

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.

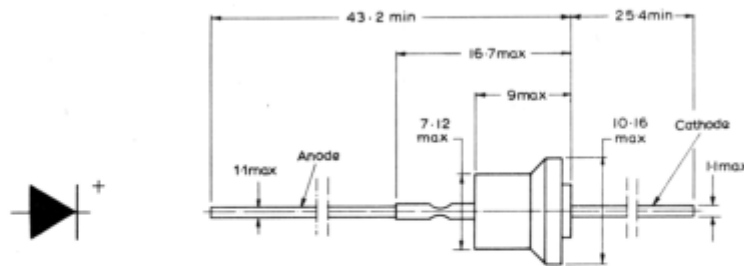
QUICK REFERENCE DATA

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



The metal envelope is in contact with the cathode connection



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	550	mA
	$T_{amb} \leq 50^{\circ}C$		
	$T_{amb} > 50^{\circ}C$		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.

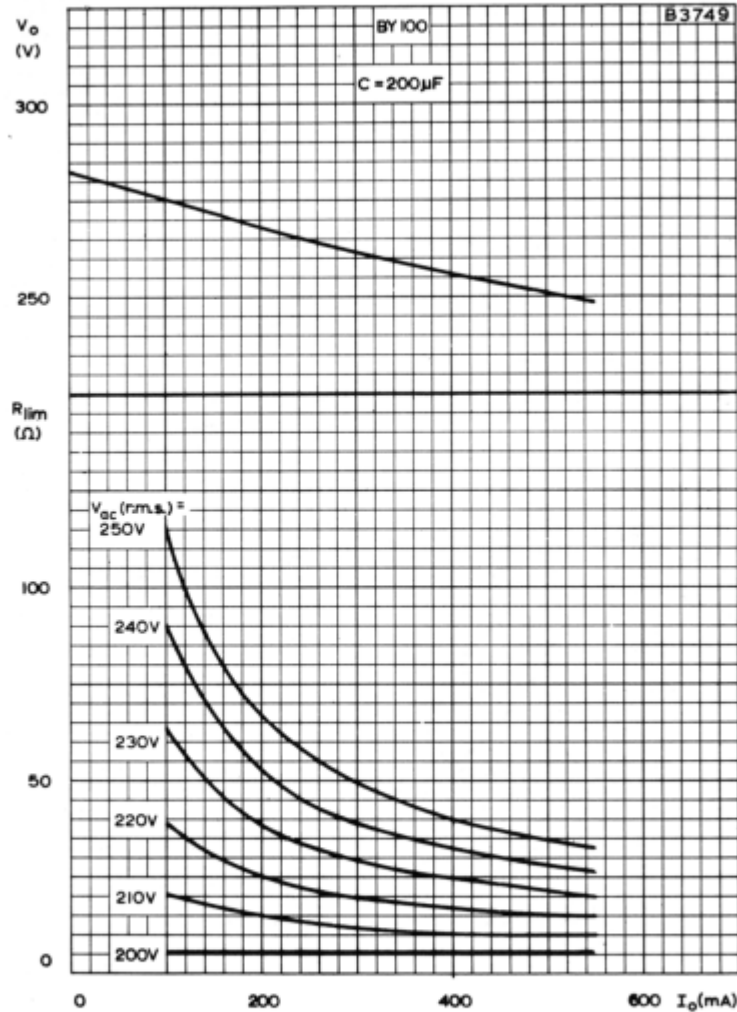
T_{amb}	70	$^{\circ}\text{C}$
V_{ac} r.m.s.	240	V
I_o	400	mA
V_o	300	V
C_{load}	200	μF
R_{lim} min.	5.0	Ω

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.

