

**Solid State
Division**
Rectifiers
1N1763A
1N1764A

RCA-1N1763A and 1N1764A are hermetically sealed silicon rectifiers of the diffused-junction type, designed for use in power supplies of color and black-and-white television receivers, radio receivers, phonographs, high-fidelity amplifier systems, and other electronic equipment for commercial and industrial applications.

RCA-1N1763A and 1N1764A supersede and are unilaterally interchangeable with RCA-1N1763 and 1N1764, respectively. The new rectifiers incorporate all of the superior performance and reliability features which have gained industry acceptance for their RCA prototypes, and, in addition, offer substantially higher dc-output-current capabilities, lower reverse (leakage) currents, lower forward voltage drop, and a wider operating-temperature range.

Both devices have dc forward-current ratings of 1 ampere — resistive or inductive load, and 0.75 ampere — capacitive load at free-air temperatures up to 75°C (natural convection cooling). They can provide dc output currents of up to 2 amperes to capacitive loads when attached to simple heat sinks.

RCA-1N1763A has a peak-reverse-voltage rating of 400 volts, and is intended for applications in which the rectifier operates directly from an ac power line supplying up to 140 volts rms for capacitive loads, or up to 280 volts rms for resistive or inductive loads.

RCA-1N1764A has a peak-reverse-voltage rating of 500 volts, and is intended for applications in which the rectifier operates from an ac line through a step-up transformer supplying up to 175 volts rms for capacitive loads, or up to 350 volts rms for resistive or inductive loads.

RCA-1N1763A and 1N1764A have an operating-temperature range of -65°C to +135°C. They utilize the JEDEC DO-1 flanged-case, axial-lead package which provides flexibility of installation in both hand-wired and printed-circuit equipment designs. These new rectifiers, like their RCA prototypes, are conservatively rated and incorporate the following design features: (1) welded, hermetically sealed case for protection against moisture and contamination; (2) superior junction characteristics made possible by a precisely controlled diffusion process; (3) extensive and rigorous quality-control procedures.

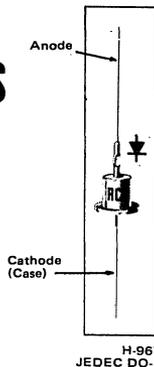
DIFFUSED-JUNCTION SILICON RECTIFIERS

Flanged-Case Axial-Lead Types

For Power-Supply Applications

In Commercial and Industrial

Electronic Equipment



Features:

- high dc-output-current capability:
 - a) with natural convection cooling:

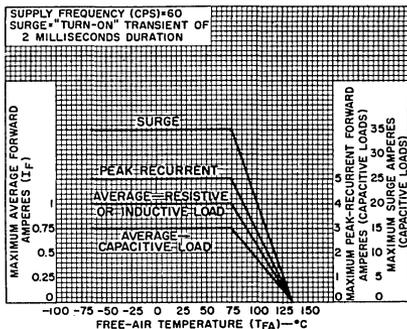
1 ampere - resistive or inductive load	}	to 75°C T _{FA}
3/4 ampere - capacitive load		
 - b) with simple heat sinks:

2 amperes - capacitive load	}	to 105°C T _C
up to 2 amperes - capacitive load		
- low dc reverse (leakage) currents:
 - 5 μa max. at 25°C; 100 μa max. at 75°C
- low forward voltage drop:
 - 1.2 volts max. at a dc forward current of 1 ampere
- wide operating-temperature range:
 - 65°C to +135°C
- hermetically sealed JEDEC DO-1 package
- unilaterally interchangeable with Types 1N1763 and 1N1764

RECTIFIER SERVICE

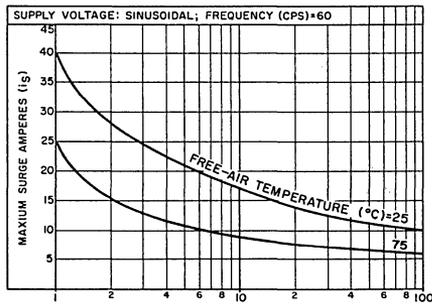
Absolute-Maximum Ratings, for a Supply Frequency of 60 cps:

