Photomultipliers Tube (Tube Only)
STN20/STN10

2023 V1

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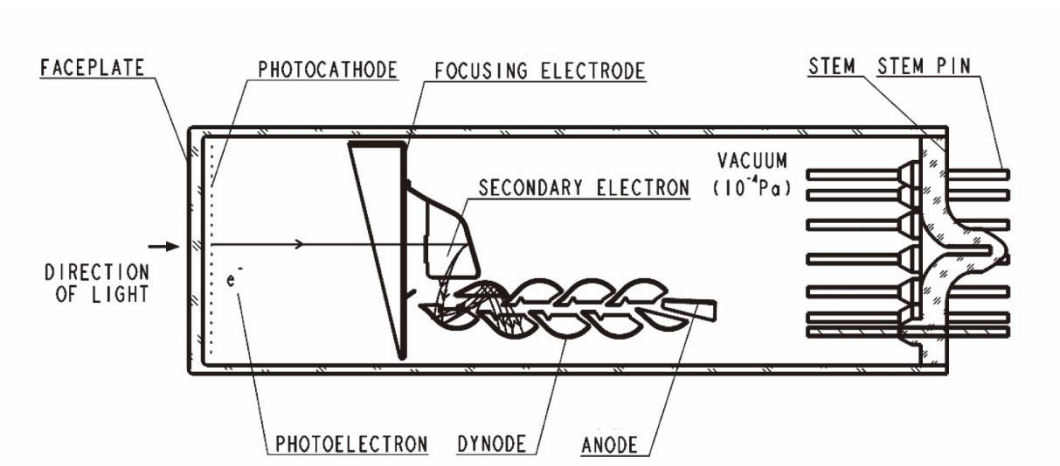
Photomultipliers Tube (Tube Only)

The photomultiplier tube is a photoelectric conversion device that can convert weak light signals into electrical signals. It can increase the incoming weak light signals by 10^5 to 10^8 times. Dynode photomultiplier tubes can be divided into head-on type and side-on type according to the angle of incident light.



Structure of PMT

Selection Guide for Head-on Type

Item	Product Name	Tube Size	Photocathode Area Shape	Photocathode Area Size	Wavelength(short)	Wavelength(long)	Peak Wavelength	【Anode】Luminous Sensitivity Typ.	【Anode】Radiant Sensitivity Typ.	【Anode】Gain Typ.	【Time Response】Rise time Typical Value
STN2002	Photomultiplier tube	Dia.0.5"	Round	Dia.10mm	290nm	650nm	380nm	100A/lm	/	6×10^6	2.1ns
STN2013	Photomultiplier tube	Dia.1 1/8"	Round	Dia.25mm	290nm	650nm	380nm	30A/lm	/	7×10^6	1.9ns
STN2014	Photomultiplier tube	Dia.1"	Round	Dia.22mm	290nm	650nm	380nm	30A/lm	/	7×10^6	1.2ns
STN2016	Photomultiplier tube	Dia.1"	Round	Dia.25mm	290nm	650nm	380nm	200A/lm	/	4×10^6	1.9ns
STN2017	Photomultiplier tube	Dia.1"	Round	Dia.22mm	290nm	650nm	380nm	/	/	7×10^6	1.4ns
STN2018	Photomultiplier tube	Dia.1"	Round	Dia.22mm	290nm	650nm	380nm	20A/lm	/	5×10^5	1.5ns
STN2021	Photomultiplier tube	Dia.2.5"	Round	Dia.58mm	290nm	650nm	/	35A/lm	/	5×10^5	1.8ns
STN2031	Photomultiplier tube	Dia.3"	Round	/	290nm	650nm	/	/	/	1×10^7	1.9ns
STN2041	Photomultiplier tube	Dia.4"	Round	/	290nm	650nm	/	/	/	5×10^6	2.7ns
STN4021-1	Photomultiplier tube	Dia.2"	Round	Dia.46mm	290nm	650nm	380nm	2000A/lm	/	2.5×10^7	/
STN4021-2	Photomultiplier tube	Dia.2"	Round	Dia.46mm	290nm	650nm	380nm	1250A/lm	/	1.6×10^7	/
STN4021-3	Photomultiplier tube	Dia.2"	Round	Dia.46mm	290nm	650nm	380nm	400A/lm	/	1.6×10^7	/
STN4022	Photomultiplier tube	Dia.2"	Round	/	290nm	650nm	420nm	30A/lm	/	2.73×10^5	6ns
STN4031	Photomultiplier tube	Dia.3"	Round	/	290nm	650nm	420nm	30A/lm	/	2.73×10^5	6ns