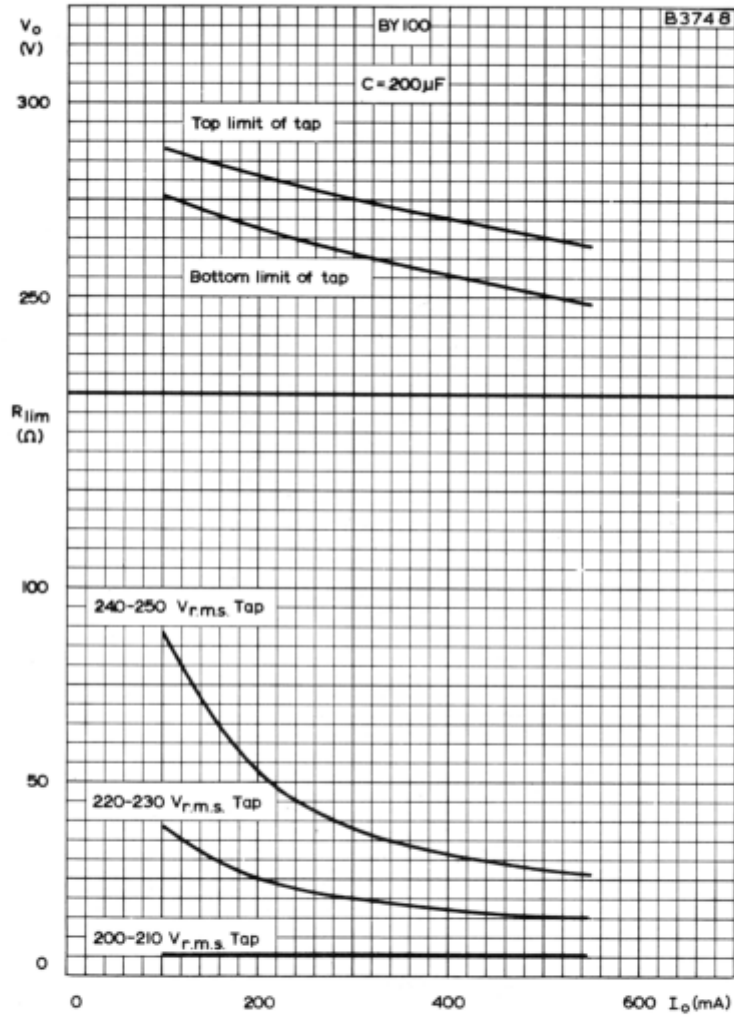
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CURVES FOR DETERMINING THE VALUE OF LIMITING RESISTOR
REQUIRED TO GIVE CONSTANT OUTPUT VOLTAGE WITH VARIOUS
INPUT VOLTAGES



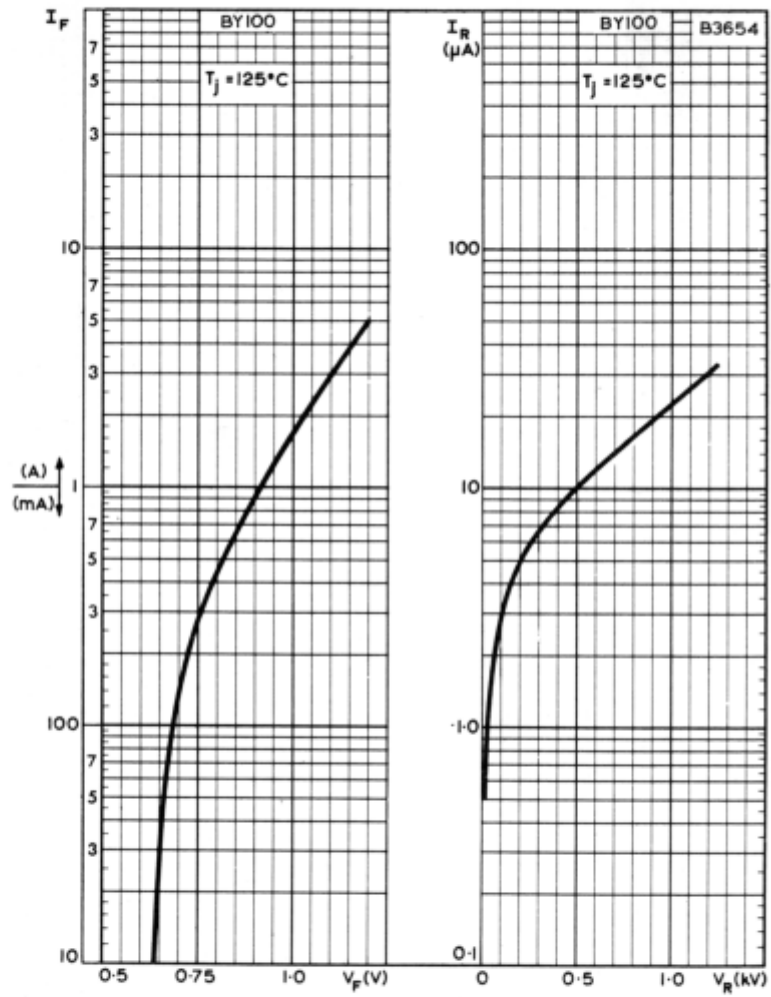


CURVES FOR DETERMINING THE VALUE OF LIMITING RESISTOR REQUIRED FOR A RECEIVER USING THREE MAINS TAPS, AND RESULTANT SPREAD IN OUTPUT VOLTAGE



