

Surface Mount Schottky Diodes

MA4CS101, 102, 103 Series

V3.00

Features

- High Performance Schottky Diodes
- Designed for High Volume Pick and Place Assembly
- Low Profile Surface Mount Packages - Single and Pair Configurations
- High Quality Products (Defect Rate Less Than 50 PPM)
- Aggressively Priced for High Volume, Commercial Applications

Description

Surface mount Schottky diodes are available from M/A-COM for high volume, pick and place assembly applications. They are packaged in low profile SOT-23 and SOT-143 packages. A variety of wiring configurations is offered, including singles, series pairs, common cathode pairs and unconnected pairs.

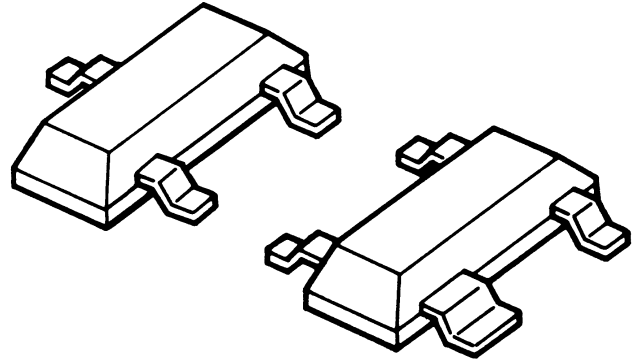
These diodes are suitable for a wide range of RF and microwave switching, attenuator and receiver applications. The product types offered include the following:

- General Purpose 20 and 70 Volt Schottky Diodes
- Low Forward Voltage Schottky Diodes

These products are manufactured using Statistical Process Control (SPC) procedures ensuring high reliability and demonstrated defect levels less than 50 parts per million.

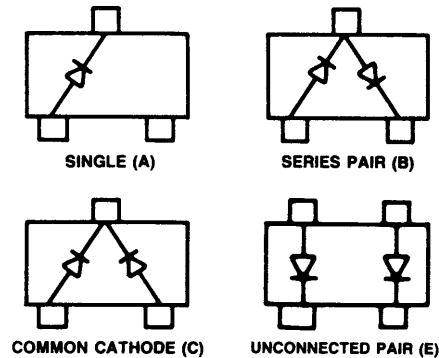
These units are delivered in industry standard 8 mm tape and reel format. Standard reels contain 3,000 devices.

SOT-23



SOT-143

Configurations (Top View)



Specifications Subject to Change Without Notice.

M/A-COM, Inc.

North America: Tel. (800) 366-2266
Fax (800) 618-8883

■ Asia/Pacific: Tel. +81 (03) 3226-1671
Fax +81 (03) 3226-1451

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Electrical Specifications at 25°C

Model ¹ Number	Configuration	Marking	Minimum Reverse Voltage V_R $I_R = 10 \text{ aA}$	Maximum Reverse Current @ $V_R = 50 \text{ V}$	Maximum Forward Voltage $1 \text{ V @ } I_F = 15 \text{ mA}$	Maximum Capacitance $V_R = 0 \text{ V } f = 1 \text{ MHz}$	Typical Dynamic Resistance $15 \Omega @ I_F = 5 \text{ mA}$
MA4CS101A	Single	73	70 V	200 nA @ $V_R = 50 \text{ V}$	410 mV @ $I_F = 1 \text{ mA}$ 1 V @ $I_F = 15 \text{ mA}$	2.0 pF	35 Ω @ $I_F = 5 \text{ mA}$
MA4CS101B	Series Pair	74					
MA4CS101E	Unconnected Pair	77					
MA4CS102A	Single	83	8 V	100 nA @ $V_R = 1 \text{ V}$	360 mV @ $I_F = 1 \text{ mA}$ 500 mV @ $I_F = 10 \text{ mA}$	1.0 pF	8 Ω @ $I_F = 5 \text{ mA}$
MA4CS102B	Series Pair	84					
MA4CS102C	Common Cathode	85					
MA4CS102E	Unconnected Pair	87					
MA4CS103A	Single	13	20 V	200 nA @ $V_R = 15 \text{ V}$	410 mV @ $I_F = 1 \text{ mA}$ 1 V @ $I_F = 35 \text{ mA}$	1.2 pF	15 Ω @ $I_F = 5 \text{ mA}$