Selection Guide for Side-on Type

Item	Product Name	Tube Size	Photocathode Area Shape	Photocathode Area Size	Wavelength (short)	Wavelength(long)	Peak Wavelength	【Anode】Luminous Sensitivity Typ.	【Anode】Radiant Sensitivity Typ.	【Anode】Gain Typ.	【Time Response】Rise time Typical Value
STN1012-1	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	165nm	900nm	/	2500A/lm	/	1×10^7	2.2ns
STN1012-2	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	165nm	900nm	/	2000A/lm	/	8×10^6	2.2ns
STN1012-3	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	165nm	900nm	/	500A/lm	/	3.3×10^6	2.2ns
STN1013-1	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	160nm	650nm	/	400A/lm	/	6.7×10^6	/
STNN1013-2A	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	160nm	650nm	/	1500A/lm	/	2×10^7	/
STN1013-2B	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	290nm	650nm	/	1500A/lm	/	2×10^7	/
STN1013-3A	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	160nm	650nm	/	400A/lm	/	7.5×10^6	/
STN1013-3B	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	290nm	650nm	/	400A/lm	/	7.5×10^6	/
STN1013-4	Photomultiplier tube	Dia.1 1/8"	Square	8 x 24 mm^2	160nm	650nm	/	400A/lm	/	1×10^7	/

Photomultipliers Tube (Tube Only) - STN2002

This STN2002 is a head-on side photomultiplier tube with 0.5 " diameter and 10 stages.

Feature

- High gain, small size, linearization

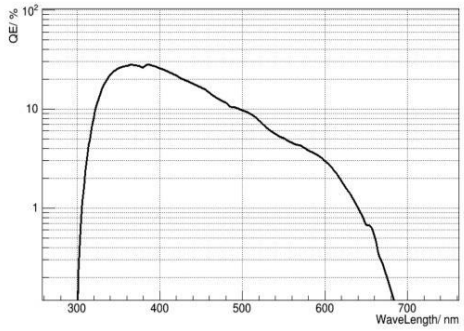
Application

- Environmental monitoring

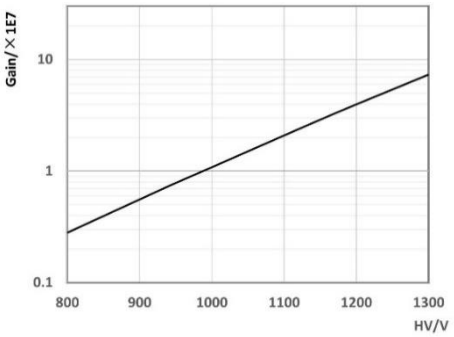
Specification

Parameter		Description			
Type		Head-on-Type			
Diameter		0.5"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Linear Focused			
Stage		10			
STN2002		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter	10	/	/	mm
	Spectral Response Range	290-650			nm
	Quantum Efficiency Peak Wavelength	/	380	/	nm
	Luminous Sensitivity	30	100	/	μA/lm
	Blue Sensitivity	/	8	/	μA/lmf
Anode Parameters	Anode Sensitivity	30	100	/	A/lm
	Supply Voltage	/	/	1250	V
	Gain	/	6×10^6	/	/
	Anode Dark Current	/	1	15	nA
Time Response	Rise Time	/	2.1	/	ns
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

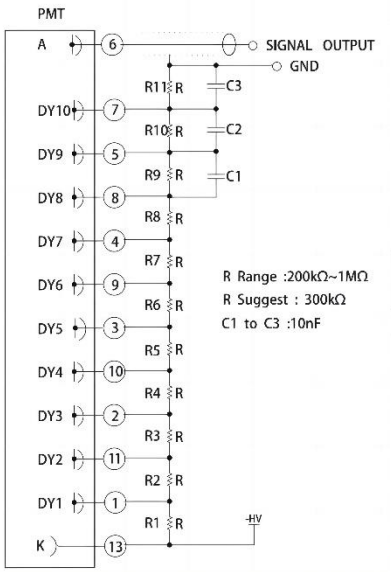


Typical Spectral Response Curve



Typical Gain Curve

Voltage Distribution Ratio

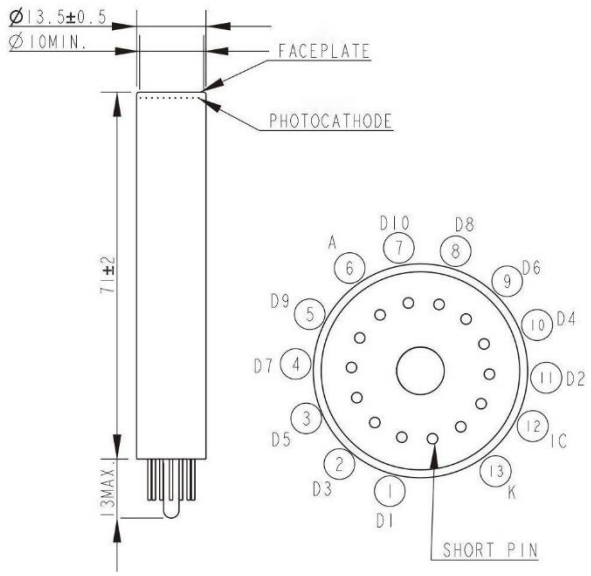


R Range :200kΩ~1MΩ
R Suggest : 300kΩ
C1 to C3 :10nF

Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	1	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) - STN2013

This STN2013 is a head-on side photomultiplier tube with 1 1/8" diameter and 11 stages.

