10 Amp Schottky Barrier Rectifiers
MS1003 — MS1004

Base (Cathode)
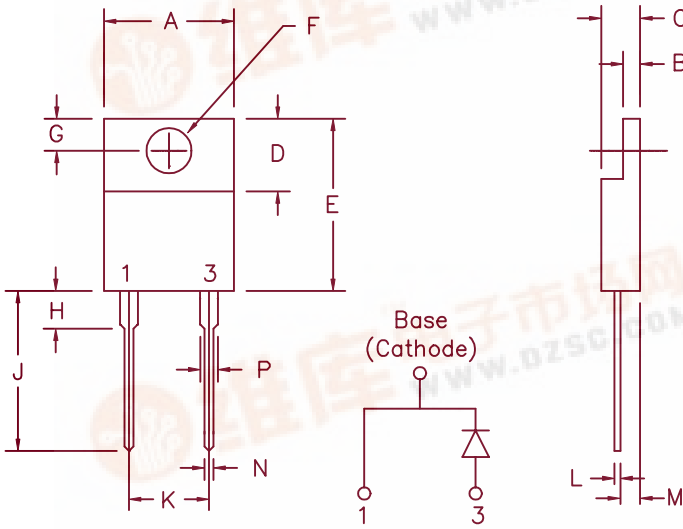
Dim.	Inches Minimum	Maximum	Millimeter Minimum	Maximum	Notes
A	.390	.415	9.91	10.54	
B	.045	.055	1.14	1.40	
C	.180	.190	4.57	4.83	
D	.245	.260	6.22	6.60	
E	.550	.650	13.97	16.51	
F	.139	.155	3.53	3.94	Dia.
G	.100	.120	2.54	3.05	
H	---	.250	---	6.35	
J	.500	.580	12.70	14.73	
K	.190	.210	4.83	5.33	
L	.014	.025	0.35	0.63	
M	.080	.115	2.03	2.92	
N	.028	.038	0.71	0.96	
P	.045	.055	1.14	1.40	

Similar to TO—220AC

Microsemi Catalog Number	Repetitive Peak Reverse Voltage	Transient Peak Reverse Voltage
MS1003	30V	30V
MS1004	40V	40V

- Schottky barrier rectifier
- Guard ring protection
- Low power loss, high efficiency
- V_{RRM} 30 to 40 Volts
- Reverse energy tested

Electrical Characteristics

Average Forward Current	$I_{F(AV)}$ 10 Amps	$T_C = 158°C$, Square wave, $R_{\theta JC} = 2.5°C/W$
Maximum Surge Current	I_{FSM} 225 Amps	8.3ms, half sine, $T_J = 175°C$
Max. Peak Forward Voltage	V_{FM} .48 Volts	$I_{FM} = 10A$, $T_J = 175°C$ *
Max. Peak Forward Voltage	V_{FM} .65 Volts	$I_{FM} = 10A$, $T_J = 25°C$ *
Max. Peak Reverse Current	I_{RM} 10 mA	V_{RRM}, $T_J = 125°C$ *
Max. Peak Reverse Current	I_{RM} 250 μA	V_{RRM}, $T_J = 25°C$
Typical Junction Capacitance	C_J 660 pF	$V_R = 5.0V$, $T_J = 25°C$

*Pulse test: Pulse width 300 μsec. Duty cycle 2%

Thermal and Mechanical Characteristics

Storage temp range	TSTG	−55°C to + 175°C
Operating junction temp range	TJ	−55°C to + 175°C
Max thermal resistance	$R_{\theta JC}$	2.5°C/W Junction to case
Mounting torque		8−12 inch pounds 6−32 screw)
Weight		.08 ounces (2.3 grams) typical

