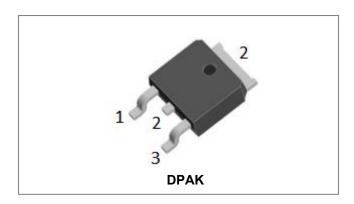






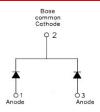
## 12CWQ20FN SCHOTTKY RECTIFIER



#### **Features**

- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- · Guard ring for enhanced ruggedness and long term reliability
- Green products in compliance with the ROHS directive
- This is a Pb Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

## **Circuit Diagram**



#### **Applications**

- Disk drives
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Battery charging

### **Maximum Ratings:**

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	-	200	V
Average Rectified Forward Current	I <sub>F (AV)</sub>	50% duty cycle @T <sub>C</sub> = 135°C, rectangular wave form	6(peg leg) 12(peg device)	Α
Peak One Cycle Non-Repetitive Surge Current(peg leg)	I <sub>FSM</sub>	8.3 ms, half Sine pulse	132	Α

#### **Electrical Characteristics:**

Characteristics	Symbol	Condition	Тур.	Max.	Units
Forward Voltage Drop	V <sub>F1</sub>	@ 6A, Pulse, T <sub>J</sub> = 25 °C	0.81	0.89	V
(per leg) *	$V_{F2}$	@ 6A, Pulse, T <sub>J</sub> = 125 °C	0.64	0.71	V
Reverse Current (per leg) *	I <sub>R1</sub>	$@V_R = \text{rated } V_{R, T_J} = 25  ^{\circ}\text{C}$	0.0001	1.0	mA
	$I_{R2}$	@V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C	0.07	4.0	mA
Junction Capacitance (per leg)	Ст	$@V_R = 5V, T_C = 25 °C$ $f_{SIG} = 1MHz$	130	150	pF
Series Inductance (per leg)	Ls	Measured lead to lead 5 mm from package body	5.0	-	nH
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

<sup>\*</sup> Pulse width < 300 µs, duty cycle < 2%

- China Germany Korea Singapore United States
  - http://www.smc-diodes.com sales@ smc-diodes.com •





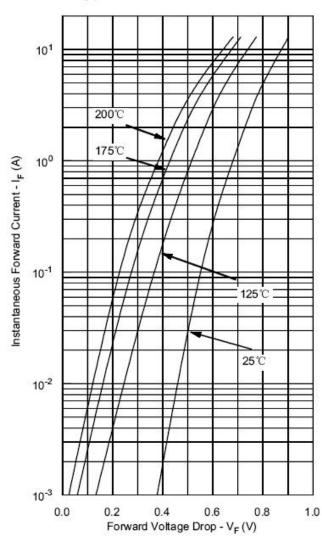


## **Thermal-Mechanical Specifications:**

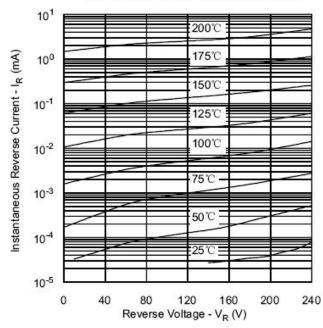
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +175	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +175	°C
Typical Thermal Resistance Junction to	В.		3.0(per leg)	°C/W
Case	R <sub>θ</sub> JC	-	1.5(per device)	C/VV
Approximate Weight	wt	-	0.39	g
Case Style	DPAK			

## **Ratings and Characteristics Curves**

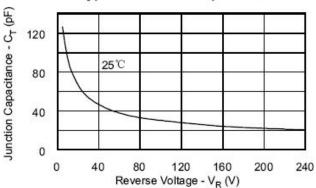
### **Typical Forward Characteristics**



#### **Typical Reverse Characteristics**



#### Typical Junction Capacitance



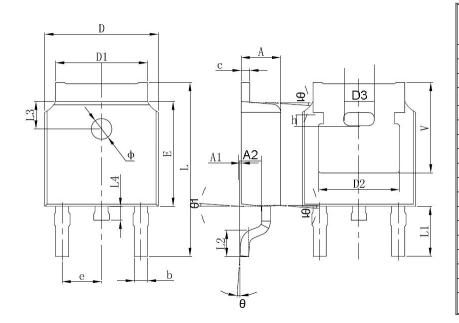
- China Germany Korea Singapore United States
  - http://www.smc-diodes.com sales@ smc-diodes.com •







#### **Mechanical Dimensions DPAK**



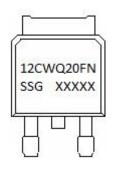
CVMDOL	Millimeters		Inches		
SYMBOL	Min.	Max.	Min.	Max.	
Α	2.20	2.40	0.087	0.094	
A1	0.00	0.127	0.000	0.005	
b	0.66	0.86	0.026	0.034	
С	0.46	0.60	0.018	0.024	
D	6.50	6.70	0.256	0.264	
D1	5.13	5.46	0.202	0.215	
D2	4.83 REF.		0.190 REF.		
E	6.00	6.20	0.236	0.244	
е	2.186	2.386	0.086	0.094	
L	9.70	10.40	0.381	0.409	
L1	2.90 REF.		0.144 REF.		
L2	1.40	1.70	0.055	0.067	
L3	1.60 REF.		0.063 REF.		
L4	0.60	1.00	0.024	0.039	
Ф	1.10	1.30	0.043	0.051	
Θ	0°	8°	0°	8°	
h	0.00	0.30	0.000	0.012	
V	5.35 REF.		0.211 REF.		

### **Ordering Information**

Device	Package	Shipping	
12CWQ20FN	DPAK (Pb-Free)	2500pcs / reel	

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

# **Marking Diagram**



Where XXXXX is YYWWL

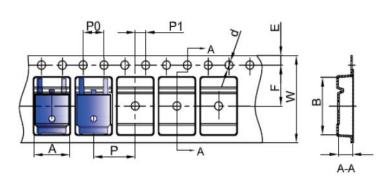
12 = Forward Current (12A)
CW = Configuration
Q = Device Type
20 = Reverse Voltage (200V)

FN = Package type SSG = SSG YY = Year WW = Week L = Lot Number

Cautions: Molding resin

Epoxy resin UL:94V-0

## **Carrier Tape Specification DPAK**



SYMBOL	Millimeters			
STWIBOL	Min.	Max.		
Α	6.80	7.00		
В	10.40	10.60		
С	2.60	2.80		
d	Ф1.45	Ф1.65		
Е	1.65	1.85		
F	7.40	7.60		
P0	3.90	4.10		
Р	7.90	8.10		
P1	1.90	2.10		
W	15.90	16.30		

- China Germany Korea Singapore United States
  - http://www.smc-diodes.com sales@ smc-diodes.com •







#### DISCLAIMER:

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Sangdest Microelectronics (Nanjing) Co., Ltd sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall SMC Sangdest Microelectronics (Nanjing) Co., Ltd be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Sangdest Microelectronics (Nanjing) Co., Ltd assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall SMC Sangdest Microelectronics (Nanjing) Co., Ltd be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Sangdest Microelectronics (Nanjing) Co., Ltd.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Sangdest Microelectronics (Nanjing) Co., Ltd.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..