Feature

- Fast response, low noise

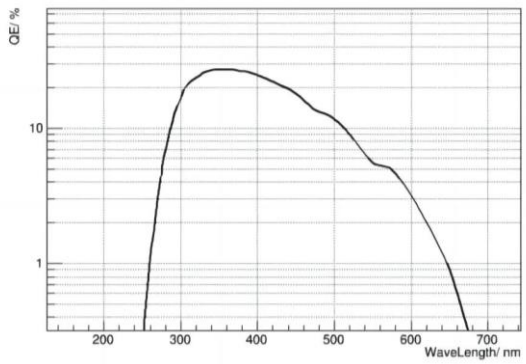
Application

- Scintillation counting, high energy physics

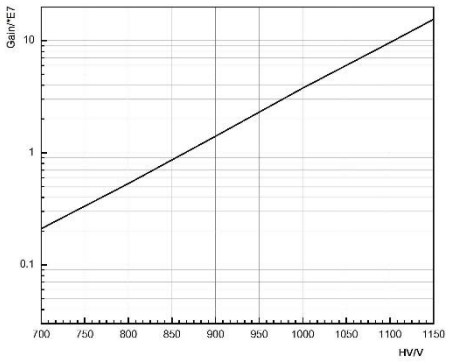
Specification

Parameter			Description			
Type			Head-on Type			
Diameter			1 1/8"			
Window Material			Borosilicate Glass			
Photocathode Material			Bialkali			
Dynode Structure			Box and Liinear Focused			
Stage			11			
STN2013			**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter		25	/	/	mm
	Spectral Response Range		290-650			nm
	Quantum Efficiency Peak Wavelength		/	380	/	nm
	Luminous Sensitivity		/	80	/	μA/lm
	Blue Sensitivity		9	11	/	μA/lmf
Anode Parameters	Anode Blue Sensitivity		/	30	/	A/lmf
	Supply Voltage		/	/	1150	V
	Gain		/	7×10^6	/	Hz
	Dark Count Rate	N2013-1	/	/	140	
		N2013-2	/	/	300	
		N2013-3	/	/	1000	
	Anode Dark Current		/	2	10	nA
Time Response	Rise Time		/	1.9	/	ns
	TTS		/	3	/	ns
Operating Ambient Temperature			-30~+50			℃
Storage Temperature			-50~+50			℃

Spectral Graph

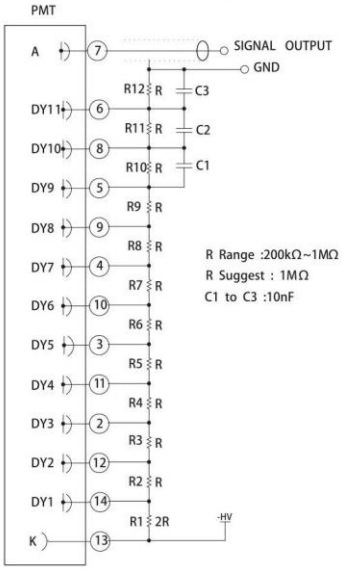


Typical Spectral Response Curve



Typical Gain Curve

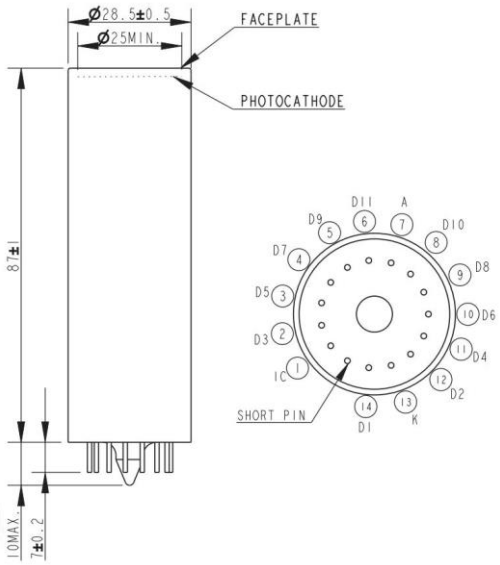
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	A
Divider Ratio	2	1	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) - STN2014

This STN2014 is a head-on side photomultiplier tube with 1" diameter and 10 stages.

