



MOTOROLA

SEMICONDUCTORS

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

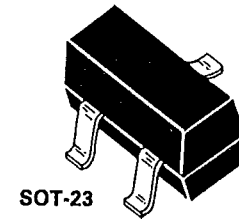
SOT-23 SWITCHING DIODES

These devices are intended for high speed switching applications. . . .

- Various Voltage and Current Ratings
- Various Pin-Out Configurations
- Designed for Space-Saving Applications
- Epoxy Encapsulated
- Body Coated and Laser Marked for Ease of Identification
- Available in 8 mm Tape and Reel
- Can be used with Reflow or Wave Solder Processes
- Package Options — Low Profile or Standard Lead Form

- | | |
|--------|-----------|
| MBAL99 | MMBD914X |
| MBAS16 | MMBD2835X |
| MBAV70 | MMBD2836X |
| MBAV74 | MMBD2837X |
| MBAV99 | MMBD2838X |
| MBAW56 | MMBD6050X |

HI SPEED SWITCHING DIODES



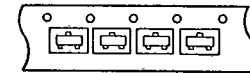
SOT-23

ORDERING INFORMATION

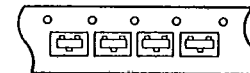
- No Suffix = Standard Lead Form, Bulk Package
 L Suffix = Low Profile Lead Form, Bulk Package
 T1 Suffix = Standard Lead Form, 8 mm Tape and Reel (Option 1)*
 T2 Suffix = Standard Lead Form, 8 mm Tape and Reel (Option 2)*
 LT1 Suffix = Low Profile Lead Form, 8 mm Tape and Reel (Option 1)*
 LT2 Suffix = Low Profile Lead Form, 8 mm Tape and Reel (Option 2)*

Orientation of the Device in 8 mm Embossed Tape

*Option 1 (Preferred)



*Option 2



Tape and Reel Information

Minimum order quantity — 9,000

Order must be in increments of 3,000

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage MMBD2837X MBAV74/MMBD2838X MBAL99/MBAV70/99/MBAW56/MMBD914X/ 2835X/2836X/6050X MBAS16	V_R	30 50 70 75	V
Forward Current MBAL99/MBAV99/MMBD2835X/2836X/2838X MMBD2837X MBAS16/MBAV70/74/MBAW56/MMBD914X/ MMBD6050X		100 150 200	mA

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, $T_A = 25^\circ\text{C}$ * Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Storage Temperature	T_{stg}	150	$^\circ\text{C}$
Thermal Resistance Junction to Ambient*	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$

*Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

STYLE 8:
 PIN 1. ANODE
 2. NO CONNECTION
 3. CATHODE

{ MBAS16
 MMBD914X
 MMBD6050X

STYLE 9:
 PIN 1. ANODE
 2. ANODE
 3. CATHODE

{ MBAV70/74
 MMBD2837X
 MMBD2838X

STYLE 11:
 PIN 1. ANODE
 2. CATHODE
 3. CATHODE-ANODE

MBAV99

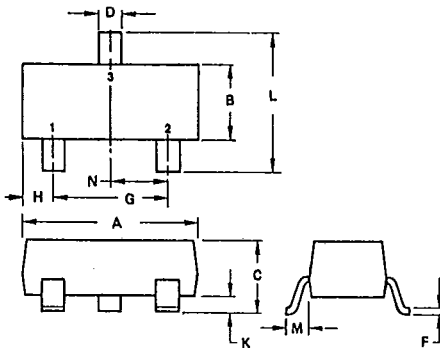
STYLE 12:
 PIN 1. CATHODE
 2. CATHODE
 3. ANODE

{ MBAW56
 MMBD2835X
 MMBD2836X

STYLE 18:
 PIN 1. NO CONNECTION
 2. CATHODE
 3. ANODE

MBAL99

- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5, 1982.
 2. CONTROLLING DIMENSION: MILLIMETERS.



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.85	1.20	0.033	0.0472
D	0.37	0.46	0.015	0.0177
F	0.085	0.13	0.0034	0.0051
G	1.78	2.04	0.0701	0.0807
H	0.51	0.60	0.020	0.0236
K	0.10	0.25	0.004	0.0098
L	2.10	2.50	0.083	0.0984
M	0.45	0.60	0.018	0.0236
N	0.89	1.02	0.035	0.0401

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.04	0.035	0.0412
D	0.37	0.46	0.015	0.0177
F	0.085	0.13	0.0034	0.0051
G	1.78	2.04	0.0701	0.0807
H	0.51	0.60	0.020	0.0236
K	0.013	0.10	0.0005	0.0040
L	2.10	2.50	0.083	0.0984
M	0.45	0.60	0.018	0.0236
N	0.89	1.02	0.035	0.0401

