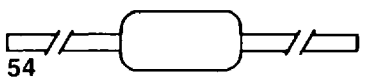
Axial Lead Glass Packaged Schottky Diodes



Features

- **PICOSECOND SWITCHING**
- **JANTX/JANTXV SCREENING AVAILABLE**
- **LOW FORWARD VOLTAGE DROP**
- **LOW REVERSE LEAKAGE**

Description

This family of planar Schottky diodes is designed to have picosecond switching speed. These diodes are housed in a hermetic axial lead glass package and can be screened to JANTX and JANTXV levels. Breakdown voltage of up to 30 volts is available. The MA4E2835 is designed to have very low forward drop.

Applications

This family of axial lead glass packaged Schottky diodes is designed for use as high level mixers, detectors, up-converters and fast switching and gating circuits. These diodes are also very useful in sampling circuits such as bridge quads and/or limiters in pulse shaping circuits and for gates in frequency discriminations.

Specifications @ $T_A = 25°C$

General Purpose Diodes

These silicon diodes are packaged in an axial lead glass package. Various uses include detecting, mixing and switching at low power levels. This series of diodes can also be used in the UHF and VHF frequency bands for pulse shaping, sampling and as fast logic gates.

Model[1,2] Number	JEDEC Equivalent Part Number	Minimum[3] Breakdown Voltage, V_b (Volts)	Maximum Forward Voltage Vf @ 1 mA (Volts)	Minimum Forward Current Vf @ 1 V (mA)	Maximum Reverse Leakage Current, I_r (nA)	Maximum[4] Total Capacitance, C_t (pF)
MA4E2305		30.0	.400	75	300 @ −15V	1.0
MA4E2301	1N5165	30.0	.400	50	300 @ −15V	1.0
MA4E2302	1N5166	30.0	.400	35	200 @ −15V	1.0
MA4E2303	1N5167	20.0	.400	35	500 @ −15V	1.0
MA4E2810		20.0	.410	35	100 @ −15V	1.2
MA4E2812	1N5712	20.0	.550	35	150 @ −15V	1.2
MA4E2811	1N5713	15.0	.410	20	100 @ −8V	1.2
MA4E2835		8.0[6]	.340	10	100 @ −1V	1.0

NOTES:
1. Effective minority carrier lifetime (TL) is 100 ps maximum measured with the Krakauer method at 20 mA, for all units except MA4E2835, MA4E2812 and MA4E2811 which are measured at 5 mA.
2. All diodes in this series are housed in case style 54, a miniature axial lead glass package.
3. Breakdown voltage is measured at 10 μA reverse current, except where noted.
4. Capacitance is measured at 0 volts and 1 MHz.
5. JANTX and JANTXV level screening are available upon request. Contact factory.
6. The breakdown voltage of MA4E2835 is measured at 100 μA reverse current.

MAXIMUM RATINGS

Storage Temperature	−65°C to +200°C
Operating Temperature	−65°C to +200°C
Reverse Voltage	See voltage ratings
Power Dissipation	250 mW Derate linearly to zero at 135°C
Soldering Temperature	230°C for 5 seconds 1 mm from glass

Typical Performance Curves

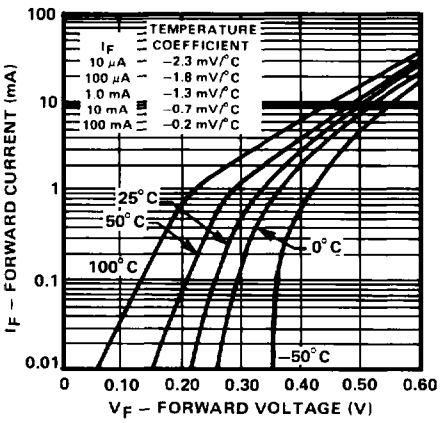


FIGURE 1. I-V Curve Showing Typical Temperature Variations for the MA4E2300-2305 Series Schottky Diodes.