	Type 1N1763A	Type 1N1764A	
PEAK REVERSE VOLTAGE.	400	500	max. volts
RMS SUPPLY VOLTAGE:			
For operation with resistive or inductive loads	280	350	max. volts
For operation with capacitive loads	140	175	max. volts
	At Free-Air Temperatures Up to Above 75°C	At Free-Air Temperatures Up to Above 75°C	
FORWARD CURRENT:			
For operation with resistive or inductive loads:			
AVERAGE (DC)	1	1	See Fig.1 max. amp
For operation with capacitive loads:			
AVERAGE (DC)	0.75	0.75	max. amp
PEAK RECURRENT	5	5	max. amp
SURGE, for "turn-on" transient of 2 milliseconds duration	35	35	max. amp
	See Fig.1		
TEMPERATURE RANGE (FREE-AIR):			
Operating	-65 to +135	-65 to +135	°C
Storage	-65 to +150	-65 to +150	°C



92CS-13087

Fig.1 - Rating Chart for RCA-1N1763A and 1N1764A



92CS-13081

Fig.2 - Repetitive Surge Current Rating Chart for RCA-1N1763A and 1N1764A

Characteristics, at a Free-Air Temperature of 25°C:

	Type 1N1763A	Type 1N1764A	
Maximum Instantaneous Forward Voltage at an Instantaneous Forward Current of 1 ampere.	1.2	1.2	volts
Maximum DC Reverse Current;			
At a Peak Reverse Voltage of 400 volts	5	-	μa
At a Peak Reverse Voltage of 500 volts	-	5	μa

Characteristics, at a Free-Air Temperature of 75°C:

Maximum DC Reverse Current;			
At a Peak Reverse Voltage of 400 volts	0.1	-	ma
At a Peak Reverse Voltage of 500 volts	-	0.1	ma

Typical Performance Characteristics, at a Free-Air Temperature of 25°C:

	Type 1N1763A			Type 1N1764A			
Half-Wave Rectifier Service:							
RMS Supply Voltage.	117	117	117	150	150	150	volts
Filter-Input Capacitor (C).	100	200	350	100	200	350	μF
Surge-Limiting Resistance [#]	5.6	5.6	5.6	6.8	6.8	6.8	ohms
DC Output Voltage at Input to Filter (Approx.):							
At half-load current of 375 ma.	140	145	150	180	185	190	volts
At full-load current of 750 ma.	125	130	140	155	160	170	volts
Voltage Regulation (Approx.):							
Half-load current to full-load current.	15	15	10	25	25	20	volts
Half-Wave Voltage-Doubler Service:							
RMS Supply Voltage.	117	117	117	150	150	150	volts
Filter-Input Capacitor (C).	100	200	350	100	200	350	μF
Surge-Limiting Resistance [#]	5.6	5.6	5.6	6.8	6.8	6.8	ohms
DC Output Voltage at Input to Filter (Approx.):							
At half-load current of 375 ma.	255	265	275	325	340	350	volts
At full-load current of 750 ma.	225	240	255	285	305	325	volts
Voltage Regulation (Approx.):							
Half-load current to full-load current.	30	25	20	40	35	25	volts
Full-Wave Voltage-Doubler Service:							
RMS Supply Voltage.	117	117	117	150	150	150	volts
Filter-Input Capacitor (C).	100	200	350	100	200	350	μF
Surge-Limiting Resistance [#]	5.6	5.6	5.6	6.8	6.8	6.8	ohms
DC Output Voltage at Input to Filter (Approx.):							
At half-load current of 375 ma.	275	280	290	350	355	365	volts
At full-load current of 750 ma.	250	260	275	320	330	345	volts
Voltage Regulation (Approx.):							
Half-load current to full-load current.	25	20	15	30	25	20	volts

[#] The transformer series resistance or other resistance in the rectifier supply circuit may be deducted from the value shown.

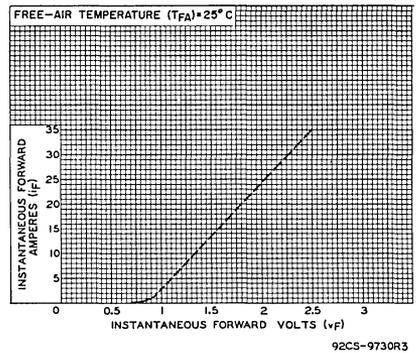
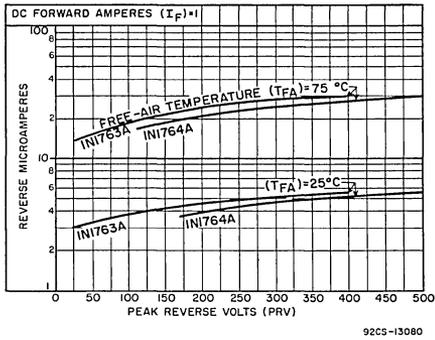


Fig. 3 - Typical Dynamic Reverse Current Characteristics for RCA-1N1763A and 1N1764A.

