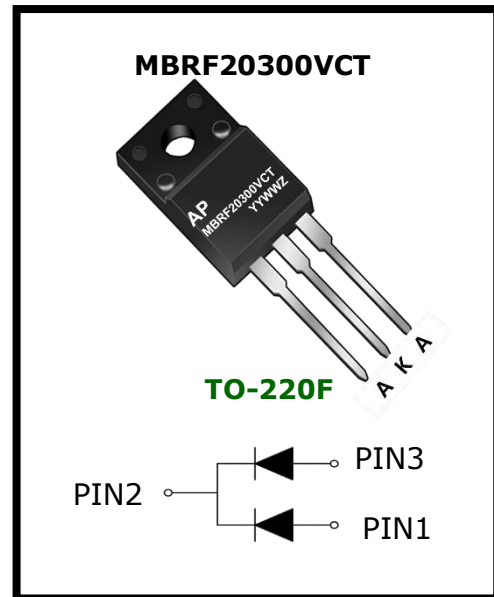




**300V 20A Low VF Schottky Barrier Rectifier**

**Characteristics Summary**

| Characteristics                    | Values      | Units   |
|------------------------------------|-------------|---------|
| IF(AV)                             | 10A X 2     | A       |
| VRRM                               | 300         | V       |
| VF@10A, TJ = 25°C                  | 0.84        | V, typ. |
| TJ, Operating Junction Temperature | -55 to +150 | °C      |



**Features**

- Low Forward Voltage ( VF ) Drop
- High frequency operation
- Softest, fast switching capability
- High Surge capacity
- Guard ring for Over voltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Metal silicon junction, majority carrier conduction

**Mechanical data**

- Case: TO-220F-3L
- Approx Weight: 1.767g ( 0.062oz)
- Lead free finish, RoHS compliant
- Case Material: "Green" molding compound, UL flammability classification 94V-0,"Halogen-free".

**Application**

- DCDC Converter for LED lighting
- Battery charger
- SMPS



## Maximum Ratings Characteristics

( TA = 25°C unless otherwise specified )

| Parameter                                        | Symbol           | Values      | Units  |
|--------------------------------------------------|------------------|-------------|--------|
| DC Blocking Voltage                              | V <sub>RM</sub>  | 300         | V      |
| Working Peak Reverse Voltage                     | V <sub>RWM</sub> |             | V      |
| Peak Repetitive Reverse Voltage                  | V <sub>RRM</sub> |             | V      |
| Average Rectified Forward Current Per device     | I <sub>D</sub>   | 20          | A      |
| (Rated VR-20Khz Square Wave) – 50% duty cycle    |                  |             |        |
| Peak Forward Surge Current – 1/2 60hz            | I <sub>FSM</sub> | 200         | A      |
| Peak Repetitive Reverse Surge Current (2uS-1Khz) | I <sub>RRM</sub> | 1           | A      |
| Power Dissipation (T <sub>J</sub> = 25°C)        | P <sub>D</sub>   | 45          | W      |
| Typical Thermal Resistance<br>Package = TO-220F  | R <sub>θJC</sub> | 4.5         | °C / W |
| Isolation voltage (TO-220F only)                 | V <sub>AC</sub>  | 1500        | V      |
| Maximum Rate of Voltage Change ( at Rated VR)    | dv/dt            | 10000       | V/uS   |
| Operating Junction Temperature                   | T <sub>J</sub>   | -55 to +150 | °C     |
| Storage Junction Temperature                     | T <sub>STG</sub> | -55 to +150 |        |

## Electrical Characteristics – (per leg)

( TA = 25°C unless otherwise specified )

| Parameter                                                                                 | Test Conditions |            | Symbol | Typ. | Max. | Units |
|-------------------------------------------------------------------------------------------|-----------------|------------|--------|------|------|-------|
| Instantaneous Forward Voltage                                                             | IF=3A           | TJ = 25°C  | VF*    | 0.71 |      | V     |
|                                                                                           | IF=10A          |            |        | 0.84 | 0.92 |       |
| Instantaneous Reverse Current                                                             | VR=300V         | TJ = 25°C  | IR*    | 1.2  | 5    | uA    |
|                                                                                           |                 | TJ = 125°C |        | 3    | -    | mA    |
| Notes: 1. Pulse test: 300 μs pulse width,1% duty cycle<br>2. Pulse test: pulse width≤40ms |                 |            |        |      |      |       |



