

Silicon Diode

BY100

800V / 550mA

DATASHEET

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OEM –Mullard

Source: Mullard Databook Rectifier Diodes-Thyristors and Stacks 1965

SILICON RECTIFIER DIODE

BY100

Silicon double-diffused junction rectifier with repetitive peak reverse voltage of 800V. Intended for use in television and radio receivers. DO-1 construction, with cathode connected to the metal envelope.

QUICK REFERENCE DATA

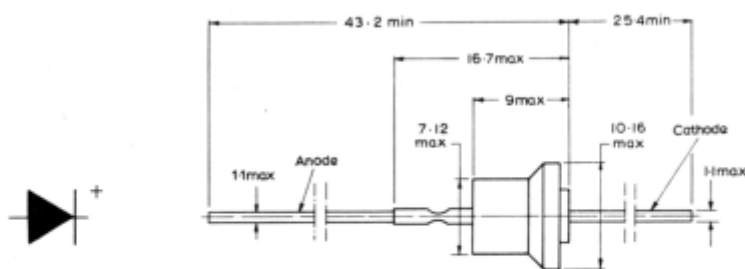
V_{RRM}	Maximum repetitive peak reverse voltage	800	V
$I_{F(AV)}$	Maximum mean forward current ($T_{amb} < 50^{\circ}C$)	550	mA
I_R	Reverse current $V_{RSM} = 1.25kV, T_{case} = 25^{\circ}C$	10	μA
$*V_F$	Forward voltage $I_F = 5.0A, T_{case} = 25^{\circ}C$	1.5	V

*Measured by pulse method to avoid excessive dissipation.

OUTLINE AND DIMENSIONS

Conforming to J.E.D.E.C. DO-1

V.A.S.C.A. SO-16



8.3516

All dimensions in mm

The metal envelope is in contact with the cathode connection

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RATINGS

Limiting values of operation according to the absolute maximum system.

Electrical

The following ratings apply for the frequency range 50 to 400c/s. Simultaneous application of all ratings is inferred unless otherwise stated.

Voltage

V_{RRM}	Maximum repetitive peak reverse voltage	800 V
V_{RSM}	Maximum non-repetitive peak reverse voltage (fault conditions only, maximum duration 10ms)	1.25 kV

Current

$I_{F(AV)}$	Maximum mean forward current	
	$T_{amb} \leq 50^{\circ}C$	550 mA
	$T_{amb} > 50^{\circ}C$	See page C4
I_{FRM}	Maximum repetitive peak forward current	5.0 A
I_{FOM}	Maximum average surge forward current	See page C4

**Averaged over any 50ms period.

†The diode will withstand the surge current when switched on at the peak of the input wave with an uncharged 200 μ F capacitor and a limiting resistor of 5 Ω at the maximum operating condition.

Thermal

$T_{stg \text{ max.}}$	150 $^{\circ}C$
$T_{stg \text{ min.}}$	-55 $^{\circ}C$
$T_{amb \text{ max.}}$ (See page C4)	125 $^{\circ}C$

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ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

		Min.	Typ.	Max.
$*V_F$	Forward voltage			
	$I_F = 5.0\text{A}$	-	-	1.5 V
I_R	Reverse current			
	$V_{\text{RSM}} = 1.25\text{kV}$	-	-	10 μA

*Measured by pulse method to avoid excessive dissipation.

TYPICAL OPERATING CONDITIONS

For a television receiver with three mains taps. ($C_{\text{reservoir}} = 200\mu\text{F}$)

