



ELECTRONIC TUBE REFERENCE

Z17350Z

Specialized - Klystron electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
KLYSTRON

Four-cavity UHF power klystron covering 710–854 MHz, intended as the final amplifier in UHF television vision, sound, and transposer service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5 V / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Klystron

No fixed ratings recorded.

Klystron electrical data are primarily beam/collector/RF parameters without direct promoted TUBE_SECTION equivalents; retained densely in TUBE_SECTION_PARAMETER.

The Z173/50Z is a four-integral-cavity UHF power klystron intended as a final amplifier in the vision and sound sections of UHF television transmitters and for television transposer service. It covers 710 to 854 MHz, uses magnetic focusing and a modulating anode for beam-current control, with vapor-cooled collector and forced-air cooling of the gun and tube body.

SOURCE OPERATING CONDITIONS

1962 ITT

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 ITT

Section 1 · Klystron

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
U.H.F Power Klystrons ZI1 [1]	53 W	U.H.F Power Klystrons ZI153/50Z
U.H.F Power Klystrons ZI1 [2]	50 W	U.H.F Power Klystrons ZI153/50Z
uleting anode for beam current [1]	2161 A	uleting anode for beam current 2161/50Z used in ZM161 mount
uleting anode for beam current [2]	50 A	uleting anode for beam current 2161/50Z used in ZM161 mount
uleting anode for beam current [3]	61 A	uleting anode for beam current 2161/50Z used in ZM161 mount
using the same beam voltage supply to except the Z1 [1]	53 V	using the same beam voltage supply to except the Z153/50Z series of
using the same beam voltage supply to except the Z1 [2]	50 V	using the same beam voltage supply to except the Z153/50Z series of
focus mount essembly, incorporat- Power output, saturated (kW)	15 kW	focus mount essembly, incorporat- Power output, saturated (kW) 15
ing the focus electromagnet system Power gain, typical (dB)	43 W	ing the focus electromagnet system Power gain, typical (dB) 43
in which the klystron will give Bandwidth (MHz)	8 MHz	in which the klystron will give Bandwidth (MHz) 8,0
the performance specified in these Beam voltage (kv)	13 kV	the performance specified in these Beam voltage (kv) 13
Z1 [1]	53	Z153/50Z ZM153 470 to 598 Cathode indirectly heated
Z1 [2]	50	Z153/50Z ZM153 470 to 598 Cathode indirectly heated

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Z1 [3]	53	Z153/50Z ZM153 470 to 598 Cathode indirectly heated
Z1 [4]	470	Z153/50Z ZM153 470 to 598 Cathode indirectly heated
Z1 [5]	598	Z153/50Z ZM153 470 to 598 Cathode indirectly heated
Published value [1]	7163 V	7163/502 M163 598 to 710 Heater voltage, min.
Published value [2]	502 V	7163/502 M163 598 to 710 Heater voltage, min.
Published value [3]	63 V	7163/502 M163 598 to 710 Heater voltage, min.
Published value [4]	598 V	7163/502 M163 598 to 710 Heater voltage, min.
Published value [5]	710 V	7163/502 M163 598 to 710 Heater voltage, min.
In transmitters using e third kly- Heater current range (A) [1]	38 A	In transmitters using e third kly- Heater current range (A) 38 to 44
In transmitters using e third kly- Heater current range (A) [2]	44 A	In transmitters using e third kly- Heater current range (A) 38 to 44
sound signals ss sn emergency res- current, peak, max. (A)	84 mA	sound signals ss sn emergency res- current, peak, max. (A) 84
erve, the tubes are suitable for Cathode heating time {(min)}	5	erve, the tubes are suitable for Cathode heating time {(min) 5,0
power output, where the vision/ ated et	5 V	power output, where the vision/ ated et 5,0V. Heater voltage may
sound powers retio is [1]	5 W	sound powers retio is 5:1. have to be increased to 5,5V max.
sound powers retio is [2]	1 W	sound powers retio is 5:1. have to be increased to 5,5V max.
sound powers retio is [3]	5.5 W	sound powers retio is 5:1. have to be increased to 5,5V max.
U.H.F Power Klystrons Z1 [1]	53 W	U.H.F Power Klystrons Z153/50Z
U.H.F Power Klystrons Z1 [2]	50 W	U.H.F Power Klystrons Z153/50Z
Beam voltage, continuous (kV) [1]	14 kV	Beam voltage, continuous (kV) 14 Collector dissipation (kW) 45
Beam voltage, continuous (kV) [2]	45 kV	Beam voltage, continuous (kV) 14 Collector dissipation (kW) 45
Beam current, mean (A) [1]	3.5 A	Beam current, mean (A) 3,5 Load VSWR (Note 2) 1,5:1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Beam current, mean (A) [2]	2 A	Beam current, mean (A) 3,5 Load VSWR (Note 2) 1,5:1
Beam current, mean (A) [3]	1.5 A	Beam current, mean (A) 3,5 Load VSWR (Note 2) 1,5:1
Beam current, mean (A) [4]	1 A	Beam current, mean (A) 3,5 Load VSWR (Note 2) 1,5:1
Body current Note	2 A	Body current Note 2. Tubes will operate at
with zero input power (mA)	50 W	with zero input power (mA) 50 this figure without damage but
output (mA)	150	output (mA) 150 be assured only if load VSWR does
Fower output, saturated (kW) [1]	18	Fower output, saturated (kW) 18 not exceed 1,1:1 .
Fower output, saturated (kW) [2]	1.1	Fower output, saturated (kW) 18 not exceed 1,1:1 .
Fower output, saturated (kW) [3]	1	Fower output, saturated (kW) 18 not exceed 1,1:1 .
{For T.V. transmitter giving sync. power output of	12.5 kW	{For T.V. transmitter giving sync. power output of 12,5kW)
Published value [1]	7153	7153/502 44,125 producad by collector
Published value [2]	502	7153/502 44,125 producad by collector
Published value [3]	44.125	7153/502 44,125 producad by collector
Z2 [1]	163 kW	Z2163/502Z 40,1 dissipation {(m3/min/kW) 0,043
Z2 [2]	502 kW	Z2163/502Z 40,1 dissipation {(m3/min/kW) 0,043
Z2 [3]	40.1 kW	Z2163/502Z 40,1 dissipation {(m3/min/kW) 0,043
Z2 [4]	0.043 kW	Z2163/502Z 40,1 dissipation {(m3/min/kW) 0,043
vertical, collector downwards	12.5	vertical, collector downwards 12,5kW peak sync.
output, min. ([1]	1	output, min. (1/min) 2,27
output, min. ([2]	2.27	output, min. (1/min) 2,27
voltage (v)	100 V	voltage (v) 100 Air flow for gun
current (Note [1]	24 A	current (Note 24) (A) 9,0/13 envelope and tube
current (Note [2]	9 A	current (Note 24) (A) 9,0/13 envelope and tube

