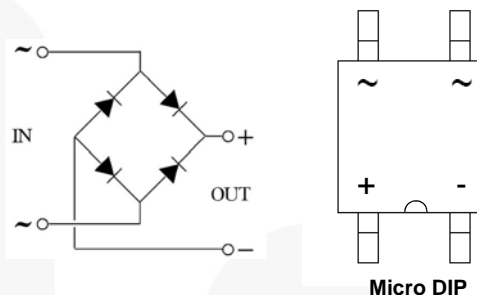


# MDB6S / MDB8S / MDB10S

## 1 A, MicroDIP, Single-Phase Bridge Rectifiers

### Features

- Low Package Profile: 1.45 mm (max)
- Requires Only 35 mm<sup>2</sup> of Board Space
- High Surge Current Capability: 30 A (max)
- Glass Passivated Junction Rectifiers
- UL Certification: E352360



### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value			Units
		MDB6S	MDB8S	MDB10S	
$V_{RRM}$	Maximum Repetitive Peak Reverse Voltage	600	800	1000	V
$V_{RMS}$	Maximum RMS Voltage	420	560	700	V
$V_{DC}$	Maximum DC Blocking Voltage	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current <sup>(1)</sup>	1.0			A
$I_{FSM}$	Peak Forward Surge Current <sup>(2)</sup>	30			A
$I^2t$	$I^2t$ Rating for fusing ( $t < 8.3$ ms)	3.735			A <sup>2</sup> S
$T_J$	Operating Junction Temperature Range	-55 to +150			°C
$T_{STG}$	Storage Temperature Range	-55 to +150			°C

#### Notes:

1. 60 Hz sine wave, R-load,  $T_A = 25^\circ\text{C}$  on FR-4 PCB.
2. 60 Hz sine wave, Non-repetitive 1 cycle peak value,  $T_J = 25^\circ\text{C}$ .

### Thermal Characteristics<sup>(3)</sup>

Symbol	Parameter	Typ.	Units	
$R_{\theta JA}$	Thermal Resistance, Junction-Ambient	Measurement with Dual Dice	250	°C/W
		Measurement with Single Die	150	°C/W
$\psi_{JL}$	Thermal Characterization, Junction to Lead	Measured at Anode pin	57	°C/W
		Measured at Cathode pin	15	°C/W

#### Note:

3. Device mounted on FR-4 PCB with board size = 76.2 mm x 114.3 mm (JESD51-3 standards).

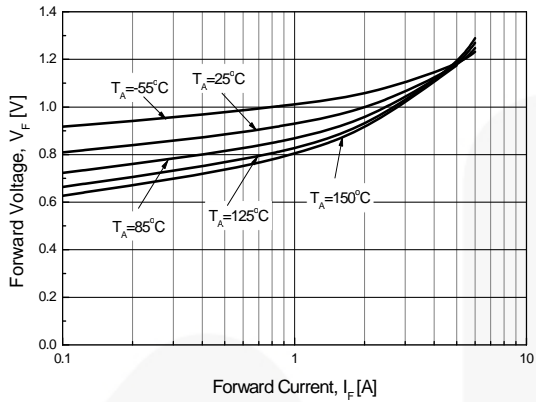
### Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise specified.

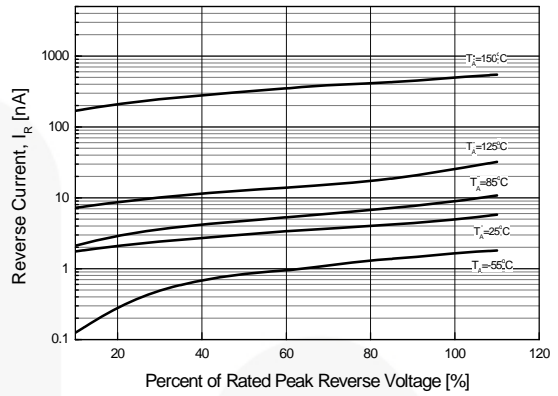
Symbol	Parameter	Test condition	Value	Units
$V_F$	Maximum Forward Voltage	$I_F = 1 \text{ A}$ , Pulse measurement, Per diode	1.1	V
$I_R$	Maximum Reverse Current	At $V_{RRM}$ , Pulse measurement, Per diode	10	$\mu\text{A}$
$C_J$	Typical Junction Capacitance	$V_R = 4 \text{ V}$ , $f = 1 \text{ MHz}$	10	pF