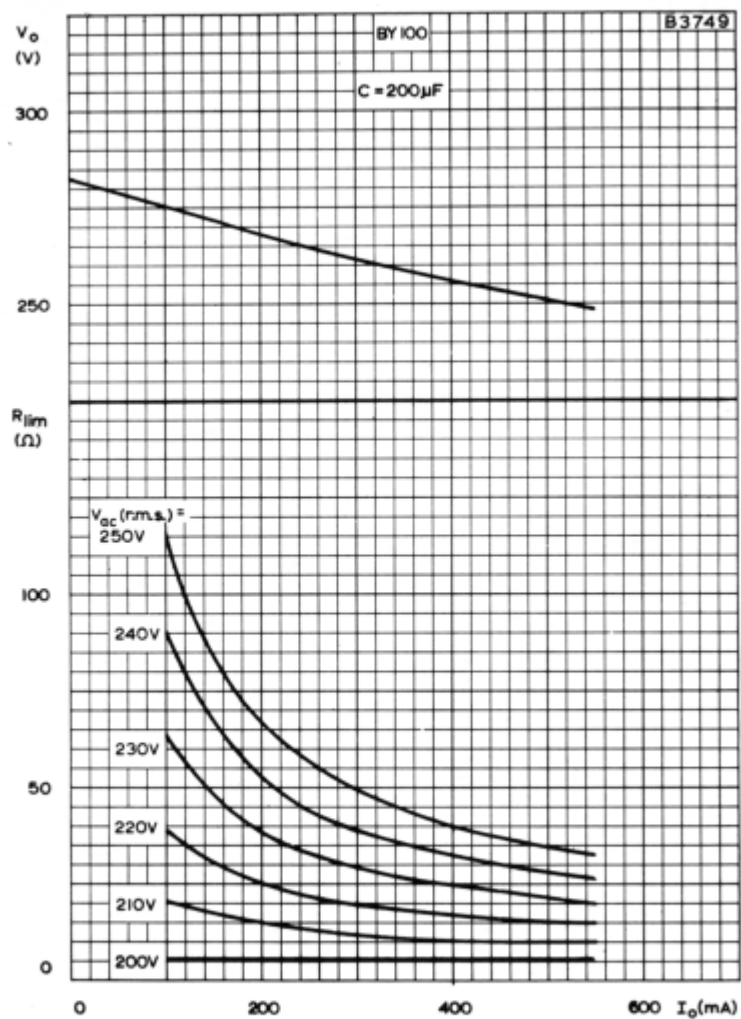
Voltage tap range (V_{ac} r.m.s.)	$I_o = 100$	200	350	550	mA
	R_{lim} (min.) Ω				
200-210	5.0	5.0	5.0	5.0	
220-230	39	25	19	15	
240-250	90	52	35	26	

The spread in output voltage over the range of each tap is shown on page C2.

T_{amb}	70 $^{\circ}\text{C}$
V_{ac} r.m.s.	240 V
I_o	400 mA
V_o	300 V
C_{load}	200 μF
R_{lim} min.	5.0 Ω

SOLDERING AND WIRING RECOMMENDATIONS

1. When using a soldering iron, diodes may be soldered directly into the circuit, but heat conducted to the junction should if possible be kept to a minimum by the use of a thermal shunt.
2. Diodes may be dip-soldered at a solder temperature of 245°C for a maximum soldering time of 5 seconds. The case temperature during dip-soldering must not at any time exceed the maximum storage temperature. These recommendations apply to a diode with the anode end mounted flush on a board having punched-through holes. For mounting the cathode end onto the board, the diode must be spaced at least 5mm from the underside of the printed circuit board having punched-through holes, or 5mm from the top of the board having plated-through holes.
3. Care should be taken not to bend the leads nearer than 1.5mm from the seal.