Fig. 4 - Typical Forward Voltage and Current Characteristics for RCA-1N1763A and 1N1764A.

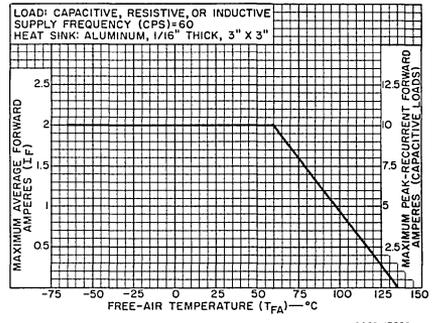
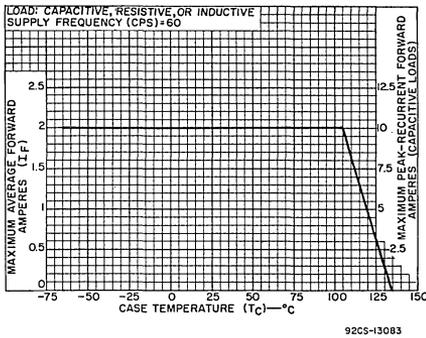
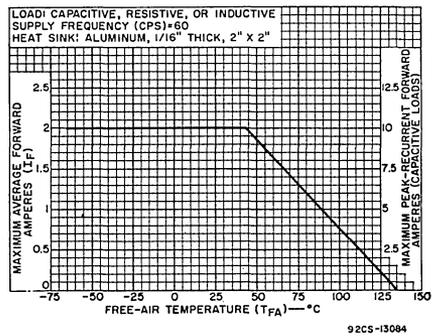
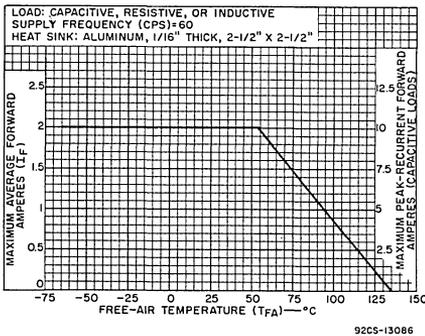


Fig. 5 - Forward-Current Capabilities of RCA-1N1763A and 1N1764A for Operation with Heat Sink at Case Temperatures from -65°C to +135°C.

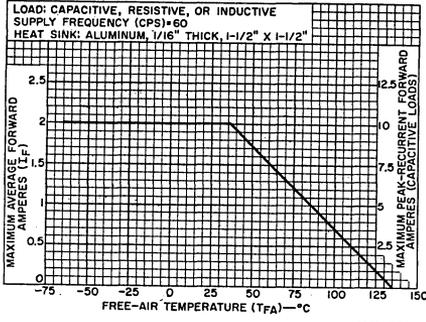
a) 3" x 3" Heat Sink.



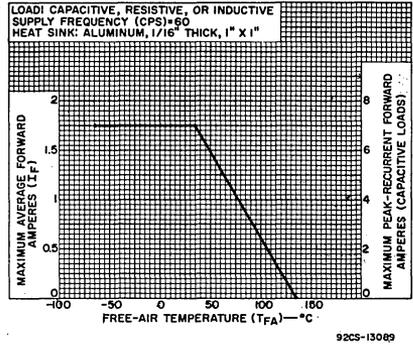
b) 2-1/2" x 2-1/2" Heat Sink.

c) 2" x 2" Heat Sink.

Figs. 6a, 6b, and 6c - Forward-Current Capabilities of RCA-1N1763A and 1N1764A for Operation with Heat Sinks.



d) 1-1/2" x 1-1/2" Heat Sink.



e) 1" x 1" Heat Sink.

Figs. 6d and 6e - Forward-Current Capabilities of RCA-1N1763A and 1N1764A for Operation with Heat Sinks.

