MMBV3700LT1, MPN3700

High Voltage Silicon Pin Diodes

These devices are designed primarily for VHF band switching applications but are also suitable for use in general−purpose switching circuits. They are supplied in a cost−effective plastic package for economical, high−volume consumer and industrial requirements. They are also available in surface mount.

Features

- Long Reverse Recovery Time t_{rr} = 300 ns (Typ)
- Rugged PIN Structure Coupled with Wirebond Construction for Optimum Reliability
- Low Series Resistance @ 100 MHz − R_S = 0.7 Ω (Typ) @ I_F = 10 mAdc
- Reverse Breakdown Voltage = 200 V (Min)
- Pb−Free Packages are Available

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	20	Vdc
Forward Power Dissipation @ T_A = 25°C MMBV3700LT1 Derate above 25°C	P_D	200 2.8	mW mW/°C
Forward Power Dissipation @ T_A = 25°C MPN3700 Derate above 25°C	P_D	280 2.8	mW mW/°C
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

ON Semiconductor®

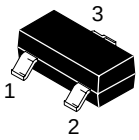
http://onsemi.com

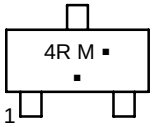
SOT−23



MARKING DIAGRAM

SOT−23 (TO−236AB)
CASE 318−08
STYLE 8

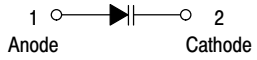




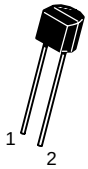
4R = Specific Device Code
M = Date Code*
▪ = Pb−Free Package
(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

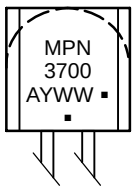
TO−92



MARKING DIAGRAM



TO−92 (TO−226AC)
CASE 182−06
STYLE 1



MPN = Device Code
3700 = Specific Device
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	$V_{(BR)R}$	200	–	–	Vdc
Diode Capacitance (V_R = 20 Vdc, f = 1.0 MHz)	C_T	–	–	1.0	pF
Series Resistance (Figure 5) (I_F = 10 mAdc)	R_S	–	0.7	1.0	Ω
Reverse Leakage Current (V_R = 150 Vdc)	I_R	–	–	0.1	μAdc
Reverse Recovery Time (I_F = I_R = 10 mAdc)	t_{rr}	–	300	–	ns

