## MBR2535CTL SCHOTTKY RECTIFIER



## Circuit Diagram



## Features

- $150^{\circ} \mathrm{C} \mathrm{T}_{\mathrm{J}}$ operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced
- mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request


## Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
| :---: | :---: | :---: | :---: | :---: |
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | VRRM <br> $V_{\text {RWM }}$ $V_{R}$ | - | 35 | V |
| Average Forward Current | $I_{\text {f(AV) }}$ | $50 \%$ duty cycle $@ T_{c}=142^{\circ} \mathrm{C}$, rectangular wave form | $\begin{gathered} 12.5 \text { (Per Leg) } \\ \hline 25 \text { (Per Device) } \end{gathered}$ | A |
| Peak Repetitive Forward Current (Per Leg) | $\mathrm{I}_{\text {FRM }}$ | $\begin{aligned} & \text { Rated } V_{R} \text {, square wave, } \\ & 20 \mathrm{kHz}, \mathrm{~T}_{\mathrm{C}}=139^{\circ} \mathrm{C} \\ & \hline \end{aligned}$ | 25 | A |
| Peak Repetitive Reverse Surge Current | IRRM | $2.0 \mu \mathrm{~s}, 1.0 \mathrm{kHz}$ | 1.0 | A |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | $I_{\text {FSM }}$ | 8.3 ms , half Sine pulse, $\mathrm{T}_{\mathrm{c}}=25^{\circ} \mathrm{C}$ | 150 | A |
| Controlled Avalanche Energy | Waval | - | 20 | mJ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Forward Voltage Drop(Per Leg)* | $\mathrm{V}_{\mathrm{F} 1}$ | @ 12.5A, Pulse, $\mathrm{T}_{J}=25^{\circ} \mathrm{C}$ | 0.45 | 0.47 | V |
|  | $\mathrm{V}_{\text {F2 }}$ | @ 12.5A, Pulse, $\mathrm{T}_{J}=125^{\circ} \mathrm{C}$ | 0.39 | 0.41 | V |
| Reverse Current(Per Leg)* | $\mathrm{I}_{\mathrm{R} 1}$ | $@ \mathrm{~V}_{\mathrm{R}}=$ rated $\mathrm{V}_{\mathrm{R},} \mathrm{T}_{\mathrm{J}}=25^{\circ} \mathrm{C}$ | 0.2 | 1.0 | mA |
|  | IR2 | $@ \mathrm{~V}_{\mathrm{R}}=$ rated $\mathrm{V}_{\mathrm{R},}, \mathrm{T}_{J}=125^{\circ} \mathrm{C}$ | 50 | 500 | mA |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | $\mathrm{V} / \mathrm{\mu s}$ |

* Pulse width < $300 \mu \mathrm{~s}$, duty cycle < 2\%

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Junction Temperature (Note 1) | $\mathrm{T}_{\mathrm{J}}$ | - | -55 to +150 | ${ }^{\circ} \mathrm{C}$ |  |  |
| Storage Temperature | $\mathrm{T}_{\text {stg }}$ | - | -55 to +150 | ${ }^{\circ} \mathrm{C}$ |  |  |
| Typical Thermal Resistance Junction <br> to Case | $\mathrm{R}_{\text {өJc }}$ | DC operation, Min. Pad | 2.0 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |  |  |
| Typical Thermal Resistance Junction <br> to Ambient | $\mathrm{R}_{\text {өJA }}$ | DC operation, Min. Pad | 75.0 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |  |  |
| Approximate Weight | wt | - | 2 | g |  |  |
| Case Style | TO-220AB |  |  |  |  |  |

Note1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: dPD/dTJ < 1/RөJA.

## Ratings and Characteristics Curves



Fig.1-Typical Junction Capacitance


Fig.3-Typical Forward Voltage Characteristics


Fig.2-Typical Reverse Characteristics


Fig.4-Forward Current Derating Curve

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Mechanical Dimensions TO-220AB


| Symbol | Dimensions in <br> millimeters |  |  |
| :---: | :---: | :---: | :---: |
|  | Min | Typical | Max |
| A | 3.56 | - | 4.83 |
| A1 | 0.51 | - | 1.40 |
| A2 | 2.03 | - | 2.92 |
| b | 0.38 | - | 1.02 |
| b1 | 1.14 | - | 1.78 |
| c | 0.31 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.38 | - | 9.42 |
| E | 9.65 | - | 10.67 |
| e | - | 2.54 | - |
| e1 | - | 5.08 | - |
| H1 | 5.84 | - | 6.86 |
| L | 12.70 | - | 14.73 |
| L1 | - | - | 6.35 |
| DP | - | 3.56 | - |
| Q | 2.54 | - | 3.43 |

## Tube Specification



Where XXXXX is YYWWL


| MBR | $=$ Device Type |
| :--- | :--- |
| 25 | $=$ Forward Current (25A) |
| 35 | $=$ Reverse Voltage(35V) |
| CTL | $=$ Configuration |
| SSG | $=$ SSG |
| YY | $=$ Year |
| WW | $=$ Week |
| L | $=$ Lot Number |
|  |  |
| Cautions: | Molding resin |
|  | Epoxy resin UL:94V-0 |

## Ordering Information

| Device | Package | Shipping |
| :--- | :---: | :---: |
| MBR2535CTL | TO-220AB (Pb-Free) | $50 \mathrm{pcs} /$ tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

## Technical Data <br> Data Sheet N1014 Rev. B

## RoHS

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