

THE SEMICONDUCTOR DATA LIBRARY

FIRST EDITION

prepared by
Technical Information Center

The information in this book has been carefully checked and is believed to be reliable; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of semiconductor devices any license under the patent rights of any manufacturer identified in this library.

Nous n'acceptons aucune responsabilité en ce qui concerne les erreurs qui auraient pu s'introduire dans cette édition, en dépit des soins minutieux apportés à sa préparation et à sa révision; nous espérons toutefois que les renseignements fournis sont fiables. De plus, il est bien entendu que ces renseignements ne permettent pas à l'acheteur de dispositifs semiconducteurs d'utiliser les brevets des fabricants mentionnés dans ce catalogue.

Die in diesem Buch enthaltenen Angaben wurden sorgfältig überprüft und sind nach unserer Meinung völlig zuverlässig. Wir können jedoch für die Genauigkeit dieser Angaben keine Verantwortung übernehmen. Darüber hinaus wird dem Käufer von Halbleiterelementen mit Angaben, die in dieser Bibliothek genannt werden, keine unter die Patentrechte eines Herstellers fallende Lizenz erteilt.

First Edition
©MOTOROLA INC., 1972
"All Rights Reserved"

.4M.64FR10/1N816

.4M1.36FR5

.4M1.36FR2

.4M2.04FR5

.4M2.04FR2

MZ2360

MZ2361

MZ2362



CONSTANT-VOLTAGE REFERENCE DIODES FOR LOW-VOLTAGE APPLICATIONS

... high-conductance silicon diodes designed as a stable forward reference source for biasing transistor amplifiers and similar applications.

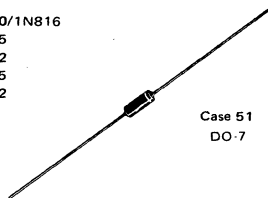
- Guaranteed Forward Voltage Range
- Choice of Package
- Temperature Effects Provided

FORWARD REFERENCE DIODES — STABISTORS —

MAXIMUM RATINGS

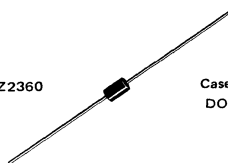
Rating	Symbol	Value	Unit
DC Power Dissipation @ $T_L = 30^\circ\text{C} \pm 3^\circ\text{C}$, Lead Length = 3/8"	P_D	400	mW
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	$^\circ\text{C}$

.4M.64FR10/1N816
.4M1.36FR5
.4M1.36FR2
.4M2.04FR5
.4M2.04FR2
MZ2361
MZ2362



Case 51
DO-7

MZ2360



Case 59
DO-41

MECHANICAL CHARACTERISTICS

Case: Choice of package, either Glass or Surmetic

Dimensions: See outline drawings

Finish: All external surfaces are corrosion resistant and leads are readily solderable and weldable

Polarity: Cathode indicated by polarity band. Cathode negative for forward reference application.

Weight: 0.2 Gram (approximate)

Mounting Positions: Any

.4M.64FR10/1N816, .4M1.36FR5, .4M1.36FR2, .4M2.04FR5, .4M2.04FR2, MZ2360, MZ2361, MZ2362 (continued)