Feature

- Fast response, compact structure

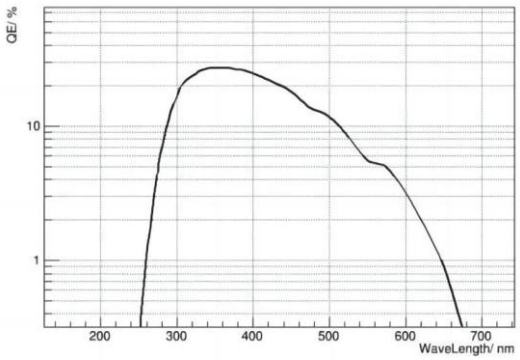
Application

- Medical measurement, radiation measurement

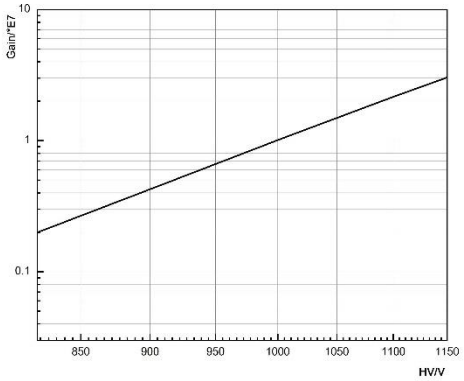
Specification

Parameter			Description			
Type			Head-on Type			
Diameter			1"			
Window Material			Borosilicate Glass			
Photocathode Material			Bialkali			
Dynode Structure			Circular and Linear Focused			
Stage			10			
STN2014			**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter		22	/	/	mm
	Spectral Response Range		290-650			nm
	Quantum Efficiency Peak Wavelength		/	380	/	nm
	Luminous Sensitivity		/	60	/	μA/lm
	Blue Sensitivity		8	9	/	μA/lm
Anode Parameters	Anode Blue Sensitivity		/	30	/	A/lm
	Supply Voltage		/	/	1150	V
	Gain		/	7×10^6	/	/
	Anode Dark Current (N2014-1 @1000V) (N2014-2 @1050V) (N2014-3 @1100V)	N2014-1	/	3	5	nA
		N2014-2	/	3	5	
		N2014-3	/	/	20	
	Dark Count Rate	N2014-1	/	/	100	Hz
		N2014-2	/	/	500	
Time Response	Rise Time		/	1.2	/	ns
	TTS		/	1.5	/	
Operating Ambient Temperature			-30~+50			℃
Storage Temperature			-50~+50			℃

Spectral Graph

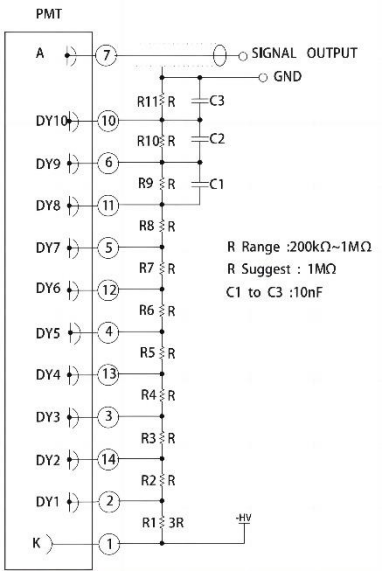


Typical Spectral Response Curve



Typical Gain Curve

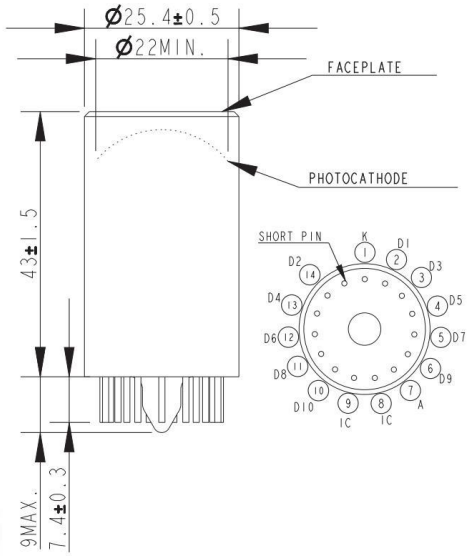
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	3	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) - STN2016

This STN2016 is a head-on side photomultiplier tube with 1" diameter and 11 stages.