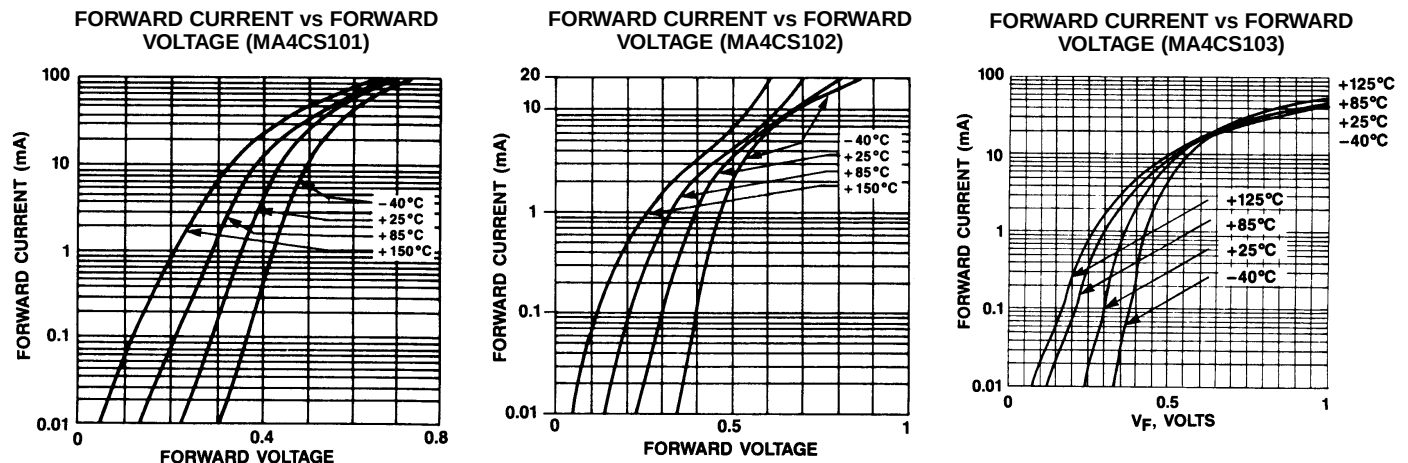
Note:

1. Model numbers A-D available in SOT-23 (low profile) only. Model number E available in SOT-143 (low profile) only.

Absolute Maximum Ratings at 25°C

Parameter	Absolute Maximum
Reverse Voltage	Breakdown Voltage Rating
Forward Current:	
MA4CS101	15 mA
MA4CS102	30 mA
MA4CS103	100 mA
Surge Forward Current, $t \leq 10 \text{ ms}$	
MA4CS101, 102	100 mA
MA4CS103	500 mA
Total Power Dissipation ²	250 mW
Operating Temperature	- 55°C to + 150°C
Storage Temperature	- 55°C to + 150°C

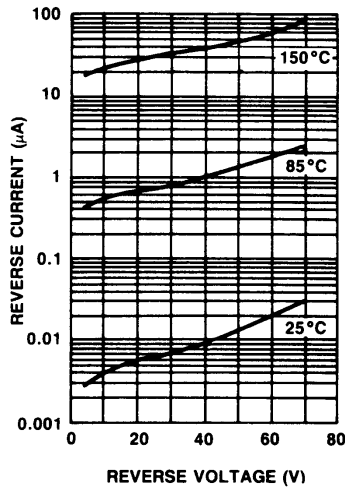
Typical Performance Curves



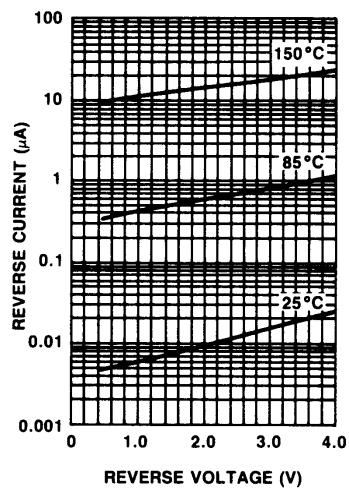
Specifications Subject to Change Without Notice.

Typical Performance Curves (Cont'd)

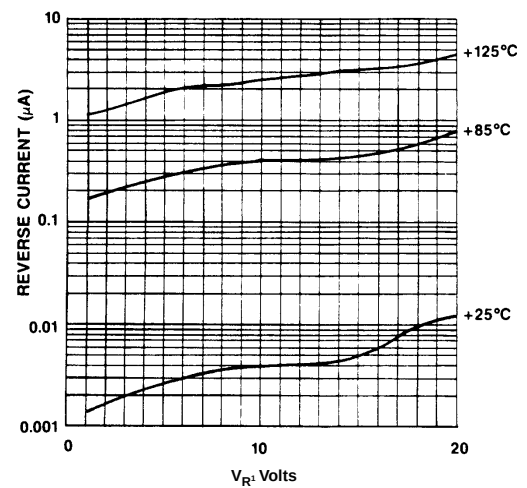
REVERSE CURRENT vs REVERSE VOLTAGE (MA4CS101)



