

JAN 2010

# SemiHow

Know-How for Semiconductor

## HDS20A10

### Switchmode Full Plastic Dual Schottky Barrier Power Rectifiers

Using the Schottky Barrier principle with a Refractory metal capable of high temperature operation metal. The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical application are in switching Mode Power Supplies such as adaptors, DC/DC converters, free-wheeling and polarity protection diodes.

#### FEATURES

- Low Forward Voltage.
- Low Switching noise.
- High Current Capacity
- Guarantee Reverse Avalanche.
- Guard-Ring for Stress Protection.
- Low Power Loss & High efficiency.
- 175°C Operating Junction Temperature
- Low Stored Charge Majority Carrier Conduction.
- Plastic Material used Carries Underwriters Laboratory



#### MECHANICAL DATA

- Case :JEDEC ITO-220AB molded plastic body
- Terminals: Plated lead, solderable per MIL-STD-750, Method 2026
- Polarity: As marked
- Mounting Torque: 5 in-lbs. Max.
- Weight:1.7 g approx.
- ESD: 4KV(Min.) Human-Body Model
- *In compliance with EU RoHs 2002/95/EC directives*

**100 VOLTS**  
**20 AMPERES**

ITO-220AB



**Common cathode**  
**Suffix "C"**

### Maximum Ratings

| Symbol         | Parameter   | Value       | Units            |
|----------------|---|-------------|------------------|
| $V_{RRM}$      | Peak Repetitive Reverse Voltage   | 100         | V                |
| $V_{RWM}$      | Working Peak Reverse Voltage  |             |                  |
| $V_R$          | DC Blocking Voltage   |             |                  |
| $V_{R(RMS)}$   | R.M.S Reverse Voltage   | 70          | V                |
| $I_{F(AV)}$    | Average Rectifier Forward Current<br>- Total Device (Rated $V_R$ ), $T_C=125^\circ\text{C}$             | 10          | A                |
|                |   | 20          | A                |
| $I_{FM}$       | Peak Repetitive Forward Current<br>(Rate $V_R$ , Square Wave, 20kHz)                                    | 20          | A                |
| $I_{FSM}$      | Non-Repetitive Peak Surge Current (Surge applied at rate load conditions half wave, single phase, 60Hz) | 150         | A                |
| $T_J, T_{STG}$ | Operating and Storage Temperature Range   | -65 to +175 | $^\circ\text{C}$ |

### Electrical Characteristics

| Symbol | Parameter  | Value | Units  |
|--------|--|-------|--|
| $V_F$  | Maximum Instantaneous Forward Voltage<br>- ( $I_F=10$ Amp $T_C = 25^\circ\text{C}$ )<br>- ( $I_F=10$ Amp $T_C = 125^\circ\text{C}$ ) | 0.85  | V  |
|        |  | 0.76  |  |
|        |  | $I_R$ | Maximum Instantaneous Reverse Current<br>- ( Rated DC Voltage, $T_C = 25^\circ\text{C}$ )<br>- ( Rated DC Voltage, $T_C = 125^\circ\text{C}$ ) |
| 10     |  |       |  |
|        |  |       |  |

### Thermal Resistance Characteristics

| Symbol          | Parameter        | Typ. | Max. | Units              |
|-----------------|------------------|------|------|--------------------|
| $R_{\theta JC}$ | Junction-to-Case | --   | 3.8  | $^\circ\text{C/W}$ |