Feature

- High gain, good stability

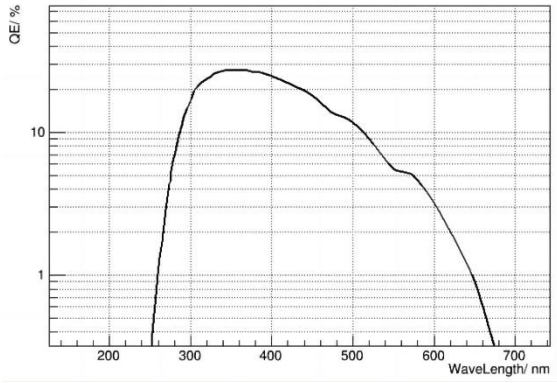
Application

- Radiation measurement

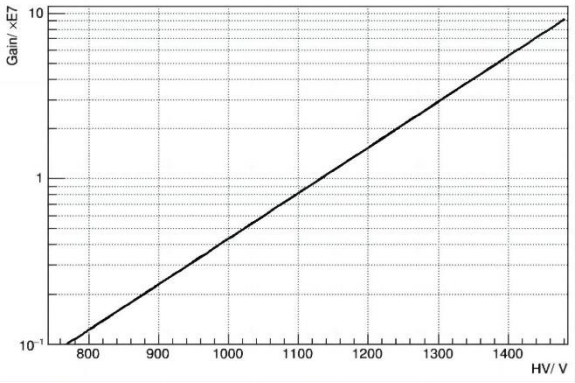
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		1"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Box and Linear Focused			
Stage		11			
STN2016		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter	25	/	/	mm
	Spectral Response Range	290-650			nm
	Quantum Efficiency Peak Wavelength	/	380	/	nm
	Luminous Sensitivity	60	80	/	μA/lm
	Blue Sensitivity	8	11	/	μA/lmf
Anode Parameters	Anode Sensitivity	50	200	/	A/lmf
	Supply Voltage	/	1000	1500	V
	Gain	/	4×10^6	/	/
	Anode Dark Current	/	2	10	nA
Time Response	Rise Time	/	1.9	/	ns
	TTS	/	3	/	
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

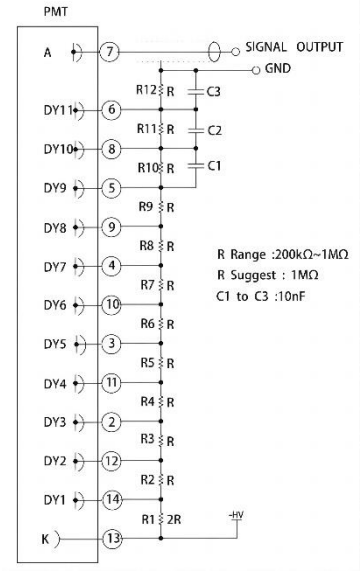


Typical Spectral Response Curve



Typical Gain Curve

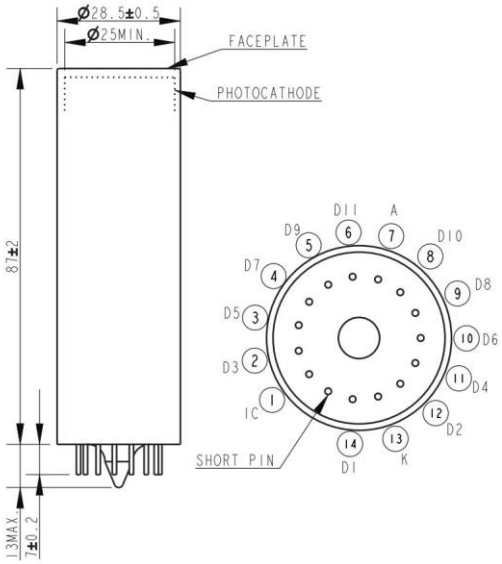
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	A
Divider Ratio	2	1	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) - STN2017

This STN2017 is a head-on side photomultiplier tube with 1" diameter and 10 stages.

Feature

- Compact structure

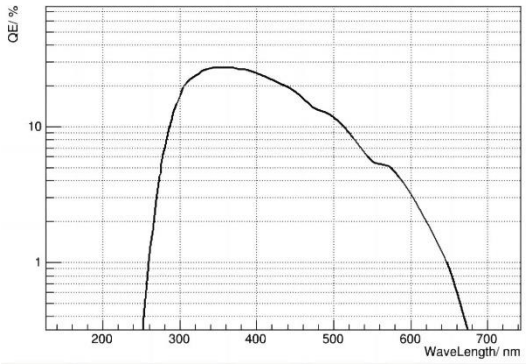
Application

- Scintillation counting, radiation measurement

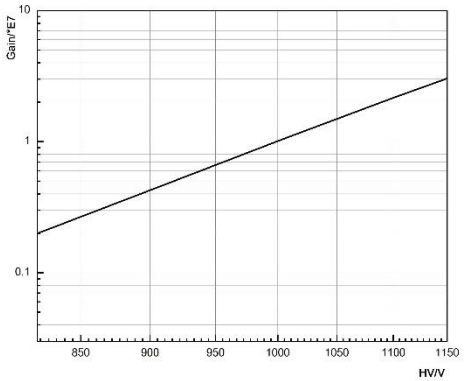
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		1"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Circular and Linear Focused			
Stage		10			
STN2017		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter	22	/	/	mm
	Spectral Response Range	290-650			nm
	Quantum Efficiency Peak Wavelength	/	380	/	nm
	Luminous Sensitivity	/	60	/	μA/lm
	Blue Sensitivity	8	10	/	μA/lmf
Anode Parameters	Supply Voltage	/	1000	1150	V
	Gain	/	7×10^6	/	/
	Anode Dark Current	/	3	20	nA
Time Response	Rise Time	/	1.4	/	ns
	TTS	/	1.5	/	
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

