

# Silicon - Diode

## **BB139**

5.1 - 29pF

VHF/FM Varactor - Diode

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

# BB139

## VHF / FM VARACTOR DIODE

### DIFFUSED SILICON PLANAR

- $C_3/C_{25}$  . . . 5.0–6.5
- **MATCHED SETS** (Note 2)

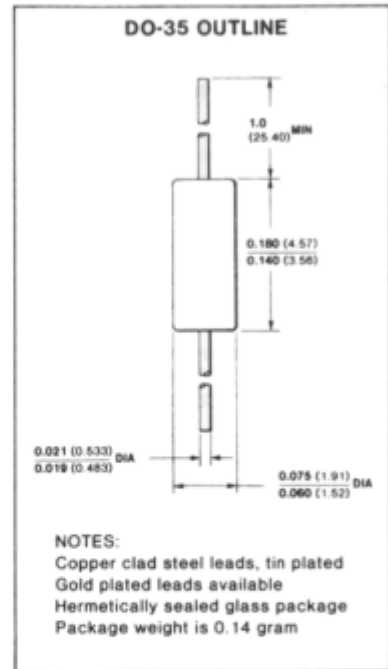
#### ABSOLUTE MAXIMUM RATINGS (Note 1)

##### Temperatures

Storage Temperature Range	–55°C to +150°C
Maximum Junction Operating Temperature	+150°C
Lead Temperature	+260°C

##### Maximum Voltage

WIV          Working Inverse Voltage	30 V
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#### ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	TEST CONDITIONS
BV	Breakdown Voltage	30			V	$I_R = 100 \mu\text{A}$
$I_R$	Reverse Current		10 0.1	50 0.5	nA $\mu\text{A}$	$V_R = 28 \text{ V}$ $V_R = 28 \text{ V}, T_A = 60^\circ\text{C}$
C	Capacitance	4.3	29 5.1	6.0	pF pF	$V_R = 3.0 \text{ V}, f = 1 \text{ MHz}$ $V_R = 25 \text{ V}, f = 1 \text{ MHz}$
$C_3/C_{25}$	Capacitance Ratio	5.0	5.7	6.5		$V_R = 3 \text{ V}/25 \text{ V}, f = 1 \text{ MHz}$
Q	Figure of Merit		150			$V_R = 3.0 \text{ V}, f = 100 \text{ MHz}$
$R_S$	Series Resistance		0.35		$\Omega$	$C = 10 \text{ pF}, f = 600 \text{ MHz}$
$L_S$	Series Inductance		2.5		nH	1.5 mm from case
$f_o$	Series Resonant Frequency		1.4		GHz	$V_R = 25 \text{ V}$

#### NOTES:

1. These ratings are limiting values above which the serviceability of the diode may be impaired.
2. The capacitance difference between any two diodes in one set is less than 3% over the reverse voltage range of 0.5 V to 28 V.
3. For product family characteristic curves, refer to Chapter 4, D12.