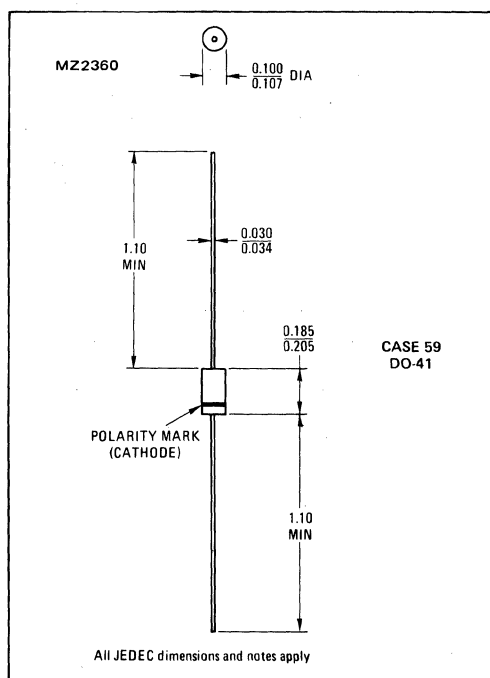
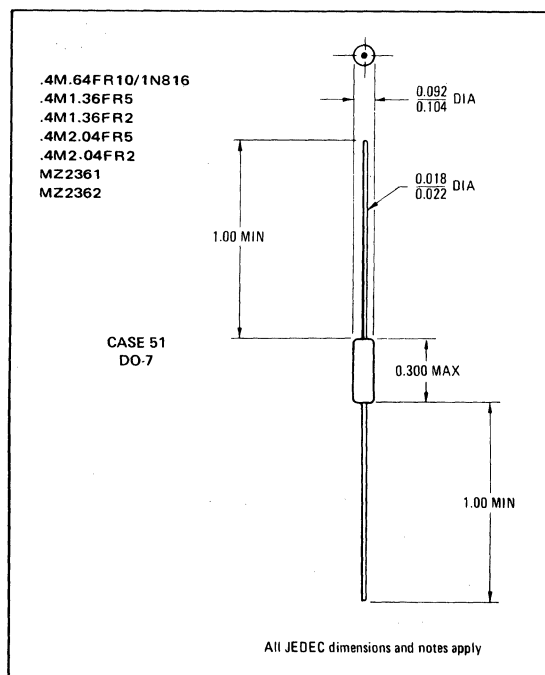
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Type Number	Forward Reference Voltage (1)		Reverse Leakage Current (Max)		Package	Case
	V_F Volts Min/Max	I_F mA	I_R μA	V_R Volts		
.4M.64FR10/ 1N816* (2)	0.58/0.70	1.0	0.1	4.0	Glass	51
.4M1.36FR5	1.29/1.43	10	0.1	4.0	Glass	51
.4M1.36FR2	1.33/1.39	10	0.1	4.0	Glass	51
.4M2.04FR5	1.94/2.14	10	0.1	4.0	Glass	51
.4M2.04FR2	2.00/2.08	10	0.1	4.0	Glass	51
MZ2360	0.63/0.71	10	10	5.0	Surmetic	59
MZ2361	1.24/1.38	10	10	5.0	Surmetic	51
MZ2362	1.90/2.10	10	10	5.0	Glass	51

*Indicates JEDEC Registered Data for 1N816

(1) Motorola guarantees the forward reference voltage when measured at 90 seconds while maintaining the lead temperature (T_L) at $30^\circ\text{C} \pm 1^\circ\text{C}$, 3/8" from the diode body.

(2) Minimum Saturation Voltage for 1N816 = $40\text{ V} @ 100\text{ }\mu\text{A}$.



.4M.64FR10/1N816, 4M1.36FR5, .4M1.36FR2, .4M2.04FR5, .4M2.04FR2, MZ2360, MZ2361, MZ2362 (continued)