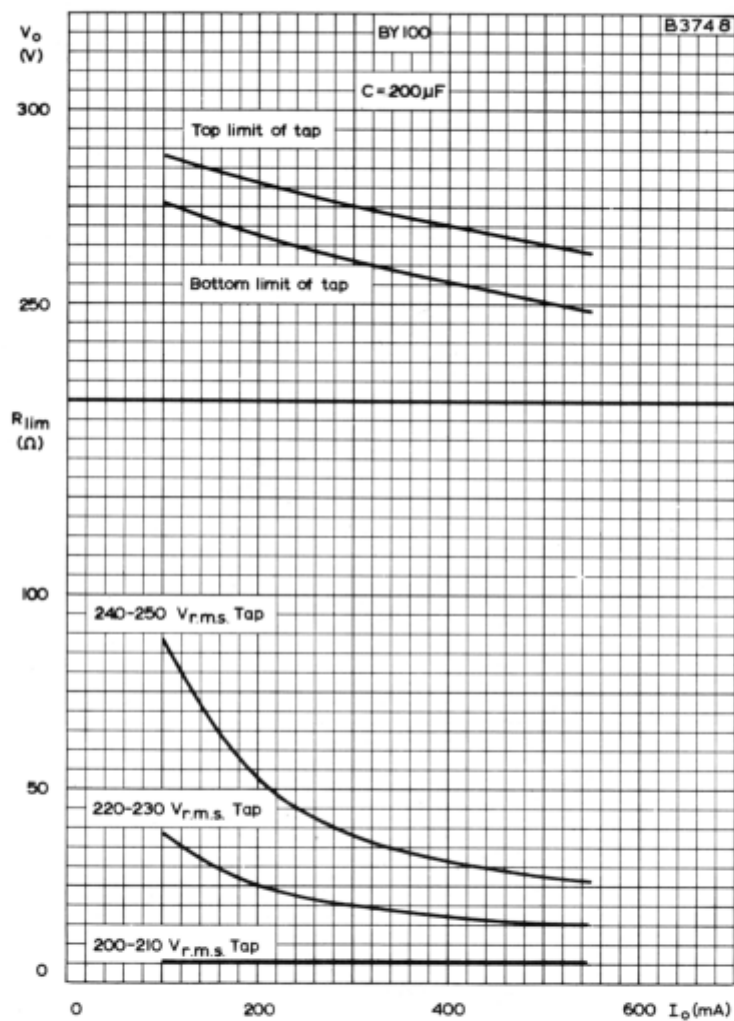
**SILICON
RECTIFIER DIODE****BY100**

CURVES FOR DETERMINING THE VALUE OF LIMITING RESISTOR
REQUIRED TO GIVE CONSTANT OUTPUT VOLTAGE WITH VARIOUS
INPUT VOLTAGES

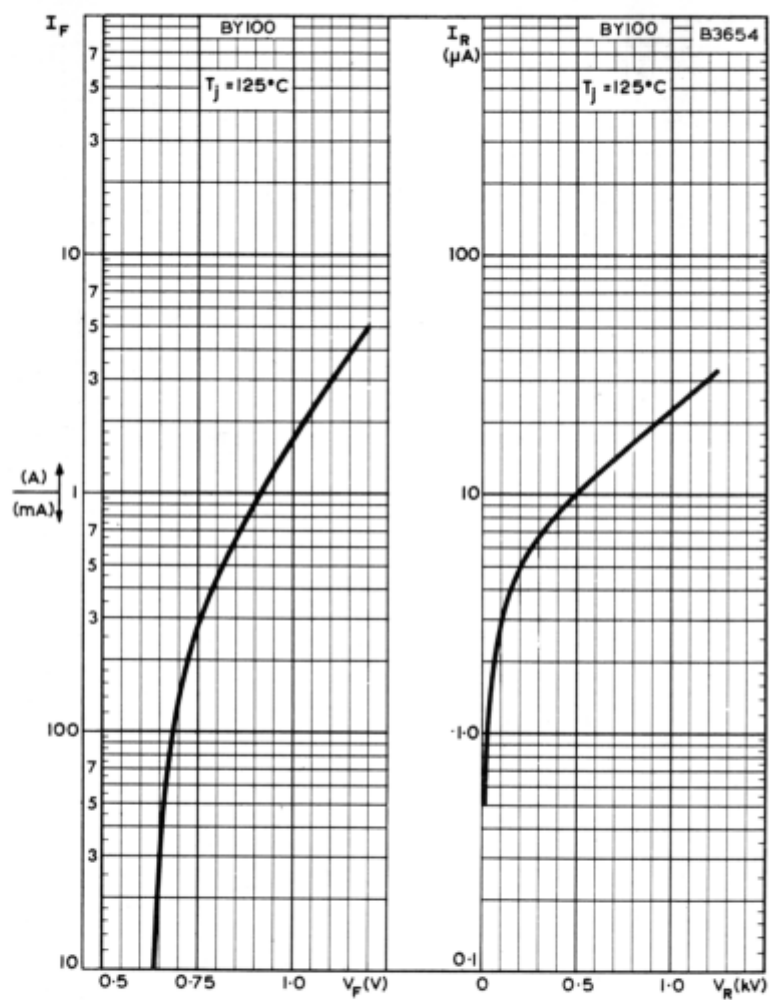
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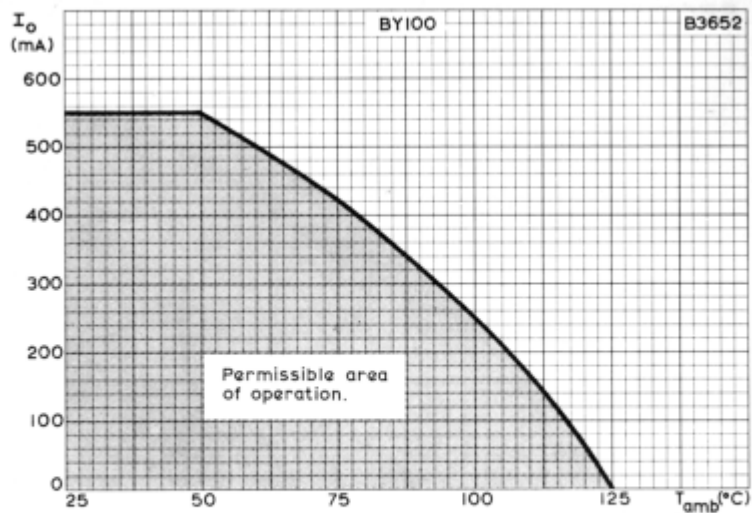
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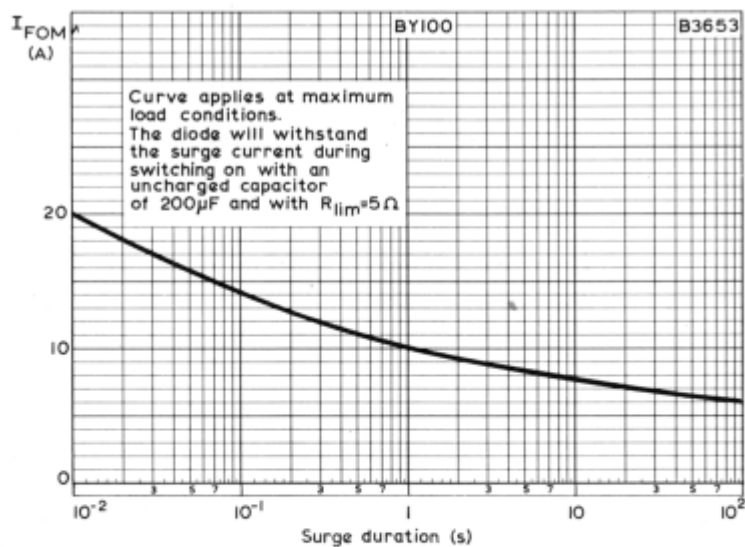
CURVES FOR DETERMINING THE VALUE OF LIMITING RESISTOR
REQUIRED FOR A RECEIVER USING THREE MAINS TAPS, AND
RESULTANT SPREAD IN OUTPUT VOLTAGE