## Characteristics Curves

(  $T_A = 25^{\circ}\text{C}$  unless otherwise specified )

FIG.1: FORWARD CURRENT DERATING CURVE

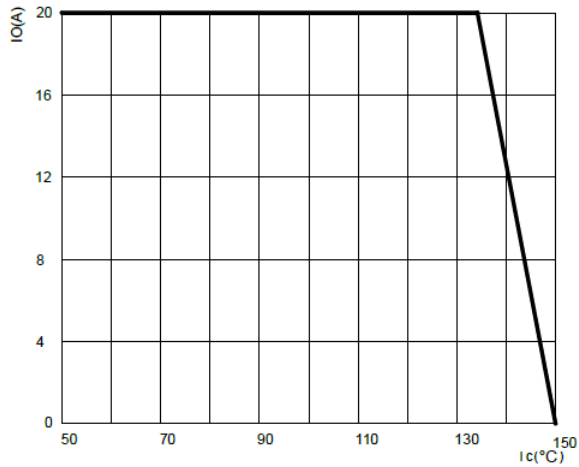


FIG.2: MAXIMUM NON-REPETITIVE FORWARD DUTY CURRENT

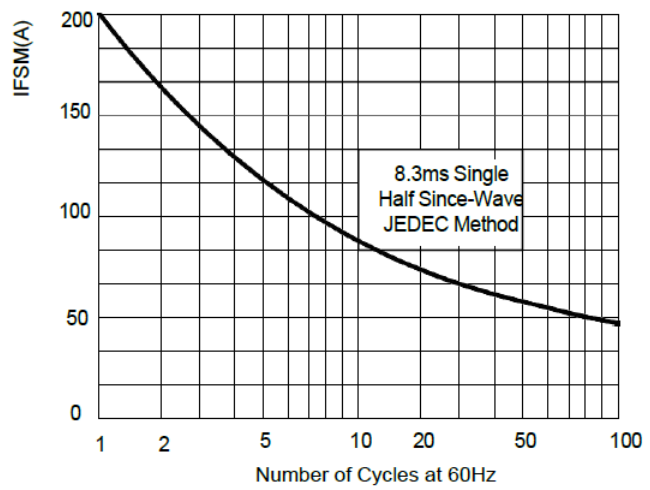


FIG.3: INSTANTANEOUS FORWARD VOLTAGE

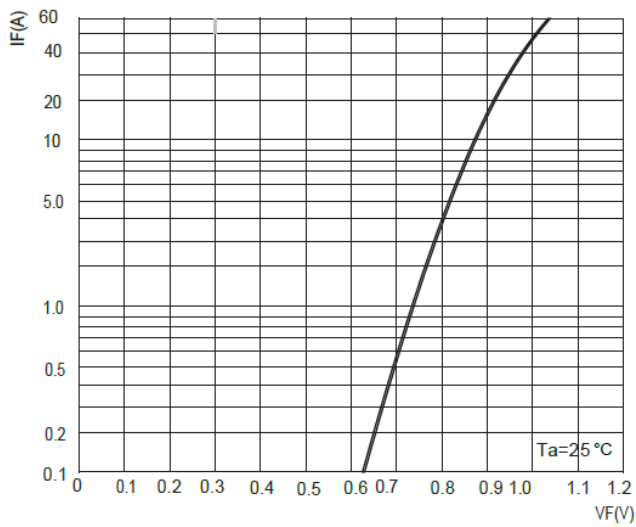
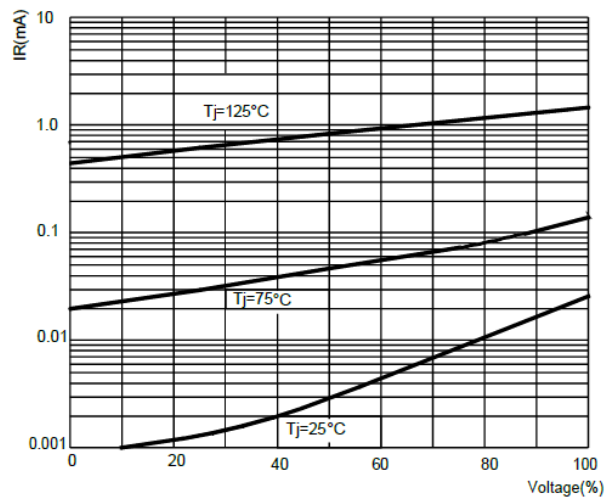