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
current (Note [3])	13 A	current (Note 24) (A) 9,0/13 envelope and tube
hot (@)	7.3	hot (@) 7,3 Static pressure head
input Type N coaxial panel jack [1]	2	input Type N coaxial panel jack 2 83md/min. (100Ft3/min)
input Type N coaxial panel jack [2]	83	input Type N coaxial panel jack 2 83md/min. (100Ft3/min)
input Type N coaxial panel jack [3]	100	input Type N coaxial panel jack 2 83md/min. (100Ft3/min)
Channel [1]	51	Channel 51 60 68
Channel [2]	60	Channel 51 60 68
Channel [3]	68	Channel 51 60 68
Beam voltage (kv) [1]	13 kV	Beam voltage (kv) 13 13 13
Beam voltage (kv) [2]	13 kV	Beam voltage (kv) 13 13 13
Beam voltage (kv) [3]	13 kV	Beam voltage (kv) 13 13 13
Beam current (A) [1]	3 A	Beam current (A) 3,0 3,0 3,0
Beam current (A) [2]	3 A	Beam current (A) 3,0 3,0 3,0
Beam current (A) [3]	3 A	Beam current (A) 3,0 3,0 3,0
Modulsting anode voltage (kV) [1]	13 kV	Modulsting anode voltage (kV) 13 13 13
Modulsting anode voltage (kV) [2]	13 kV	Modulsting anode voltage (kV) 13 13 13
Modulsting anode voltage (kV) [3]	13 kV	Modulsting anode voltage (kV) 13 13 13
Modulating anode current {mA} [1]	1 mA	Modulating anode current {mA} 1,0 1,1 0,8
Modulating anode current {mA} [2]	1.1 mA	Modulating anode current {mA} 1,0 1,1 0,8
Modulating anode current {mA} [3]	0.8 mA	Modulating anode current {mA} 1,0 1,1 0,8
Electromagnet current (Note [1])	3 A	Electromagnet current (Note 3) (A) 1 11,2 11,2
Electromagnet current (Note [2])	1 A	Electromagnet current (Note 3) (A) 1 11,2 11,2
Electromagnet current (Note [3])	11.2 A	Electromagnet current (Note 3) (A) 1 11,2 11,2
Electromagnet current (Note [4])	11.2 A	Electromagnet current (Note 3) (A) 1 11,2 11,2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Bandwidth (MHz) [1]	8 MHz	Bandwidth (MHz) 8,0 8,0 8,0
Bandwidth (MHz) [2]	8 MHz	Bandwidth (MHz) 8,0 8,0 8,0
Bandwidth (MHz) [3]	8 MHz	Bandwidth (MHz) 8,0 8,0 8,0
Body current {Note	6 A	Body current {Note 6)
with zero input power (mA) [1]	12 W	with zero input power (mA) 12 14 15
with zero input power (mA) [2]	14 W	with zero input power (mA) 12 14 15
with zero input power (mA) [3]	15 W	with zero input power (mA) 12 14 15
at	12.5	at 12,5kW c.w. output, visien
frequency {(mA)* [1]	30	frequency {(mA)* 30 33 34
frequency {(mA)* [2]	33	frequency {(mA)* 30 33 34
frequency {(mA)* [3]	34	frequency {(mA)* 30 33 34
Drive power (Notes	7.8 W	Drive power (Notes 7,8)
at [1]	12.5	at 12,5kW output (W) 0,4 0,35 0,3
at [2]	0.4	at 12,5kW output (W) 0,4 0,35 0,3
at [3]	0.35	at 12,5kW output (W) 0,4 0,35 0,3
at [4]	0.3	at 12,5kW output (W) 0,4 0,35 0,3
at [1]	10	at 10kW output (W) 0,32 0,27 0,23
at [2]	0.32	at 10kW output (W) 0,32 0,27 0,23
at [3]	0.27	at 10kW output (W) 0,32 0,27 0,23

TUBE TINKER

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