TYPICAL CHARACTERISTICS

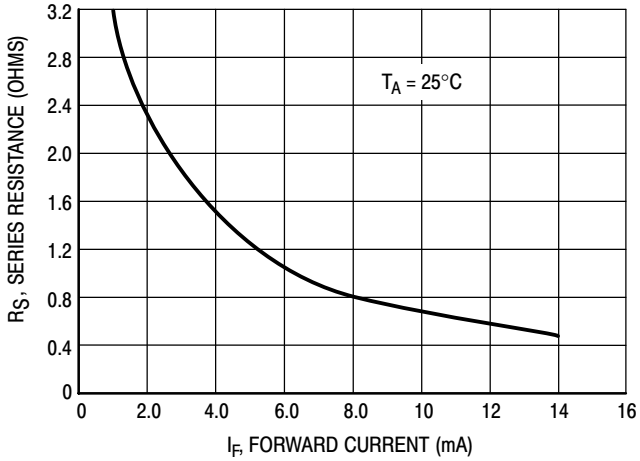


Figure 1. Series Resistance

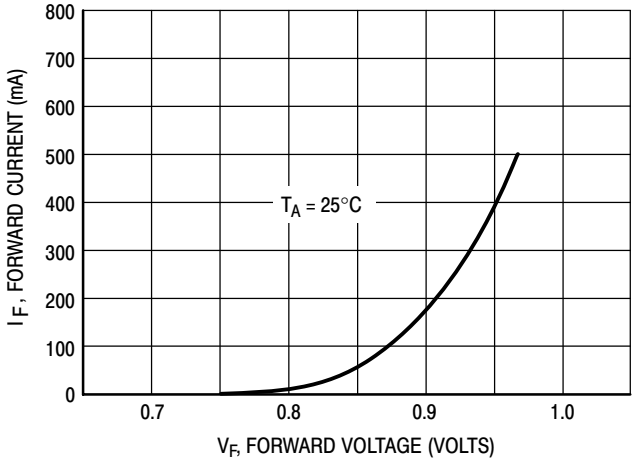


Figure 2. Forward Voltage

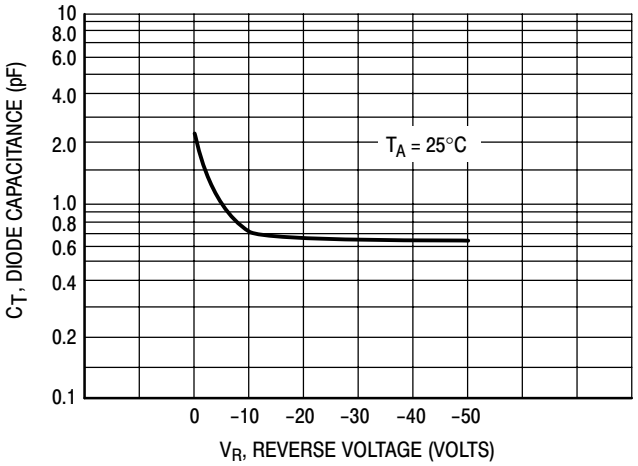


Figure 3. Diode Capacitance

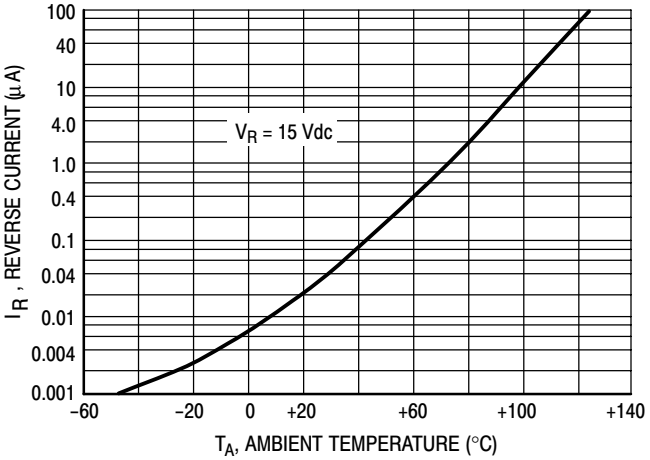


Figure 4. Leakage Current

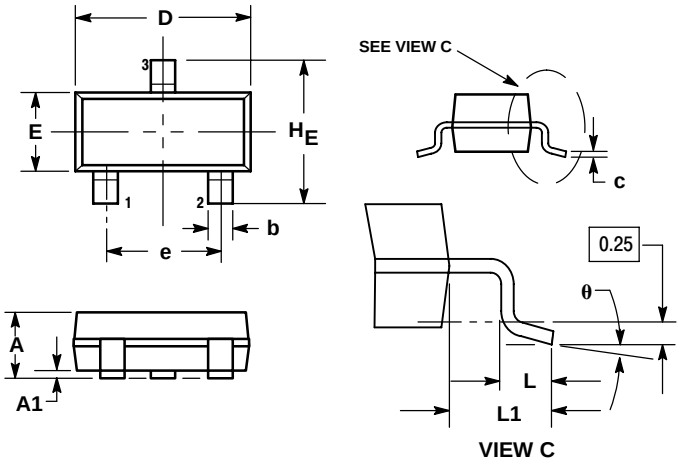
ORDERING INFORMATION

Device	Package	Shipping†
MMBV3700LT1	SOT−23	3000 / Tape & Reel
MMBV3700LT1G	SOT−23 (Pb−Free)	3000 / Tape & Reel
MPN3700	TO−92	1000 Units / Bulk
MPN3700G	TO−92 (Pb−Free)	1000 Units / Bulk

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AN

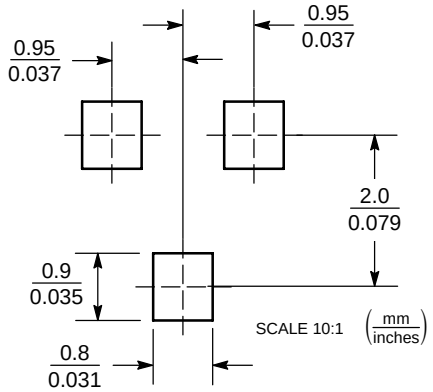


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104

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

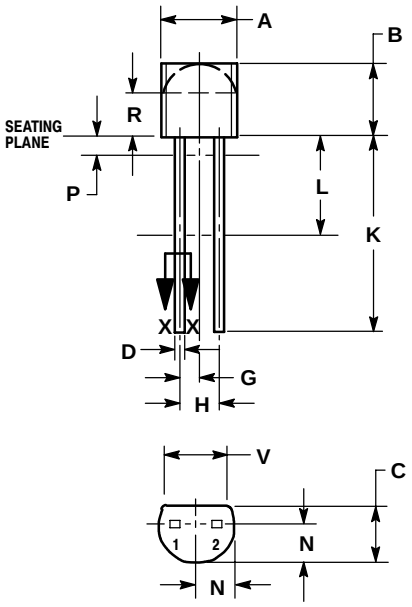
SOLDERING FOOTPRINT*

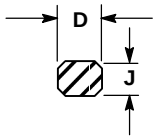


*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 182−06
ISSUE AL





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND ZONE R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.050 BSC		1.27 BSC	
H	0.100 BSC		2.54 BSC	
J	0.014	0.016	0.36	0.41
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.03	2.66
P	---	0.050	---	1.27
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 1:
PIN 1. ANODE
2. CATHODE

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