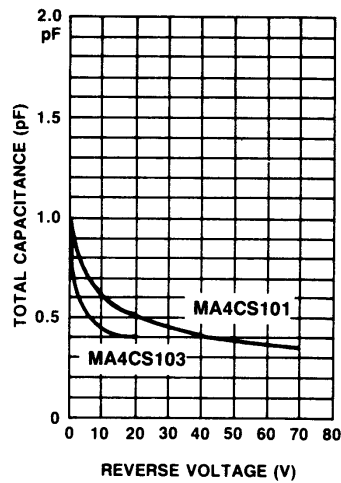
REVERSE CURRENT vs REVERSE VOLTAGE (MA4CS102)



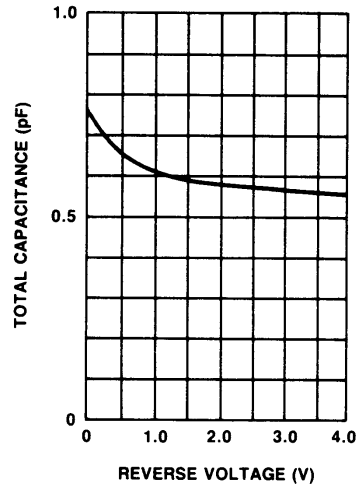
REVERSE CURRENT vs REVERSE VOLTAGE (MA4CS103)



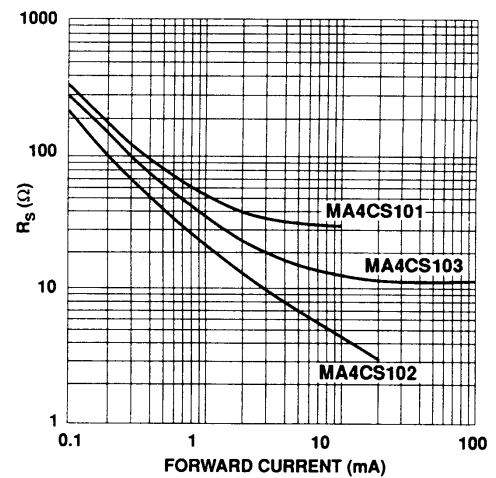
TOTAL CAPACITANCE vs REVERSE VOLTAGE



TOTAL CAPACITANCE vs REVERSE VOLTAGE (MA4CS102)



DYNAMIC RESISTANCE vs FORWARD CURRENT



Specifications Subject to Change Without Notice.

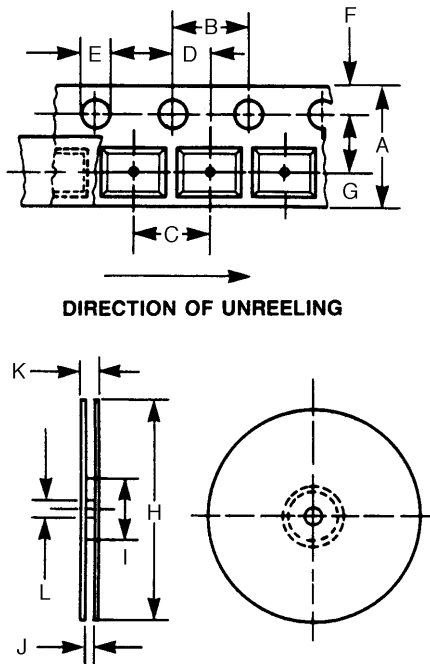
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Tape and Reel Packaging

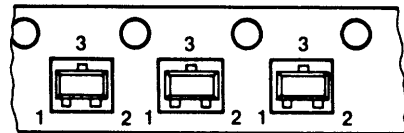


DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.303	0.327	7,7	8,3
B	0.153	0.161	3,9	4,1
C	0.153	0.161	3,9	4,1
D	0.077	0.081	1,95	2,05
E	0.059	0.063	1,5	1,6
F	0.065	0.073	1,65	1,85
G	0.136	0.140	3,45	3,55
H	6.8	7.2	173	183
I	2.382	2.50	60,5	63,5
J	0.331	0.390	8,4	9,9
K	—	0.567	—	14,4
L	0.502	0.562	12,75	12,9

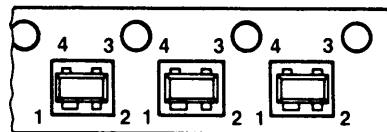
Polarity and Orientation of Taped Components