# Typical Characteristics

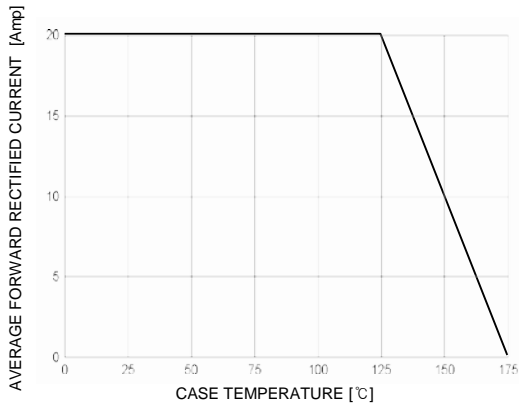


Figure 1. Forward Current Derating Curve

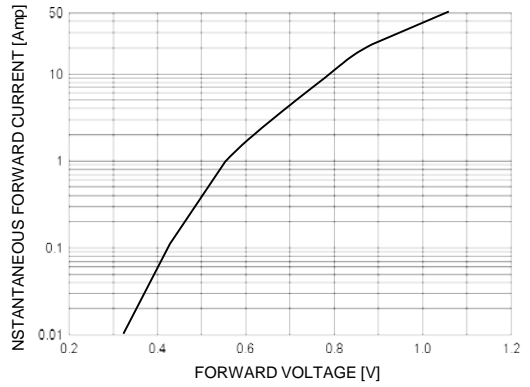


Figure 2. Typical Forward Characteristics

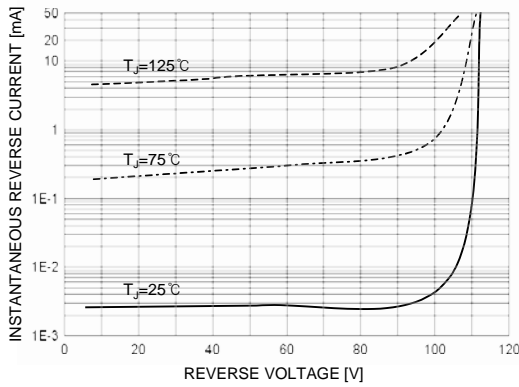


Figure 3. Typical Reverse Characteristics

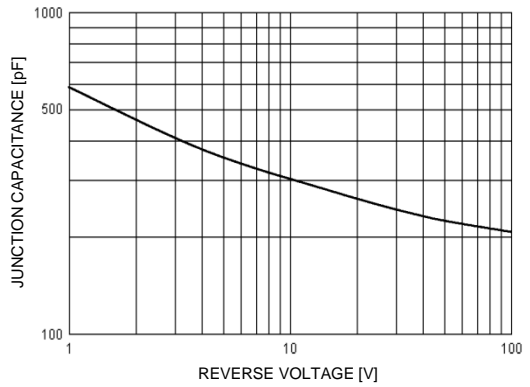


Figure 4. Typical Junction Capacitance

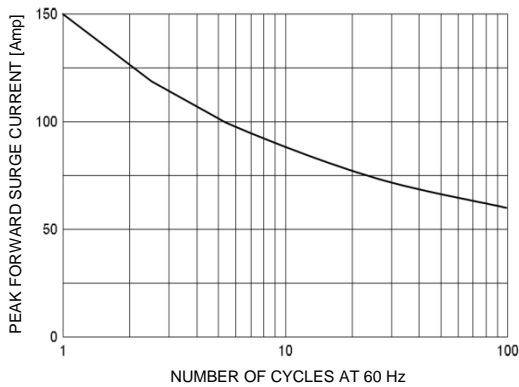
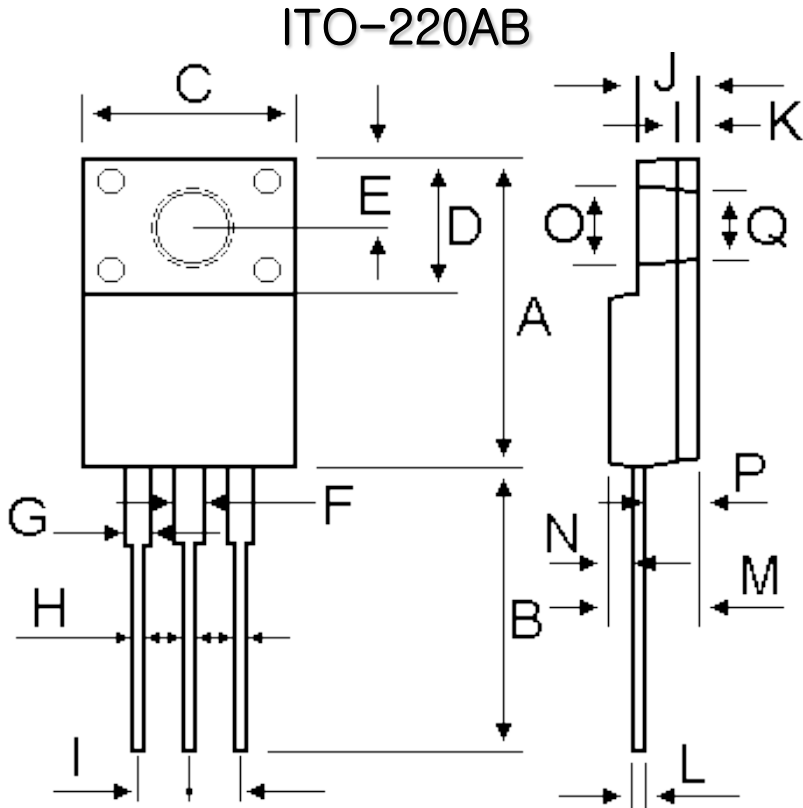


Figure 5. Peak Forward Surge Current

Package Dimension



| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 15.05       | 15.15 |
| B   | 13.35       | 13.45 |
| C   | 10.00       | 10.10 |
| D   | 6.55        | 6.65  |
| E   | 2.65        | 2.75  |
| F   | 1.55        | 1.65  |
| G   | 1.15        | 1.25  |
| H   | 0.55        | 0.65  |
| I   | 2.50        | 2.60  |
| J   | 3.00        | 3.20  |
| K   | 1.10        | 1.20  |
| L   | 0.55        | 0.65  |
| M   | 4.40        | 4.60  |
| N   | 1.15        | 1.25  |
| P   | 2.65        | 2.75  |
| O   | 3.35        | 3.45  |
| Q   | 3.15        | 3.25  |