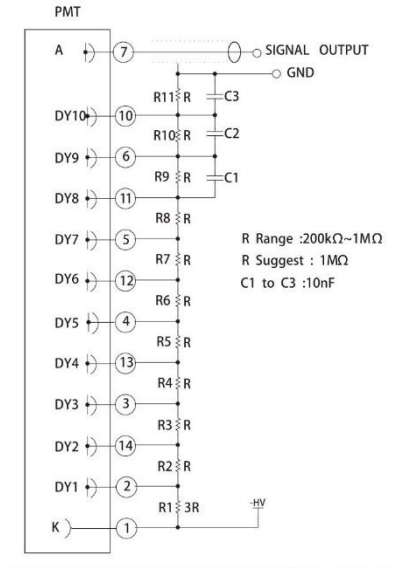


Typical Spectral Response Curve



Typical Gain Curve

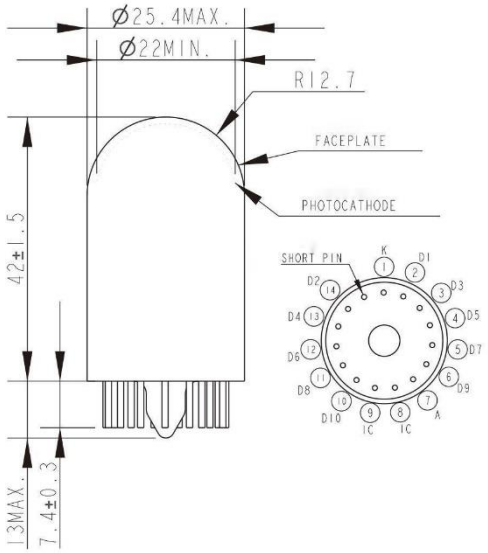
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	3	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) – STN2018

This STN2018 is a head-on side photomultiplier tube with 1" diameter and 10 stages.

Feature

- High temp, resistance , ruggedize , low profile structure

Application

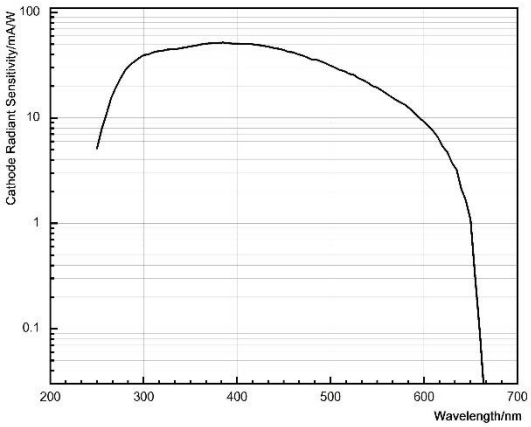
- Oil well logging, geological exploration

Specification

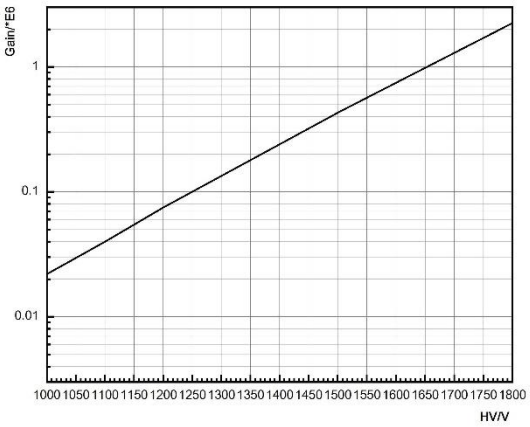
Parameter	Description
Type	Head-on Type
Diameter	1"
Window Material	Borosilicate Glass
Photocathode Material	High Temp. Bialkali
Dynode Structure	Circular and Linear Focused
Shock	5000 m/s2（500g） 0.5ms
Sine vibration	200 m/s2（20g）
Stage	10

STN2018		Min.	Typ.	Max.	Unit.
Cathode Parameters	Cathode Effective Diameter	22	/	/	mm
	Spectral Response Range	290-650			nm
	Quantum Efficiency Peak Wavelength	/	380	/	nm
	Quantum Efficiency	/	12	/	%
	Luminous Sensitivity@25℃	20	40	/	μA/lm
	Blue Sensitivity@25℃	4	6	/	μA/lm
Anode Parameters	Anode Luminous Sensitivity@25°C	8	20	/	A/lm
	Supply Voltage	/	1500	1800	V
	Gain@25℃	/	5×10^5	/	/
	Dark Current	/	0.1 @25℃	10 @25℃ 1000 @175℃	nA
Time Response	Rise Time	/	1.5	/	ns
	TTS	/	15	/	