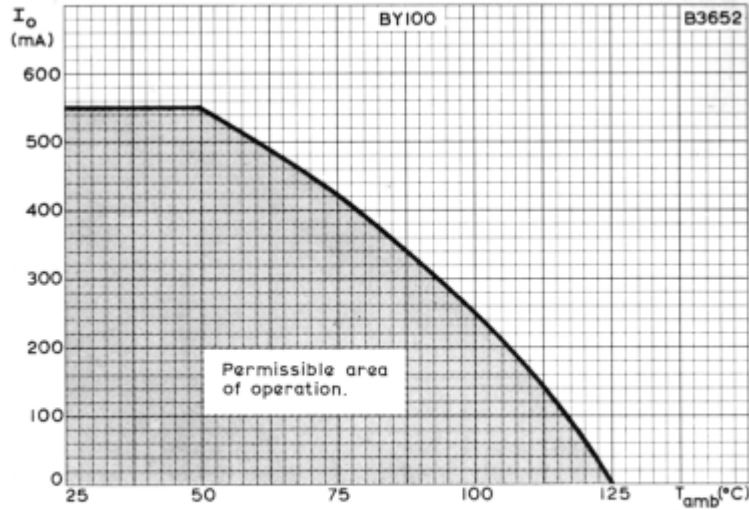
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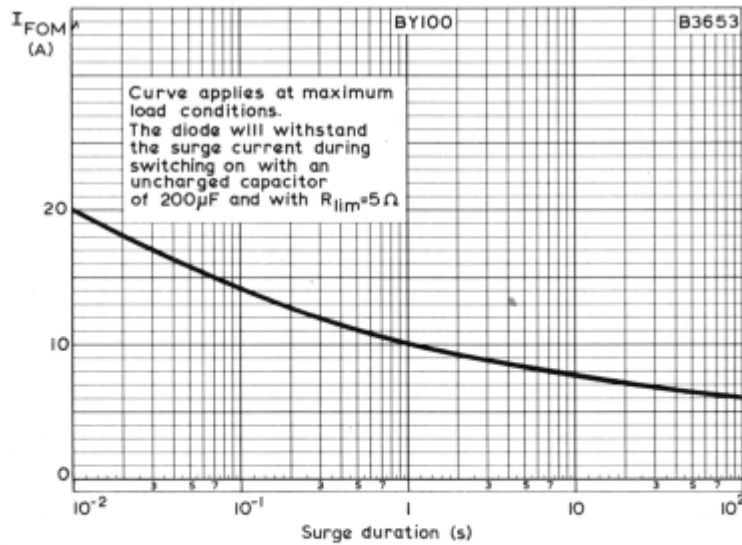


TYPICAL FORWARD AND REVERSE CHARACTERISTICS
 $T_j = 125^\circ\text{C}$





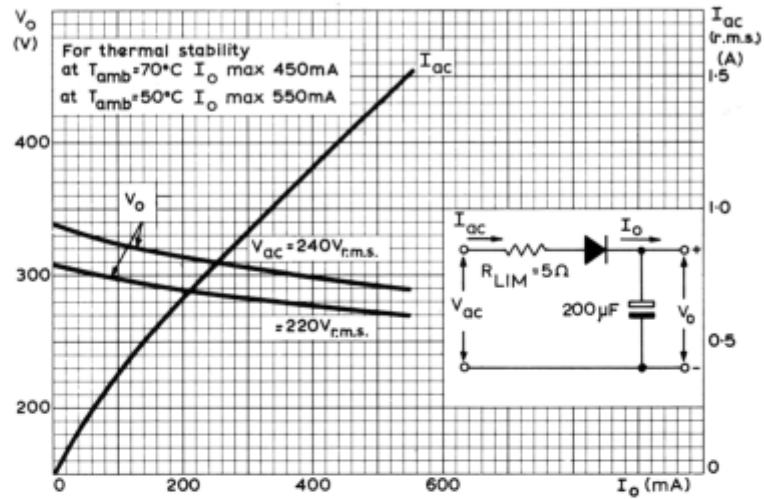
MEAN FORWARD CURRENT PLOTTED AGAINST AMBIENT TEMPERATURE



AVERAGE SURGE CURRENT PLOTTED AGAINST SURGE DURATION

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

