



**THE DATASHEET OF
12CWQ03FNTR**



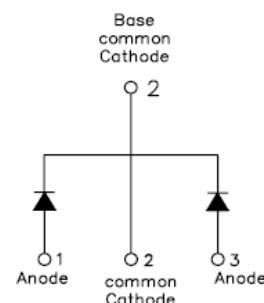
12CWQ03FN SCHOTTKY RECTIFIER

Applications:

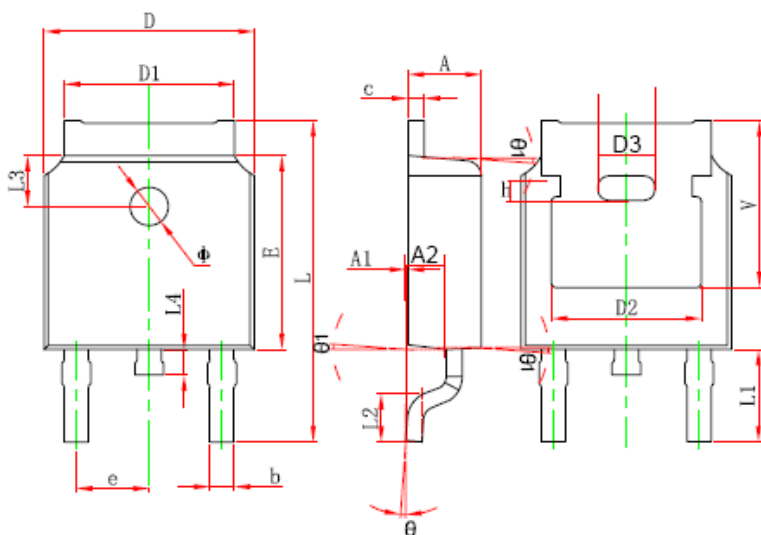
- Disk drives
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Battery charging

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 |
| phi | 1.100 | 1.300 | 0.043 | 0.051 |
| theta | 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. | |
| theta1 | 7° | | 7° | |

DPAK

Technical Data
Data Sheet N0657, Rev. -

Green Products

Marking Diagram:



Where XXXXX is YYWWL

12 = Forward Current (12A)
 CW = Configuration
 Q = Device Type
 03 = Reverse Voltage (30V)
 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 |
|-----------|--------------------|-----------------|
| 12CWQ03FN | DDPAK (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} | - | 30 | V |
| Max. Average Forward* | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 135^\circ\text{C}$, rectangular wave form | 6(peg leg) 12(peg device) | A |
| Max. Peak One Cycle Non-Repetitive Surge Current (peg leg) | I_{FSM} | 8.3 ms, half Sine pulse | 156 | A |

Electrical Characteristics:

