

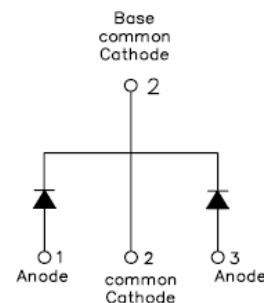
## 12CWQ20FN SCHOTTKY RECTIFIER

### Applications:

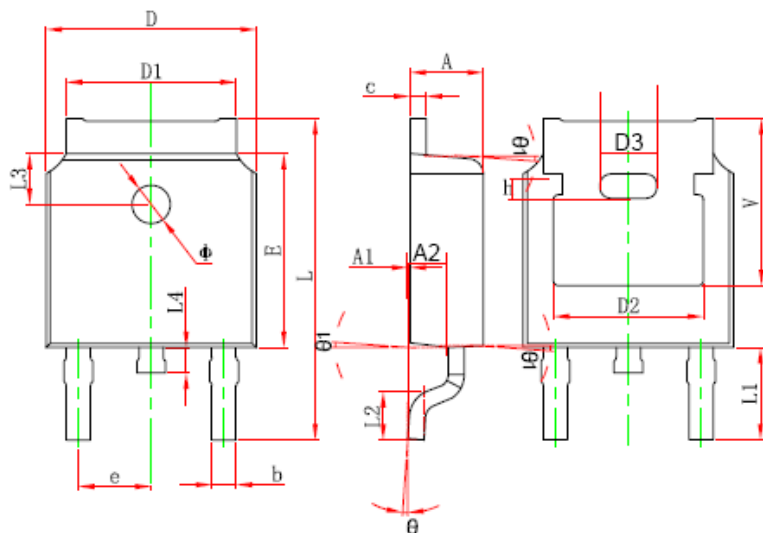
- Disk drives
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Battery charging

### Features:

- Popular DPAK outline
- Center tap configuration
- 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



### Mechanical Dimensions: In mm



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 2.200                     | 2.380  | 0.087                | 0.094 |
| A1     | 0.000                     | 0.100  | 0.000                | 0.004 |
| b      | 0.710                     | 0.810  | 0.028                | 0.032 |
| c      | 0.460                     | 0.560  | 0.018                | 0.022 |
| D      | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1     | 5.130                     | 5.460  | 0.202                | 0.215 |
| D2     | 4.830 REF.                |        | 0.190 REF.           |       |
| E      | 6.000                     | 6.200  | 0.236                | 0.244 |
| e      | 2.186                     | 2.386  | 0.086                | 0.094 |
| L      | 9.800                     | 10.400 | 0.386                | 0.409 |
| L1     | 2.900 REF.                |        | 0.114 REF.           |       |
| L2     | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3     | 1.600 REF.                |        | 0.063 REF.           |       |
| L4     | 0.600                     | 1.000  | 0.024                | 0.039 |
| φ      | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ      | 0°                        | 8°     | 0°                   | 8°    |
| A2     | 0.910                     | 1.110  | 0.036                | 0.044 |
| V      | 5.350 REF.                |        | 0.211 REF.           |       |
| D3     | 1.778 REF.                |        | 0.070 REF.           |       |
| h      | 0.762 REF.                |        | 0.030 REF.           |       |
| θ1     | 7°                        |        | 7°                   |       |

### DPAK

Technical Data  
Data Sheet N0662, Rev. -

*Green Products*

**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

**Ordering Information:**

| Device    | Package           | Shipping        |
|-----------|-------------------|-----------------|
| 12CWQ20FN | DPAK<br>(Pb-Free) | 2500 pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Maximum Ratings:**

| Characteristics   | Symbol      | Condition                                       | Max.           | Units |
|---|-------------|---|----------------|-------|
| Peak Inverse Voltage                                      | $V_{RWM}$   | -   | 200            | V     |
| Max. Average Forward Current                              | $I_{F(AV)}$ | 50%dutycycle@Tc=135°C,<br>rectangular wave form | 6(per leg)     | A     |
|   |             |   | 12(per device) |       |
| Max. Peak One Cycle Non-repetitive Surge Current(per leg) | $I_{FSM}$   | 8.3ms,half sine pulse                           | 132            | A     |

