the responsibility of the customer to determine whether the Diodes device is suitable for any given application.