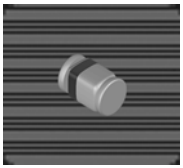
# MCL103A / 103B / 103C

Small Signal Schottky Barrier Diodes

GOOD-ARK

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop



### Applications

HF-Detector
Protection circuit
Small battery charger
AC-DC / DC-DC converters

### Mechanical Data

- Case: MicroMELF Glass Case
- Weight: approx. 12.3 mg
- Cathode Band Color: Black

## ■Absolute Maximum Ratings

( $T_{amb}$=25°C unless otherwise specified )

| Parameter | Test Condition | Part | Symbol | Value | Unit |
|---|---|---|---|---|---|
| Reverse voltage | | MCL103A | $V_R$ | 40 | V |
| | | MCL103B | $V_R$ | 30 | V |
| | | MCL103C | $V_R$ | 20 | V |
| Peak forward surge current | $t_p$= 300 us, square pulse | | $I_{FSM}$ | 15 | A |
| Power dissipation | l = 4 mm, $T_L$=constant | | $P_{tot}$ | 400 | mW |

## ■Thermal Characteristics

( $T_{amb}$=25°C unless otherwise specified )

| Parameter | Test Condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Junction ambient | l = 4 mm, $T_L$=constant | $R_{thJA}$ | 250 | K/W |
| Junction temperature | | $T_j$ | 125 | °C |
| Stroage temperature range | | $T_{stg}$ | -65 to +150 | °C |

## ■Electrical Characteristics

( $T_{amb}$=25°C unless otherwise specified )

| Parameter | Test Condition | Part | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Reverse breakdown voltage | $I_R$ = 10 uA | MCL103A | $V_{(BR)R}$ | 40 | | | V |
| | | MCL103B | | 30 | | | |
| | | MCL103C | | 20 | | | |
| Leakage current | $V_R$=30V | MCL103A | $I_R$ | | | 5 | uA |
| | $V_R$=20V | MCL103B | | | | 5 | |
| | $V_R$=10V | MCL103C | | | | 5 | |
| Forward voltage drop | $I_F$ = 20mA | | $V_F$ | | | 0.37 | V |
| | $I_F$ = 200mA | | | | | 0.6 | |
| Diode capacitance | $V_R$ = 0 V, f=1MHz | | $C_D$ | | 50 | | pF |
| Reverse recovery time | $I_F$=$I_R$=50mA to 200mA, recover to 0.1 $I_R$ | | $t_{rr}$ | | 10 | | ns |

## ■Typical characteristics

( $T_{amb}$=25°C unless otherwise specified )

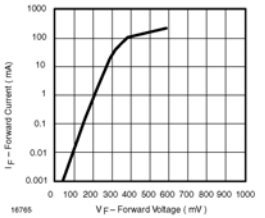



Fig. 1 Forward Current vs. Forward Voltage

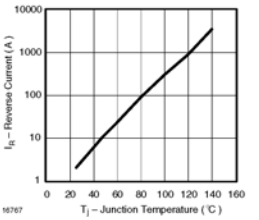



Fig. 3 Reverse Current vs. Junction Temperature

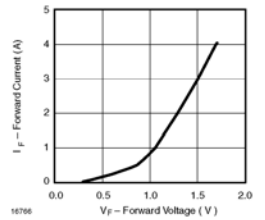



Fig. 2 Forward Current vs. Forward Voltage

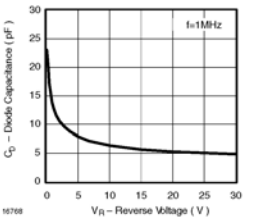



Fig. 4 Diode Capacitance vs. Reverse Voltage

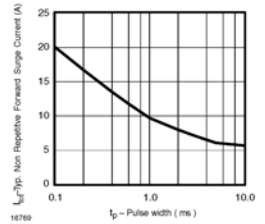



Fig. 5 Typ. Non Repetitive Forward Surge Current vs. Pulse width

## Package Dimensions in mm (inches)