

#### Major Ratings and Characteristics

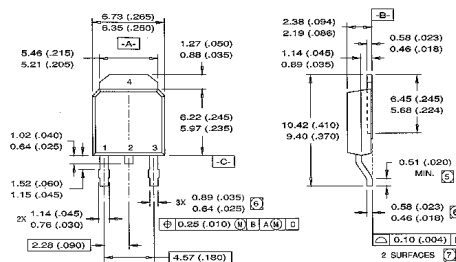
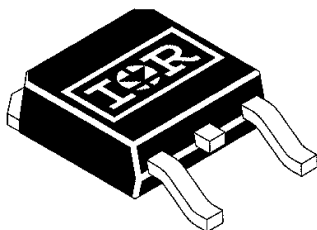
| Characteristics                               | 12CWQ04FN  | Units      |
|-----------------------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular waveform              | 12         | A          |
| $V_{RRM}$                                     | 40         | V          |
| $I_{FSM}$ @ $t_p = 5\mu s$ sine               | 210        | A          |
| $V_F$ @ 6.0Apk, $T_J = 125^\circ C$ (per leg) | 0.47       | V          |
| $T_J$                                         | -55 to 150 | $^\circ C$ |

#### Description/Features

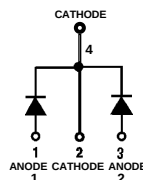
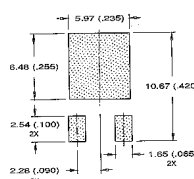
The 12CWQ04FN surface mount, center tap, Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK 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

#### CASE STYLE



MINIMUM RECOMMENDED FOOTPRINT



**D - PAK Outline (Similar to TO-252AA)**  
Dimensions in millimeters and inches

**Voltage Ratings**

|                                                 |           |
|-------------------------------------------------|-----------|
| Part number                                     | 12CWQ04FN |
| $V_R$ Max. DC Reverse Voltage (V)               | 40        |
| $V_{RWM}$ Max. Working Peak Reverse Voltage (V) |           |

**Absolute Maximum Ratings**

| Parameters                                                             | 12CWQ04FN | Units | Conditions                                                        |
|------------------------------------------------------------------------|-----------|-------|-------------------------------------------------------------------|
| $I_{F(AV)}$ Max. Average Forward Current                               | 12        | A     | 50% duty cycle @ $T_C = 108^\circ\text{C}$ , rectangular waveform |
| $I_{FSM}$ Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg) | 210       | A     | 5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse               |
|                                                                        | 42        |       | 10ms Sine Or 6ms Rect. pulse                                      |

Following any rated load condition and with rated  $V_{RRM}$  applied

**Electrical Specifications**

| Parameters                                          | 12CWQ04FN | Units            | Conditions                                                                |
|-----------------------------------------------------|-----------|------------------|---------------------------------------------------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop (Per Leg) (1)    | 0.53      | V                | @ 6A                                                                      |
|                                                     | 0.69      | V                | @ 12A                                                                     |
|                                                     | 0.47      | V                | @ 6A                                                                      |
|                                                     | 0.63      | V                | @ 12A                                                                     |
| $I_{RM}$ Max. Reverse Leakage Current (Per Leg) (1) | 0.8       | mA               | $T_J = 25^\circ\text{C}$                                                  |
|                                                     | 32        | mA               | $T_J = 125^\circ\text{C}$                                                 |
| $C_T$ Max. Junction Capacitance (Per Leg)           | 100       | pF               | $V_R = 5V_{DC}$ , ( test signal range 100Khz to 1Mhz), $25^\circ\text{C}$ |
| $L_S$ Typical Series Inductance (Per Leg)           | 5.0       | nH               | Measured lead to lead 5mm from package body                               |
| $dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )  | 10,000    | V/ $\mu\text{s}$ |                                                                           |

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

**Thermal-Mechanical Specifications**

| Parameters                                              | 12CWQ04FN  | Units              | Conditions                            |
|---------------------------------------------------------|------------|--------------------|---------------------------------------|
| $T_J$ Max. Junction Temperature Range                   | -55 to 150 | $^\circ\text{C}$   |                                       |
| $T_{STG}$ Max. Storage Temperature Range                | -55 to 150 | $^\circ\text{C}$   |                                       |
| $R_{thJC}$ Max. Thermal Resistance, Junction to case    | 3.0        | $^\circ\text{C/W}$ | DC operation                          |
| $R_{thJA}$ Max. Thermal Resistance, Junction to Ambient | 110        | $^\circ\text{C/W}$ | DC operation                          |
|                                                         | 50         |                    | PC Board mounted print land = 20x20mm |
| wt Approximate Weight                                   | 0.3(0.01)  | g (oz.)            |                                       |
| Case Style                                              | D-PAK      |                    | Similar to TO-252AA                   |