Top View

8-mm TAPE

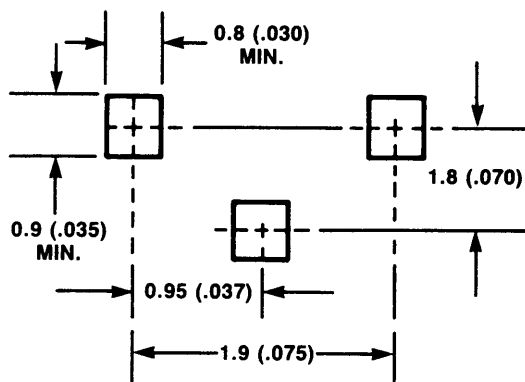


SOT-23



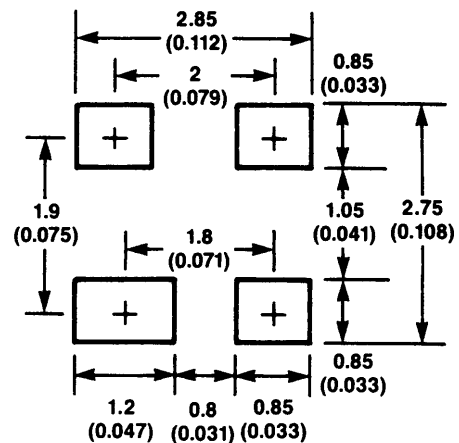
SOT-143

Mounting Pad Diagrams



DIMENSIONS: MILLIMETERS (INCHES)

SOT-23

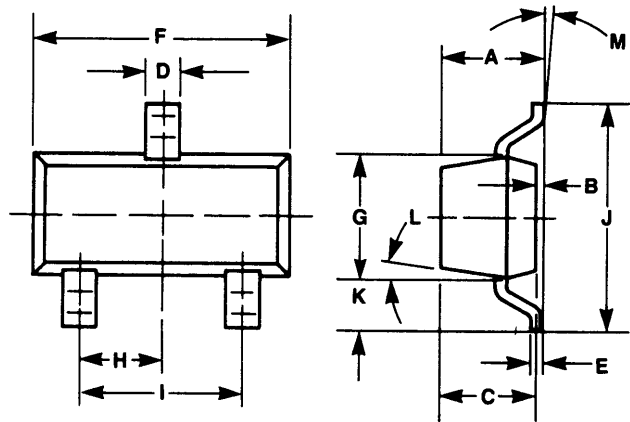


DIMENSIONS: MILLIMETERS (INCHES)

SOT-143

Case Styles

SOT-23
(Low Profile)

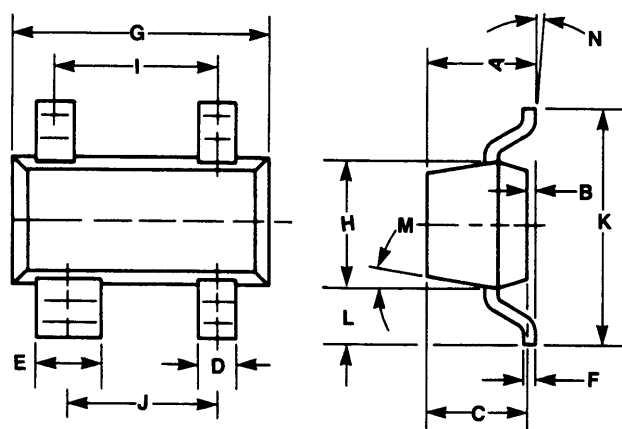


DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.044	—	1,10
B	—	0.004	—	0,10
C	—	0.040	—	1,00
D	0.013	0.020	0,35	0,50
E	0.003	0.006	0,08	0,15
F	0.110	0.119	2,80	3,00
G	0.047	0.056	1,20	1,40
H	0.037 typical		0,95 typical	
I	0.075 typical		1,90 typical	
J		0.103		2,60
K		0.024		0,60

DIM.	GRADIENT
L	10° max ¹
M	2° . . .30°

Note:
1. Applicable on all sides

SOT-143
(Low Profile)



DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.044	—	1,10
B	—	0.004	—	0,10
C	—	0.040	—	1,00
D	0.013	0.020	0,35	0,50
E	0.030	0.035	0,75	0,90
F	0.003	0.006	0,08	0,15
G	0.110	0.119	2,80	3,00
H	0.047	0.056	1,20	1,40
I	0.075 typical		1,90 typical	
J	0.040 typical		1,70 typical	
K	—	0.103	—	2,60
L	—	0.024	—	0,60

DIM.	GRADIENT
M	10° max ¹
N	2° . . .30°

Note:
1. Applicable on all sides