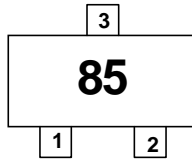
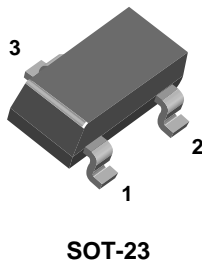




**THE DATASHEET OF  
MMBD1701A**



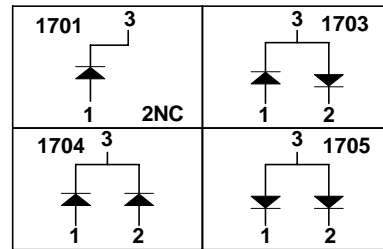
# MMBD1701/A / 1703/A / 1704/A / 1705/A



**MARKING**

|          |    |           |     |
|----------|----|-----------|-----|
| MMBD1701 | 85 | MMBD1701A | 85A |
| MMBD1703 | 87 | MMBD1703A | 87A |
| MMBD1704 | 88 | MMBD1704A | 88A |
| MMBD1705 | 89 | MMBD1705A | 89A |

**Connection Diagrams**



## Small Signal Diodes

### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol      | Parameter   | Value       | Units            |
|-------------|---|-------------|------------------|
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage                                    | 30          | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current                                     | 50          | mA               |
| $I_{FSM}$   | Non-repetitive Peak Forward Surge Current<br>Pulse Width = 1.0 second | 250         | mA               |
| $T_{stg}$   | Storage Temperature Range   | -55 to +150 | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature  | 150         | $^\circ\text{C}$ |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

## Thermal Characteristics

| Symbol          | Parameter                               | Value | Units                     |
|-----------------|---|-------|---------------------------|
| $P_D$           | Power Dissipation                       | 350   | mW                        |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357   | $^\circ\text{C}/\text{W}$ |

## Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol   | Parameter              | Test Conditions  | Min  | Max | Units |
|----------|------------------------|--|------|-----|-------|
| $V_R$    | Breakdown Voltage      | $I_R = 5.0 \mu\text{A}$  | 30   |     | V     |
| $V_F$    | Forward Voltage        | $I_F = 10 \mu\text{A}$   | 420  | 500 | mV    |
|          |                        | $I_F = 100 \mu\text{A}$  | 520  | 610 | mV    |
|          |                        | $I_F = 1.0 \text{ mA}$   | 640  | 740 | mV    |
|          |                        | $I_F = 10 \text{ mA}$  | 760  | 880 | mV    |
|          |                        | $I_F = 20 \text{ mA}$  | 810  | 950 | mV    |
|          |                        | $I_F = 50 \text{ mA}$  | 0.89 | 1.1 | V     |
| $I_R$    | Reverse Current        | $V_R = 20 \text{ V}$   |      | 50  | nA    |
| $C_T$    | Total Capacitance      | $V_R = 0, f = 1.0 \text{ MHz}$   |      | 1.0 | pF    |
| $t_{rr}$ | Reverse Recovery Time  |  |      | 0.7 | ns    |
|          | <b>MMBD1701-1705</b>   | $I_F = I_R = 10 \text{ mA}, I_{RR} = 1.0 \text{ mA}, R_L = 100 \Omega$ |      |     |       |
|          | <b>MMBD1701A-1705A</b> | $I_F = I_R = 10 \text{ mA}, I_{RR} = 1.0 \text{ mA}, R_L = 100 \Omega$ |      | 1.0 | ns    |