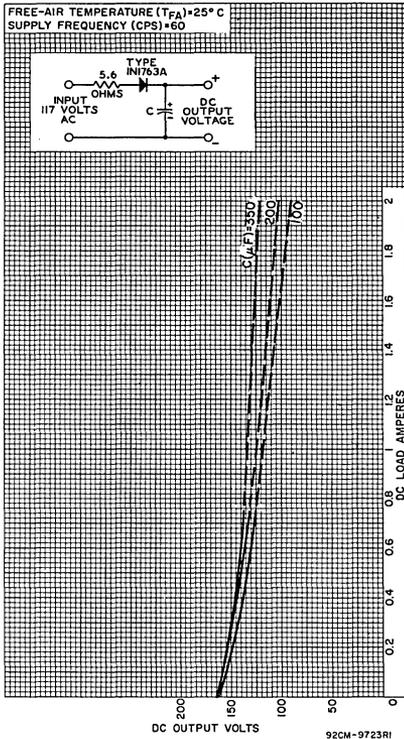


Fig.7- Typical Operation Characteristics for RCA-1N1763A in Half-Wave Rectifier Service.

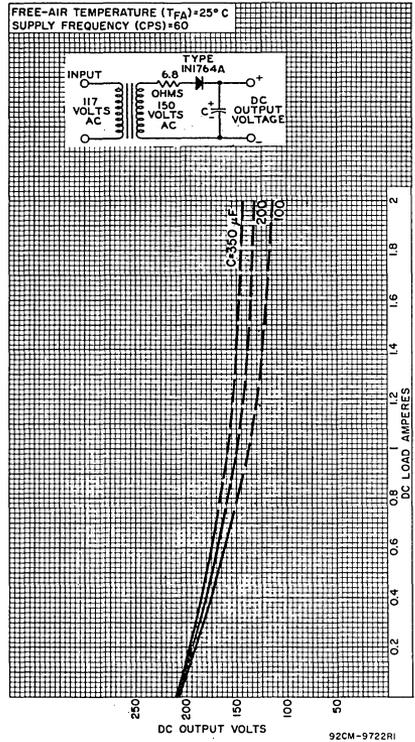


Fig.8- Typical Operation Characteristics for RCA-1N1764A in Half-Wave Rectifier Service.

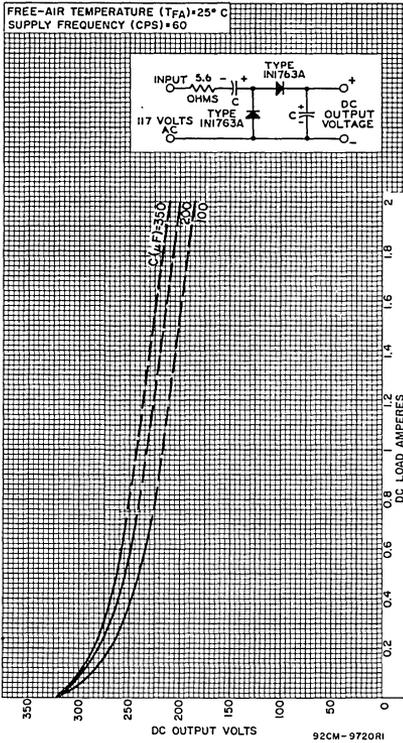


Fig. 9 - Typical Operation Characteristics of RCA-1N1763A in Half-Wave Voltage-Doubler Service.

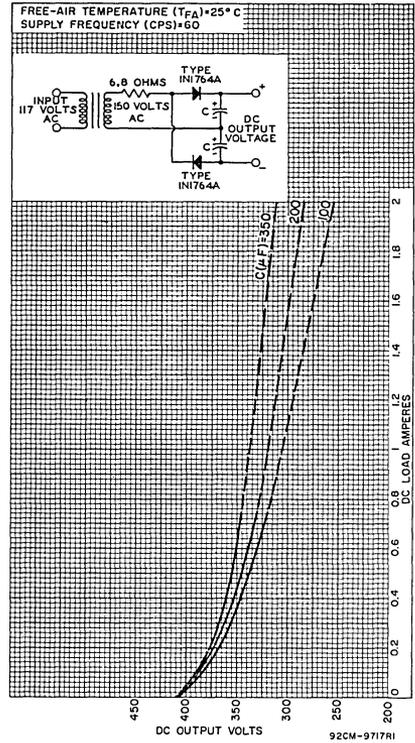


Fig. 10 - Typical Operation Characteristics of RCA-1N1764A in Full-Wave Voltage-Doubler Service.