**SILICON
RECTIFIER DIODE****BY100**

TYPICAL FORWARD AND REVERSE CHARACTERISTICS
 $T_j = 125^\circ\text{C}$



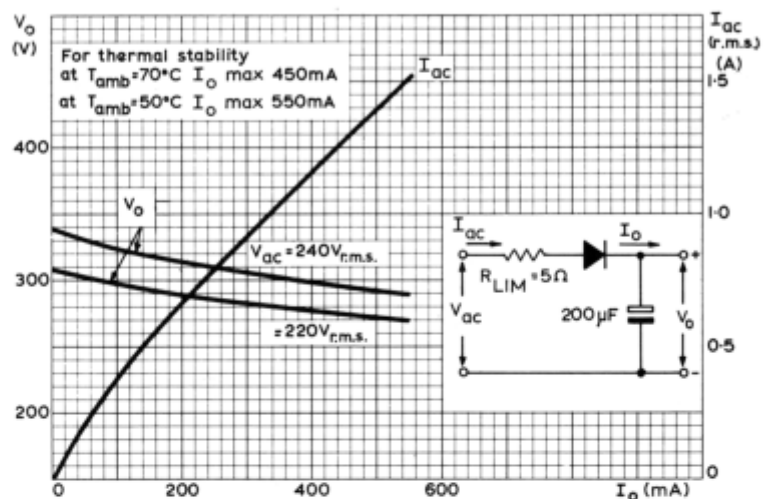
MEAN FORWARD CURRENT PLOTTED AGAINST AMBIENT TEMPERATURE



AVERAGE SURGE CURRENT PLOTTED AGAINST SURGE DURATION

SILICON RECTIFIER DIODE

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OUTPUT VOLTAGE AND INPUT CURRENT PLOTTED AGAINST OUTPUT CURRENT WITH V_{ac} AS A PARAMETER