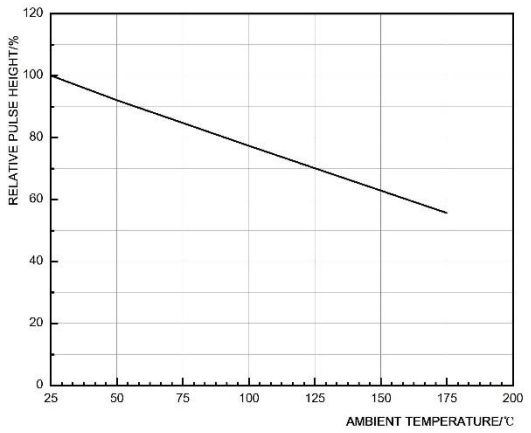
Spectral Graph



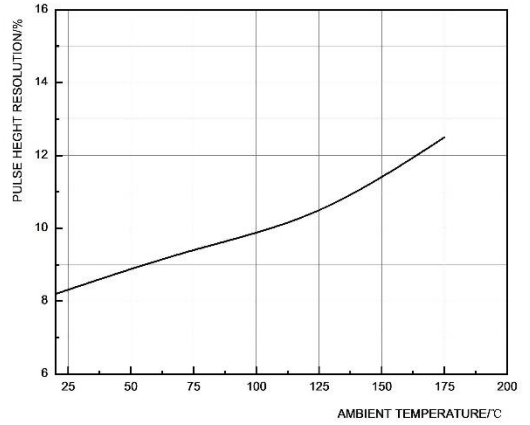
Typical Spectral Response Curve



Typical Gain Curve

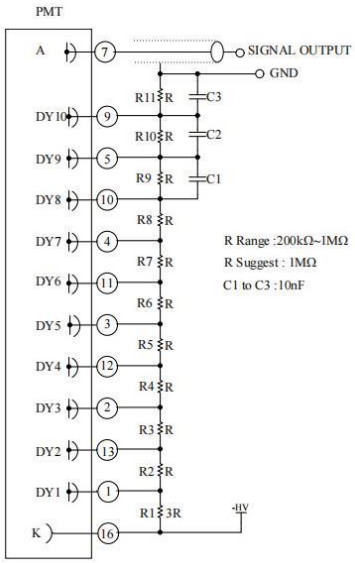


Typical Pulse Height Resolution as a Function of Temperature



Typical Pulse Height as a Function of Temperature

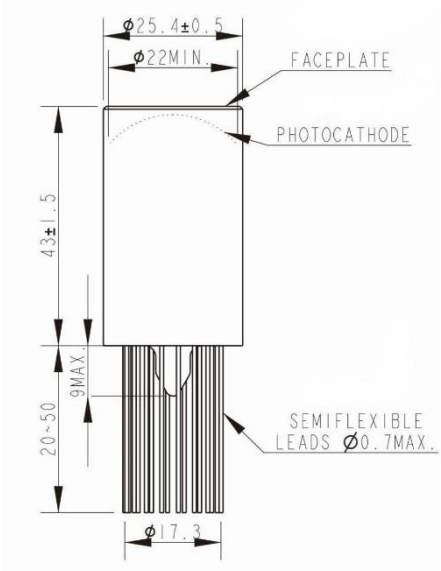
Voltage Distribution Ratio

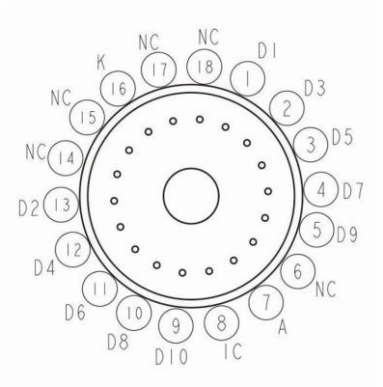


Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	3	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



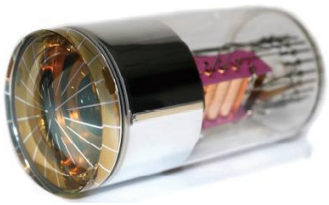


Photomultipliers Tube (Tube Only) – STN2021

This STN2021 is a head-on side photomultiplier tube with 2.5" diameter and 9 stages.