**Electrical Characteristics:**

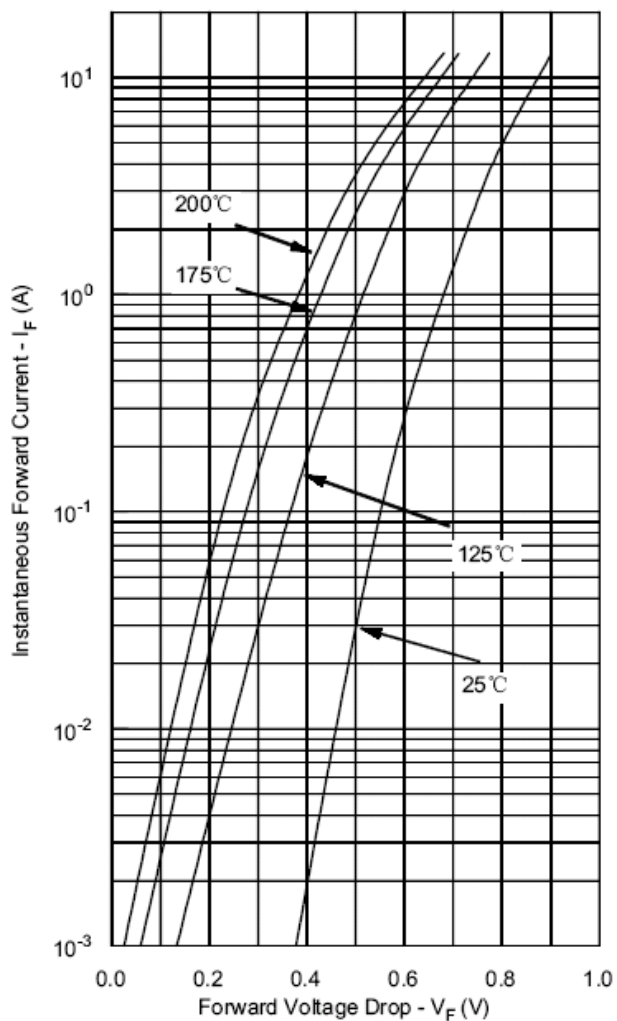
| Characteristics                      | Symbol   | Condition   | Max. | Units |
|--------------------------------------|----------|---|------|-------|
| Max. Forward Voltage Drop (per leg)* | $V_{F1}$ | @ 6A, Pulse, $T_J = 25\text{ }^\circ\text{C}$                                     | 0.89 | V     |
|                                      | $V_{F2}$ | @ 6 A, Pulse, $T_J = 125\text{ }^\circ\text{C}$                                   | 0.71 | V     |
| Max. Reverse Current (per leg)*      | $I_{R1}$ | @ $V_R = \text{Rated } V_R$ , Pulse, $T_J = 25\text{ }^\circ\text{C}$             | 1.0  | mA    |
|                                      | $I_{R2}$ | @ $V_R = \text{Rated } V_R$ , Pulse, $T_J = 125\text{ }^\circ\text{C}$            | 4.0  | mA    |
| Max. Junction Capacitance (per leg)  | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ | 150  | pF    |
| Typical Series Inductance (per leg)  | $L_S$    | Measured lead to lead 5 mm from package body                                      | 5.0  | nH    |

\*Pulse Width < 300 $\mu$ s, Duty Cycle <2%

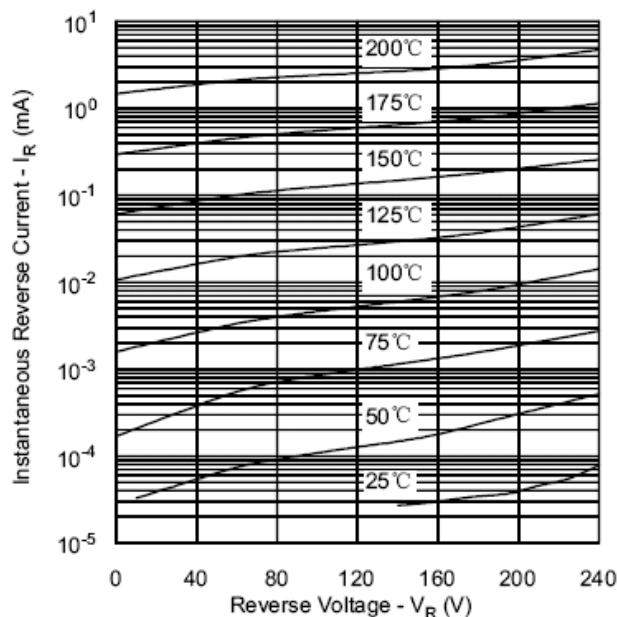
**Thermal-Mechanical Specifications:**

| Characteristics                             | Symbol          | Condition    | Specification   | Units              |
|---|-----------------|--------------|-----------------|--------------------|
| Max. Junction Temperature                   | $T_J$           | -            | -55 to +175     | $^\circ\text{C}$   |
| Max. Storage Temperature                    | $T_{stg}$       | -            | -55 to +175     | $^\circ\text{C}$   |
| Maximum Thermal Resisitance Juntion To Case | $R_{\theta JC}$ | DC operation | 3.0(per leg)    | $^\circ\text{C/W}$ |
|   |                 |              | 1.5(per device) |                    |
| Approximate Weight                          | wt              | -            | 0.39            | g                  |
| Case Style                                  | DPAK            |              |                 |                    |

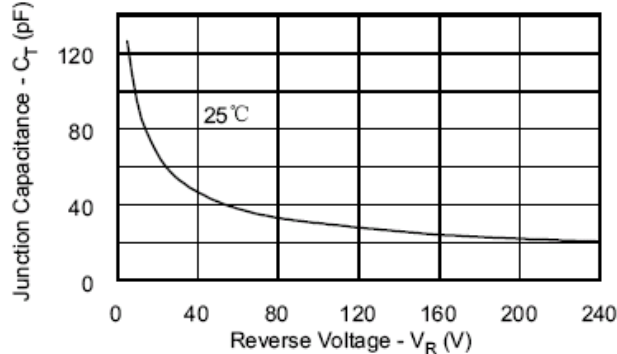
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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