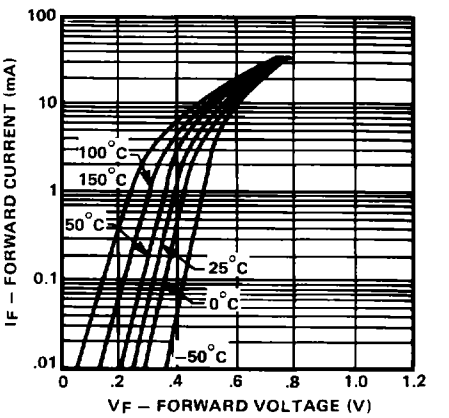


FIGURE 2. I-V Curve Showing Typical Temperature Variations for the MA4E2810-2812 Series Schottky Diodes.

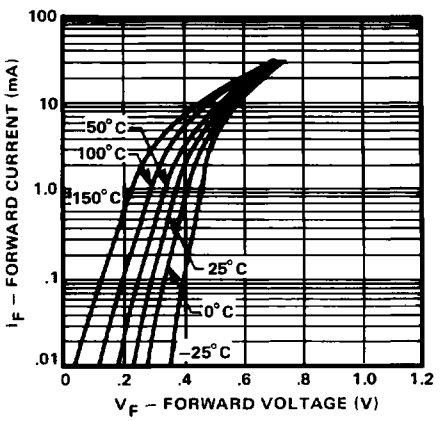


FIGURE 3. I-V Curve Showing Typical Temperature Variations for the MA4E2811 Series Schottky Diodes.

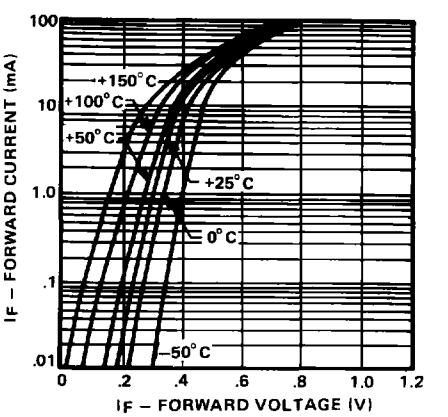


FIGURE 4. I-V Curve Showing Typical Temperature Variations for the MA4E2835 Series Schottky Diodes.

Typical Performance Curves (Cont'd)

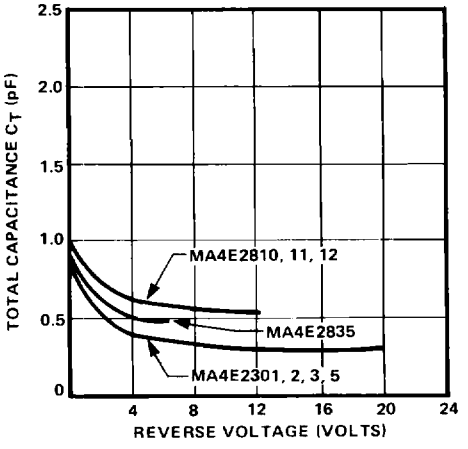


FIGURE 5. Nominal Total Capacitance vs. Reverse Voltage

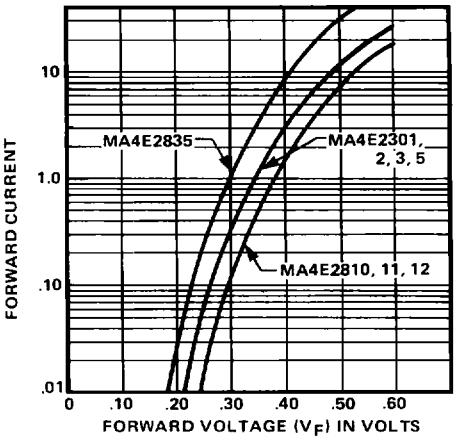
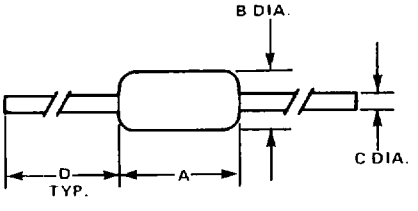


FIGURE 6. Nominal Forward Current vs. Forward Voltage (at 25°C)

Case Style

54



DIM.	INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.
A	0.145	0.165	3,68	4,19
B	0.068	0.075	1,72	1,91
C	0.014	0.016	0,35	0,41
D	1.000	1.500	25,40	38,10

C_P = 0.10 pF Typical
L_S = 1.00 nH Typical

All specifications are subject to change without notice.