Typical Characteristics

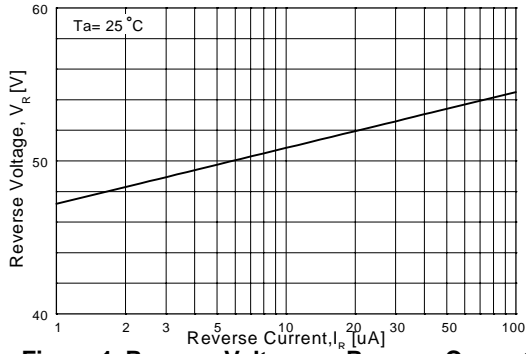


Figure 1. Reverse Voltage vs Reverse Current  
BV - 1.0 to 100 uA

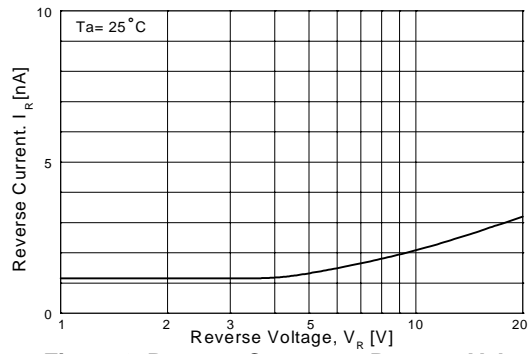


Figure 2. Reverse Current vs Reverse Voltage  
IR - 1 to 22V

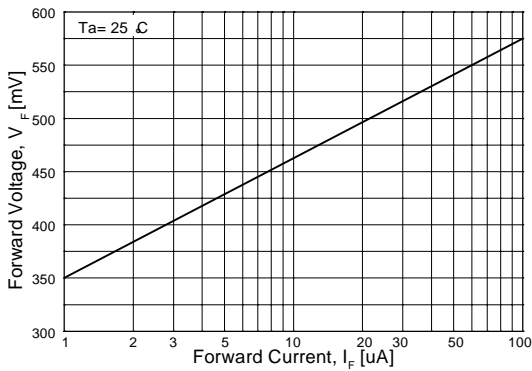


Figure 3. Forward Voltage vs Forward Current  
VF - 1.0 to 100 uA

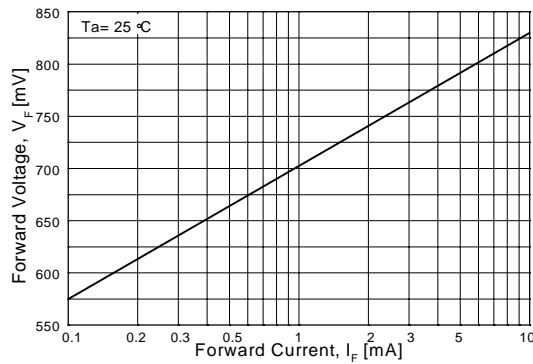


Figure 4. Forward Voltage vs Forward Current  
VF - 0.1 to 10 mA

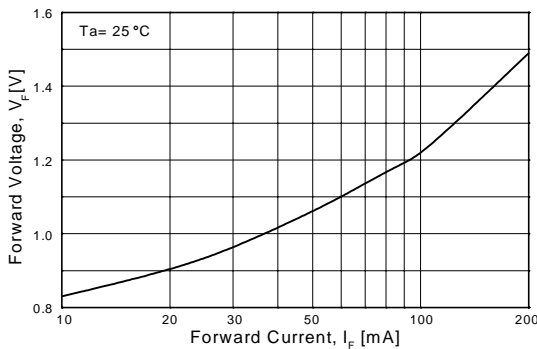


Figure 5. Forward Voltage vs Forward Current  
VF - 10 - 200 mA

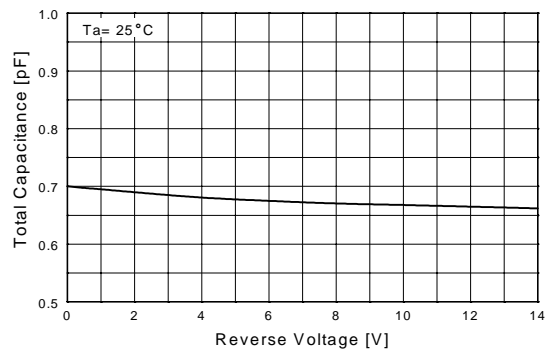


Figure 6. Total Capacitance vs Reverse Current

Typical Characteristics (continued)

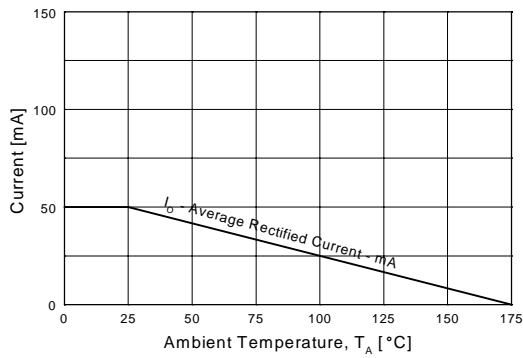


Figure 7. Average Rectified Current ( $I_o$ ) versus Ambient Temperature ( $T_A$ )

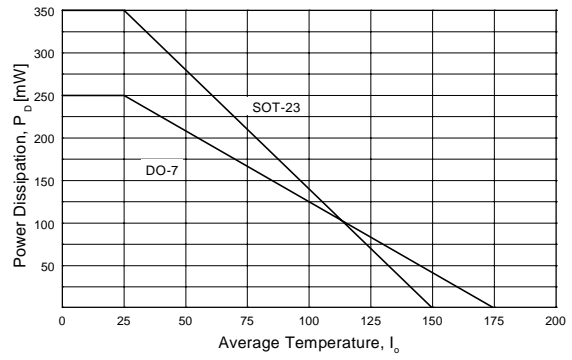


Figure 8. Power Derating Curve

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