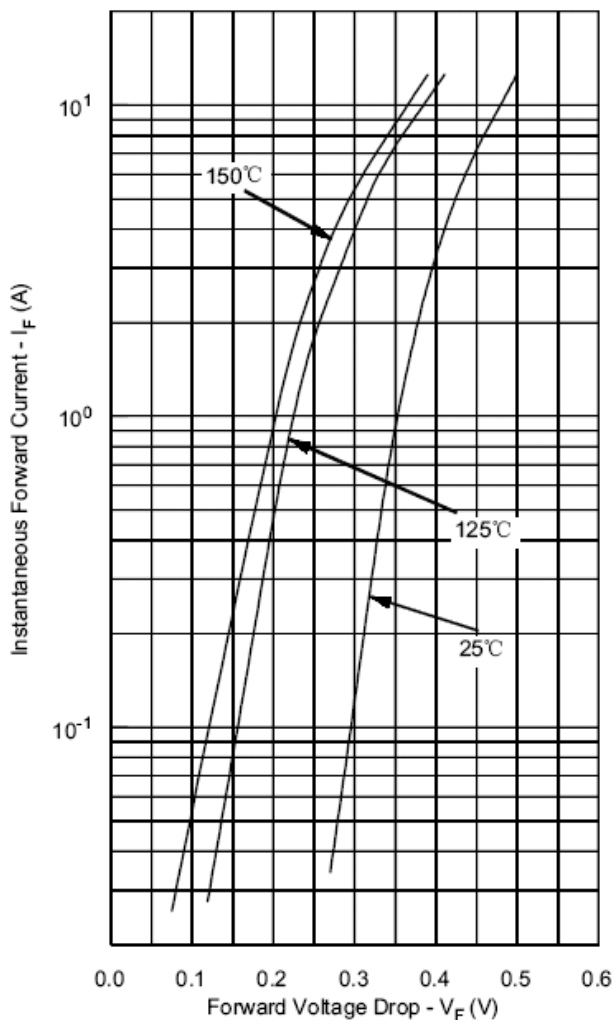
| Characteristics | Symbol | Condition | Max. | Units |
|---------------------------------------|----------|---|--------------|------------------|
| Max. Forward Voltage Drop (per leg) * | V_{F1} | @ 6A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ @ 12A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | 0.47 0.55 | V |
| | V_{F2} | @ 6A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ @ 12A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.37 0.49 | V |
| Max. Reverse Current (per leg) * | I_{R1} | @ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^\circ\text{C}$ | 3.0 | mA |
| | I_{R2} | @ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^\circ\text{C}$ | 58 | mA |
| Max. Junction Capacitance (per leg) | C_T | @ $V_R = 5\text{V}$, $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$ | 590 | pF |
| Typical Series Inductance (per leg) | L_S | Measured lead to lead 5 mm from package body | 5.0 | nH |
| Max. Voltage Rate of Change | dv/dt | - | 10,000 | V/ μs |

* Pulse Width < 300 μs , Duty Cycle <2%

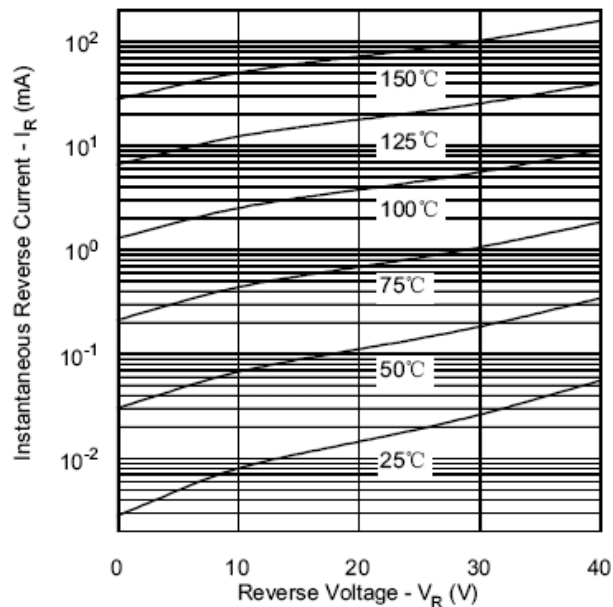
Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|-----------------|--------------|-----------------|--------------------|
| Max. Junction Temperature | T_J | - | -55 to +150 | $^\circ\text{C}$ |
| Max. Storage Temperature | T_{stg} | - | -55 to +150 | $^\circ\text{C}$ |
| Maximum Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$ | DC operation | 3(peg leg) | $^\circ\text{C/W}$ |
| | | | 1.5(peg device) | |
| Approximate Weight | wt | - | 0.39 | g |
| Case Style | DPAK | | | |

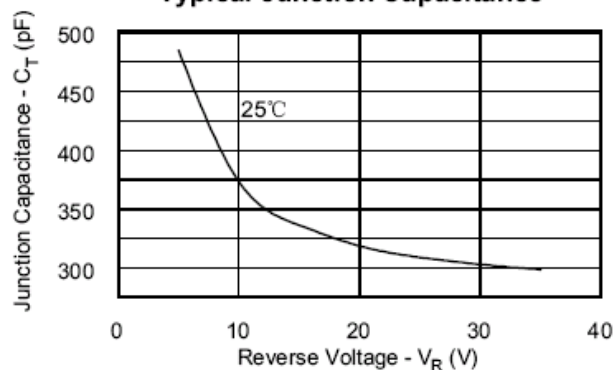
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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