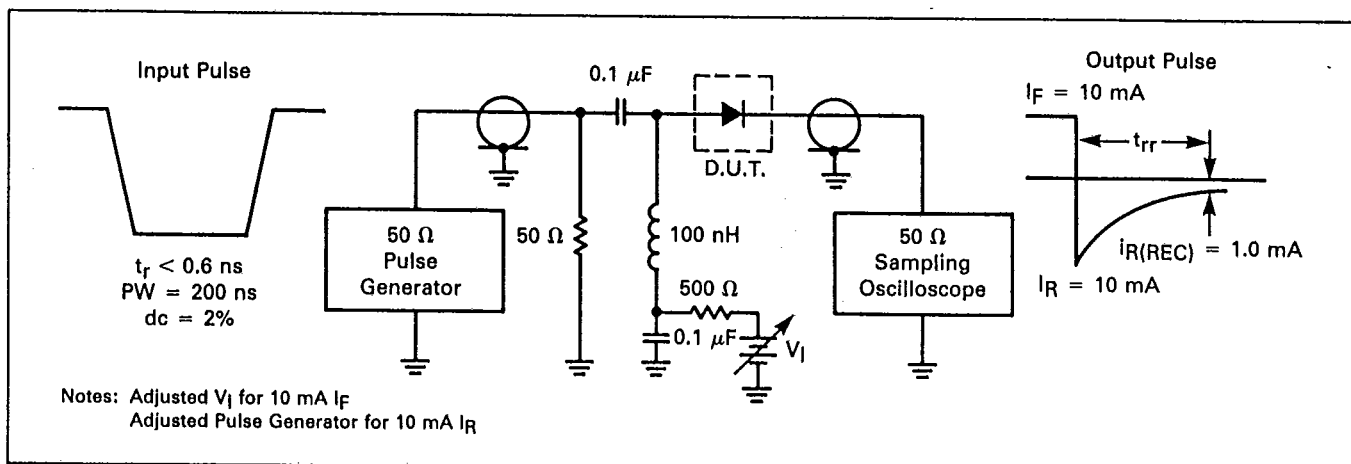
CASE 318-02
 TO-236AA
 STANDARD

CASE 318-03
 TO-236AB
 LOW PROFILE

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

59 DE 6367255 0061865 1

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current ($V_R = 30\text{ V}$) MMBD2835X/2837X ($V_R = 50\text{ V}$) MBSV74/MMBD2836X/2838X/6050X ($V_R = 70\text{ V}$) MBAL99/MBSV99/MBSV56 MBSV70 ($V_R = 75\text{ V}$) MBAS16 MMBD914X	I_R	—	0.1 0.1 2.5 5.0 1.0 5.0	μA
Reverse Breakdown Voltage ($I_{(BR)} = 100\ \mu\text{A}$) MMBD914X/MMBD2837X MMBD2836X MBAL99/MBSV70/MBSV56/MMBD6050X MBAS16/MMBD2835X/MMBD2837X/2838X ($I_{(BR)} = 5.0\ \mu\text{A}$) MBSV74	$V_{(BR)}$	100 75 70 35 50	—	V
Forward Voltage ($I_F = 1.0\text{ mA}$) MBAL99/MBSV16/MBSV70/99/MBSV56 MMBD6050X ($I_F = 10\text{ mA}$) MBAL99/MBSV16/MBSV70/99/MBSV56 MMBD914X/2835X/2836X/2837X/2838X ($I_F = 50\text{ mA}$) MMBD2835X/2836X/2837X/2838X MBAL99/MBSV16/MBSV70/99/MBSV56 ($I_F = 100\text{ mA}$) MBSV74 MMBD6050X MMBD2835X/2836X/2837X/2838X MBAL99/MBSV16/MBSV70/99/MBSV56	V_F	—	.715 1.0 .855 1.0 1.0 1.1 1.0 1.1 1.2 1.3	V
Diode Capacitance ($V_R = 0, f = 1.0\text{ MHz}$) MBAL99/MBSV70/99 MBSV16/MBSV74 MBSV56/MMBD6050X MMBD914X/2835X/2836X/2837X/2838X	C_t	—	1.5 2.0 2.5 4.0	pF
Reverse Recovery Time ($I_F = I_R = 10\text{ mA}$, measured at $I_R = 1.0\text{ mA}$) (Figure 1)	t_{rr}	—	15	ns

FIGURE 1 — t_{rr} REVERSE RECOVERY TIME TEST CIRCUIT

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