FIG.4: TYPICAL REVERSE CHARACTERISTICS

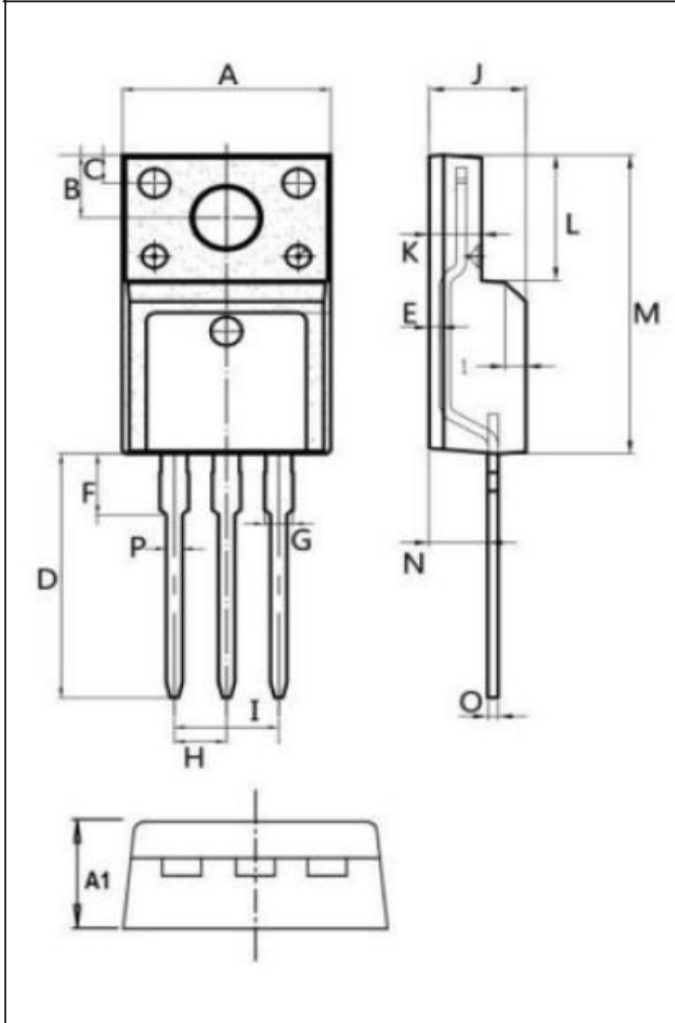




**Package Dimension**

**TO-220F-3L**

unit : mm

|  | Dim.                         | Min.     | Max.  |
|------------------------------------------------------------------------------------|------------------------------|----------|-------|
|                                                                                    | A                            | 10       | 10.3  |
|                                                                                    | A1                           | 4.5      | 4.9   |
|                                                                                    | B                            | 3.2      | 3.4   |
|                                                                                    | C                            | 1.3      | 1.7   |
|                                                                                    | D                            | 12.9     | 13.3  |
|                                                                                    | E                            | 0.45     | 0.55  |
|                                                                                    | F                            | 3.4      | 3.8   |
|                                                                                    | G                            | 1.2      | 1.4   |
|                                                                                    | H                            | Typ:2.54 |       |
|                                                                                    | I                            | Typ:5.08 |       |
|                                                                                    | J                            | 4.6      | 4.8   |
|                                                                                    | K                            | 2.45     | 2.65  |
|                                                                                    | L                            | 6.6      | 6.8   |
|                                                                                    | M                            | 15.73    | 15.83 |
|                                                                                    | N                            | 2.65     | 2.85  |
|                                                                                    | O                            | 0.45     | 0.55  |
|                                                                                    | P                            | 0.65     | 0.75  |
|                                                                                    | All Dimensions in millimeter |          |       |

**Ordering Information**

| Part No      | Package | Packing | Finish | Halogen | Packing Unit                                     |
|--------------|---------|---------|--------|---------|--------------------------------------------------|
| MBRF20300VCT | TO-220F | Tube    | Sn     | Free    | Tube=50pcs<br>Inner = 1,000pcs<br>MOQ = 5,000pcs |



## Revision History

| No | Date       | Contents                        |
|----|------------|---------------------------------|
| 0  | 2024-12-03 | Initial Brief Datasheet Release |
|    |            |                                 |
|    |            |                                 |

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