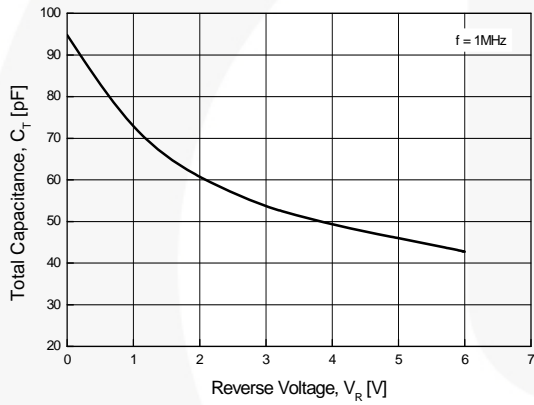
## Typical Performance Characteristics



**Figure 1. Forward Voltage vs Forward Current (Per diode)**



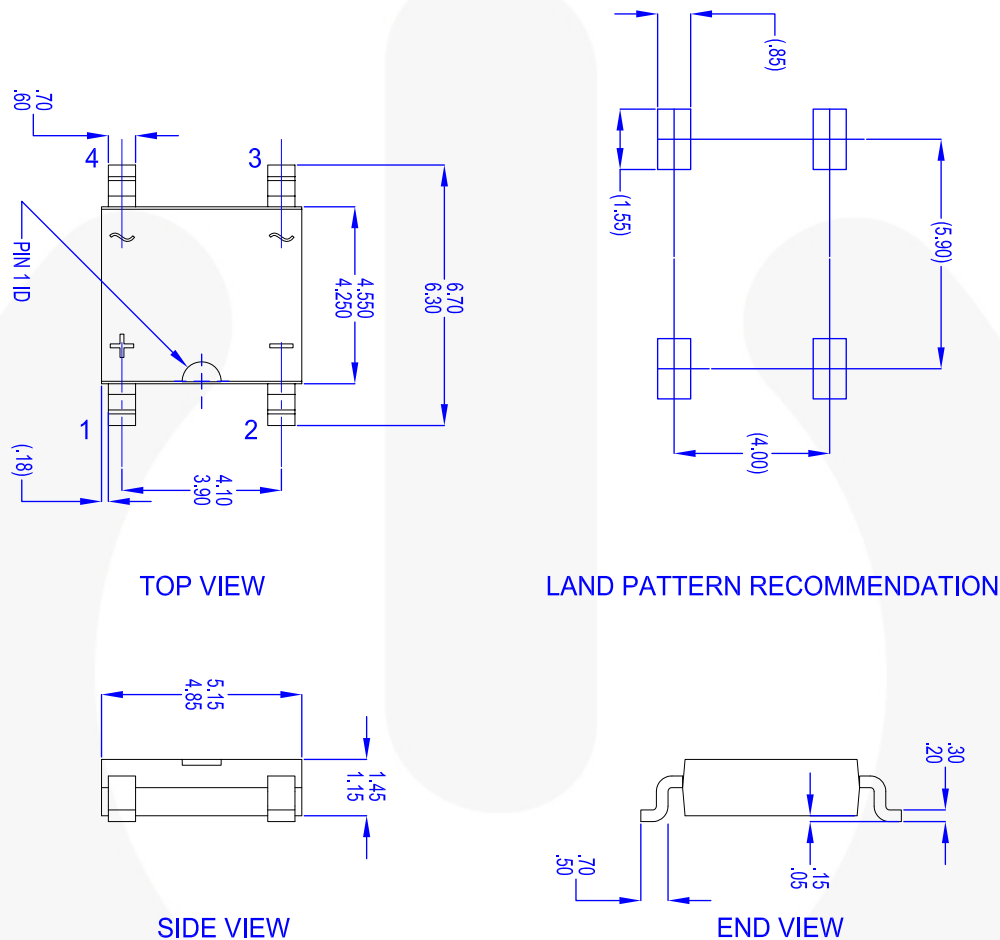
**Figure 2. Typical Reverse Current Characteristics (Per Diode)**



**Figure 3. Total Capacitance**

## Physical Dimensions

### Micro-DIP



**NOTES:**

- A. THIS PACKAGE DOES NOT CONFORM TO ANY REFERENCE STANDARD.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- G. DRAWING FILE NAME: MKT-TDI04AREV1.

**Figure 4. 4-LEAD, MICRO SURFACE MOUNT, 1.3 x 4 x 5 mm (Active)**

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| AccuPower™  | F-PFS™   | PowerTrench®  |  |
| AX-CAP®*  | FRFET®   | PowerXS™  | TinyBoost™  |
| BitSiC™   | Global Power Resource <sup>SM</sup>            | Programmable Active Droop™  | TinyBuck™   |
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|  | MicroPak™                                      | STEALTH™  | UHC®  |
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| FAST®   | OptoHiT™                                       | SupreMOS®   | VoltagePlus™  |
| FastvCore™  | OPTOLOGIC®                                     | SyncFET™  | XS™   |
| FETBench™   | OPTOPLANAR®                                    |   |   |

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