MOTOROLA
Semiconductors
BOX 20912 • PHOENIX, ARIZONA 85036

MV2201 • MV2203
MV2205 • MV2209

VVC

AFC SILICON EPICAP* DIODES

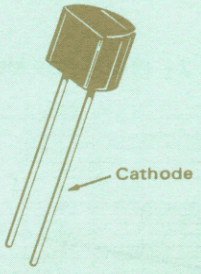
. . . designed specifically for the high volume AFC applications of FM Radio and TV, utilizing the economical PLASTIC PACKAGE.

- Very High Q with Guaranteed Minimum Values
- Guaranteed Uniformity with Minimum and Maximum Tuning Ratio Limits, Assuring Fixed Design
- Nominal Capacitance Values — 6.8 pF Thru 33 pF — Providing Complete AFC Design Flexibility

VOLTAGE-VARIABLE CAPACITANCE DIODES

6.8–33 pF
25 VOLTS

MAY 1969 — DS 8532



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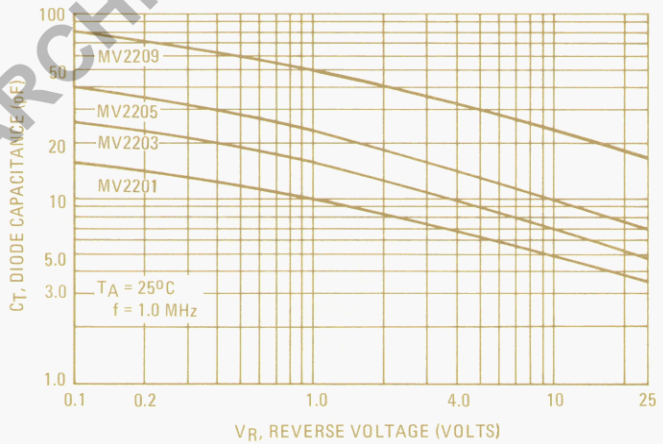
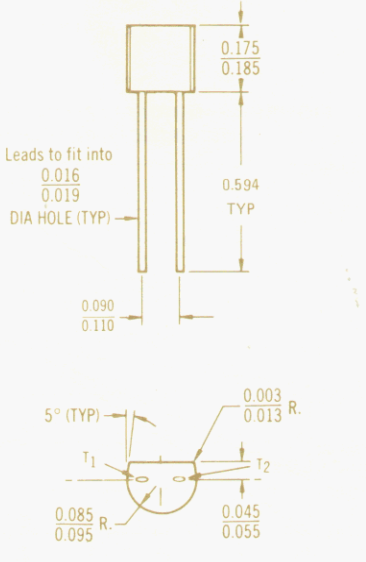
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	25	Volts
Forward Current	I_F	200	mA
Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	280 2.8	mW mW/°C
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C

FIGURE 1 — DIODE CAPACITANCE versus REVERSE VOLTAGE





CASE 182

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

Characteristic—All Types	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	BV_R	25		—	Vdc
Reverse Voltage Leakage Current (V_R = 10 Vdc, T_A = 25°C)	I_R	—	—	0.5	μAdc
(V_R = 10 Vdc, T_A = 85°C)		—	—	5.0	
Forward Voltage Drop (I_F = 250 μAdc)	V_F	—	0.65	—	Vdc
Series Inductance (f = 250 MHz, lead length ≈1/16")	L_S	—	6.0	—	nH
Case Capacitance (f = 1.0 MHz, lead length ≈1/16")	C_C	—	0.18	—	pF

	C_T, Diode Capacitance V_R = 4.0 Vdc, f = 1.0 MHz pF		Q, Figure of Merit V_R = 4.0 Vdc, f = 50 MHz	TR, Tuning Ratio C_1/C_{10} f = 1.0 MHz	
Device	Min	Max	Min	Min	Max
MV2201	5.5	8.0	300	1.9	2.3
MV2203	8.5	11.5	200	2.0	2.4
MV2205	13	17	200	2.1	2.5
MV2209	29	37	150	2.1	2.5