TYPICAL FORWARD VOLTAGE CHARACTERISTICS

FIGURE 1 – .4M.64FR10/1N816

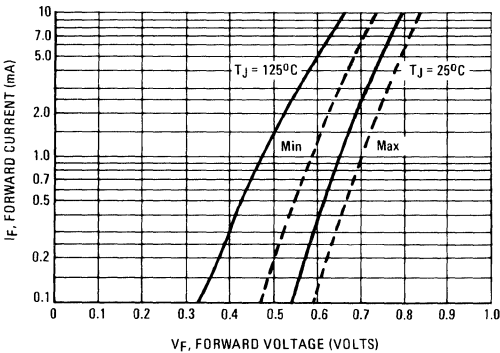


FIGURE 2 – .4M1.36FR5

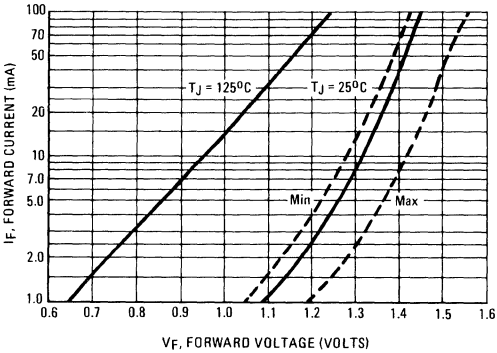


FIGURE 3 – .4M2.04FR5

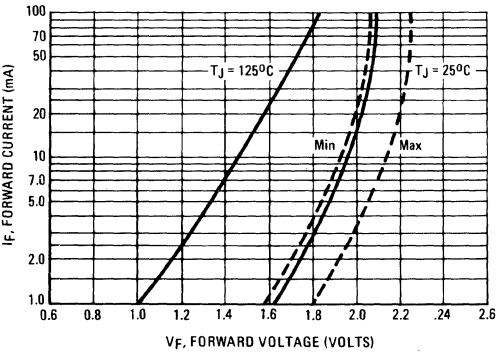


FIGURE 4 – MZ2360

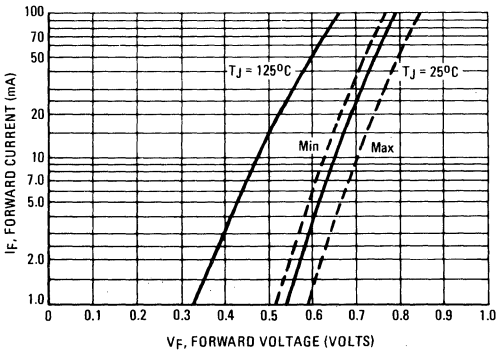


FIGURE 5 – MZ2361

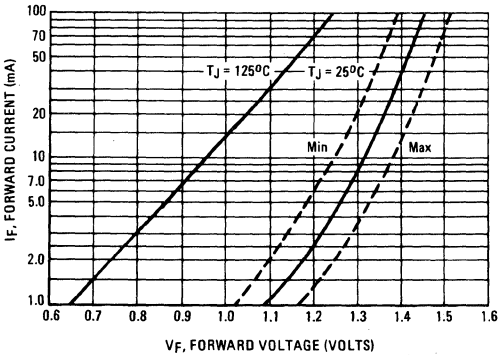
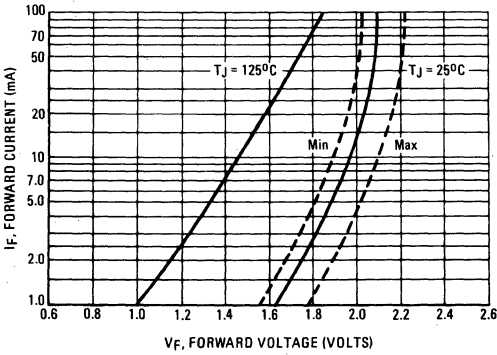


FIGURE 6 – MZ2362



.4M.64FR10/1N816, 4M1.36FR5, .4M1.36FR2, .4M2.04FR5, .4M2.04FR2,
MZ2360, MZ2361, MZ2362 (continued)

TYPICAL TEMPERATURE COEFFICIENT

FIGURE 7 — .4M.64FR10/1N816

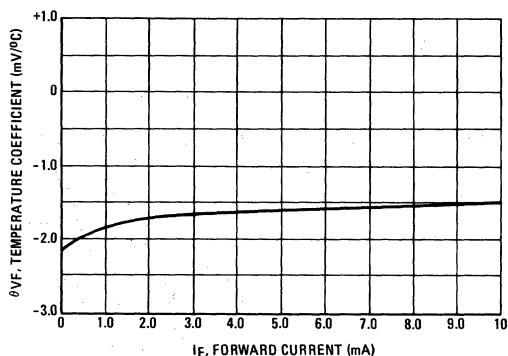


FIGURE 8 — MZ2360

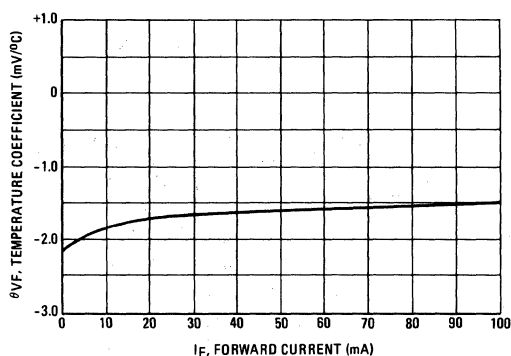


FIGURE 9 — .4M1.36FR5/MZ2361

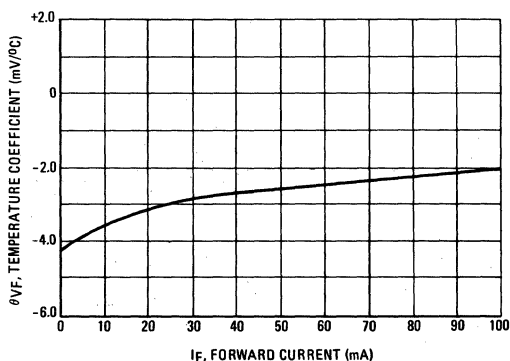
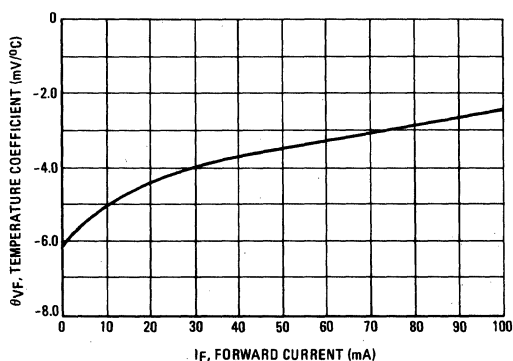


FIGURE 10 — .4M2.04FR5/MZ2362



1M3.3ZS thru 1M200ZS

For Specifications, See 1N4728 Data, Volume 1.

1.5M6.8Z thru 1.5M200Z

For Specifications, See 1N3785 Data, Volume I.

5M3.3ZS thru 5M200ZS

For Specifications, See 1N5333 Data

10M6.8Z thru 10M200Z

For Specifications, See 1N2970 Data, Volume I.

50M3.9Z thru 50M200Z

For Specifications, See 1N2804 Data, Volume I.