4-3-00 Rev. IR
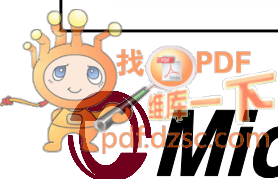
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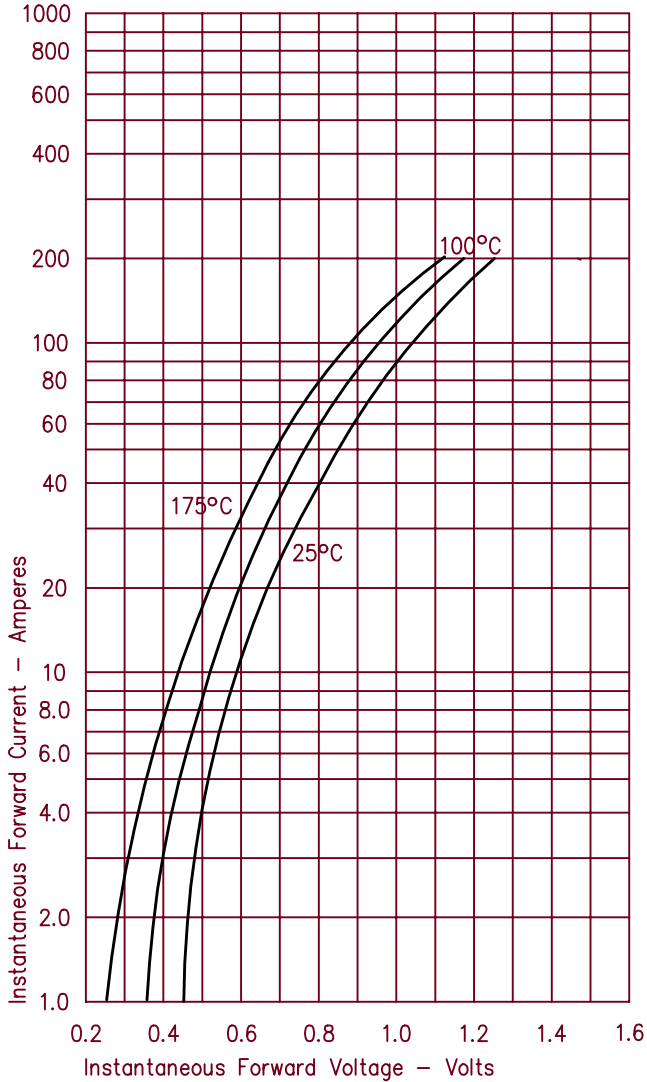# MS1003 — MS1004

Figure 1
Typical Forward Characteristics

Instantaneous Forward Current — Amperes (vertical axis, 1.0 to 1000)
Instantaneous Forward Voltage — Volts (horizontal axis, 0.2 to 1.6)

Curves labeled: 100°C, 175°C, 25°C

Figure 2
Typical Reverse Characteristics

Typical Reverse Current — mA (vertical axis, .001 to 100)
Reverse Voltage — Volts (horizontal axis, 1 to 50)

Curves labeled: 175°C, 125°C, 75°C

Figure 3
Typical Junction Capacitance

Junction Capacitance — pF (vertical axis, 100 to 10000)
Reverse Voltage — Volts (horizontal axis, 0.1 to 100)
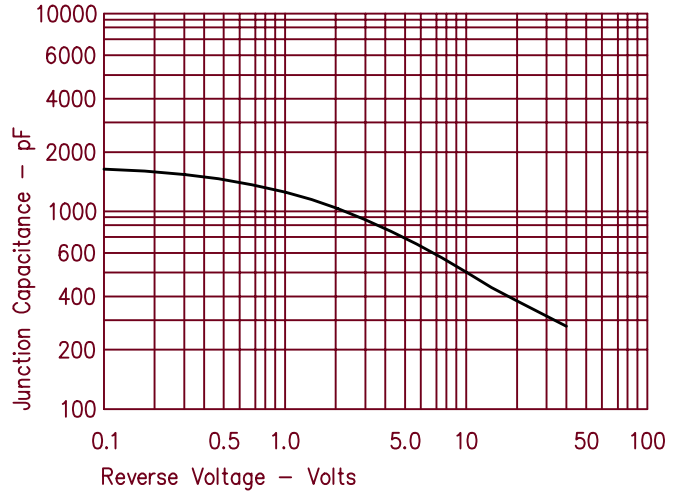
Figure 4
Forward Current Derating

Maximum Allowable Case Temperature –°C (vertical axis, 145 to 180)
Average Forward Current — Amperes (horizontal axis, 0 to 15)
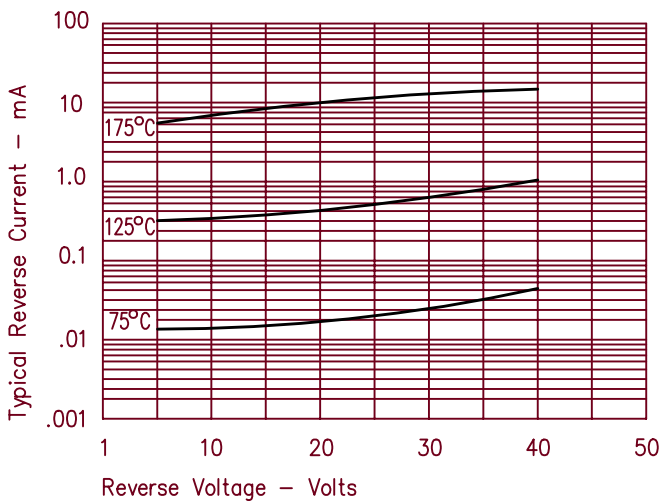
Curves labeled: 60°, 90°, 120°, 180°, DC

Figure 5
Maximum Forward Power Dissipation

Maximum Power Dissipation — Watts (vertical axis, 0 to 14)
Average Forward Current — Amperes (horizontal axis, 0 to 15)

Curves labeled: 60°, 90°, 120°, 180°, DC