FIGURE 2 — FIGURE OF MERIT versus REVERSE VOLTAGE

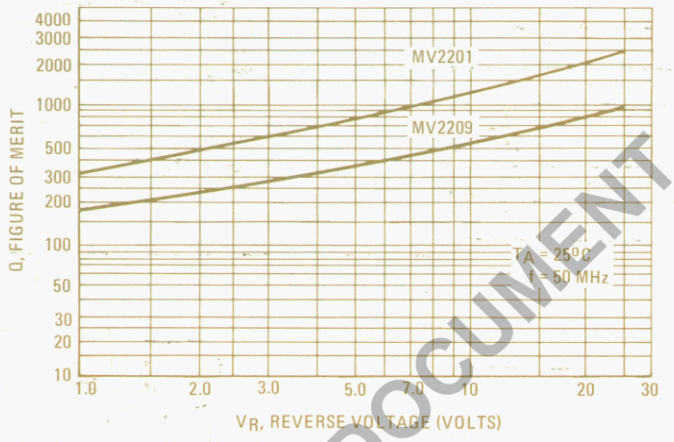


FIGURE 3 — FIGURE OF MERIT versus FREQUENCY

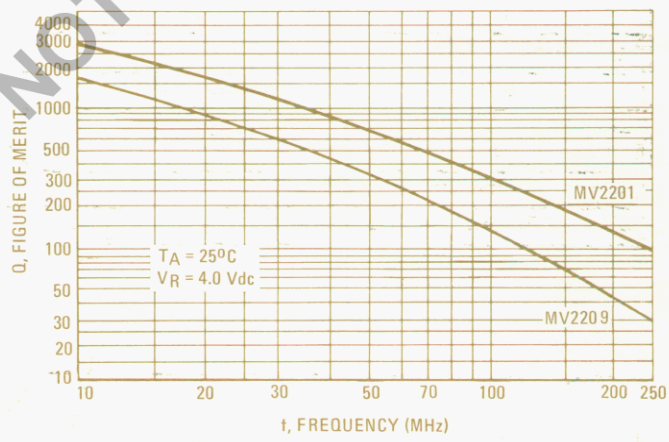
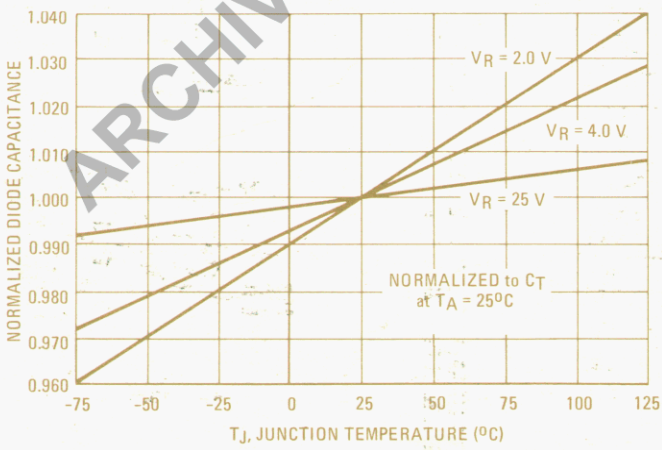


FIGURE 4 — NORMALIZED DIODE CAPACITANCE versus JUNCTION TEMPERATURE



NOTES ON TESTING AND SPECIFICATIONS

L_S is measured on a package having a short instead of a die, using an impedance bridge (Boonton Radio Model 250A RX Meter).

C_C is measured on a package without a die, using a capacitance bridge (Boonton Electronics Model 75A or equivalent).

Q is calculated by taking the G and C readings of an admittance bridge, such as Boonton Electronics Model 33AS8, at the specified frequency and substituting in the following equation:

$$Q = \frac{2\pi fC}{G}$$

MOTOROLA Semiconductor Products Inc.
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