Feature

- Fast response, high pulse linearity



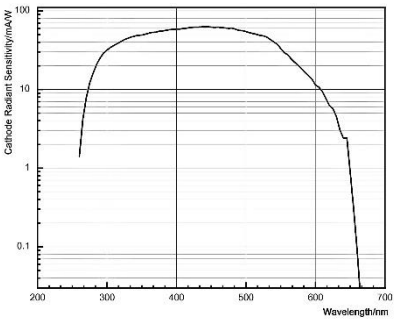
Application

- Radiation measurement

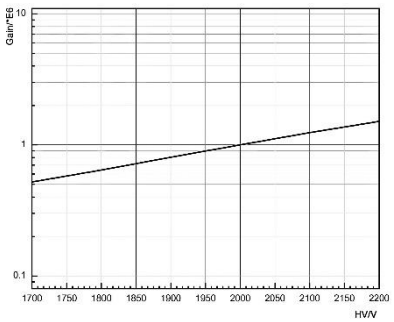
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		2.5"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Linear Focused			
Stage		9			
STN2021		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter	58	/	/	mm
	Spectral Response Range	290-650			nm
	Quantum Efficiency	/	18	/	%
	Luminous Sensitivity	/	70	/	μA/lm
	Blue Sensitivity	8	9	/	μA/lmf
Anode Parameters	Anode Sensitivity	/	35	/	A/lm
	Supply Voltage	1500	1800	3000	V
	Gain	/	5×10^5	/	/
	Anode dark current	/	3	5	nA
	Maximum Pulse Linear Current@10ns Time Width@10% Linear Deviation	/	300	/	mA
Time Response	Rise Time	/	1.8	/	ns

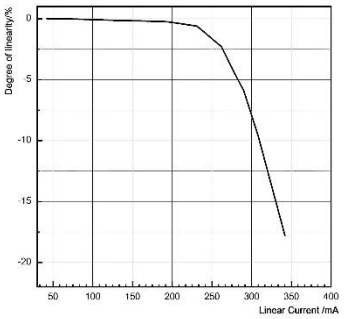
Spectral Graph



Typical Spectral Response Curve

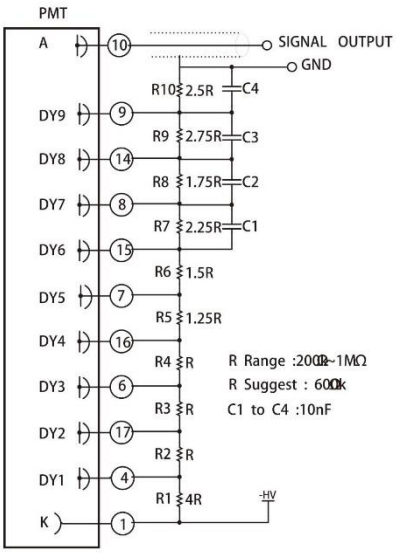


Typical Gain Curve



Typical Linear Current Characteristics

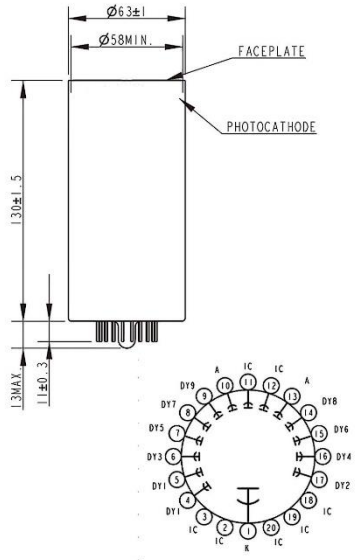
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	A
Divider Ratio	4	1	1	1	1.25	1.5	2.25	1.75	2.75	2.5	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) – STN2031

This STN2031 is a head-on side photomultiplier tube with 3" diameter and 10 stages.

Feature

- High quantum efficiency , fast response, low noise

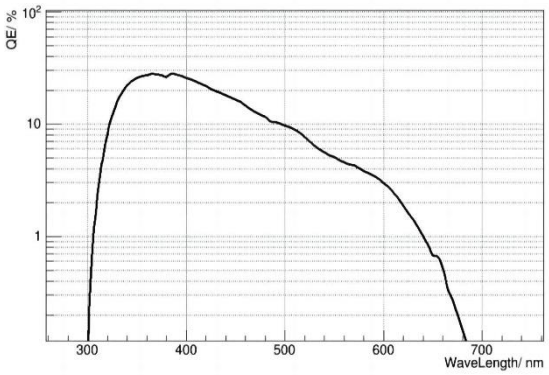
Application

- High energy physics

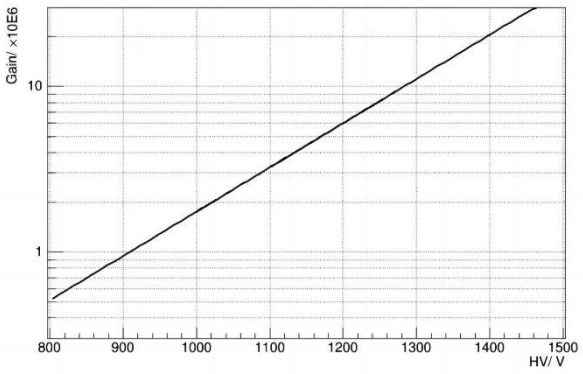
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		3"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Circular and Linear Focused			
Stage		10			
STN2031		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Spectral Response Range	290-650			nm
	Quantum Efficiency @ 410 nm	/	28	/	%
	Quantum Efficiency @ 450 nm	/	24	/	%
Anode Parameters	Supply Voltage	900	1250	1300	V
	Gain	/	1×10^7		
	Dark Count Rate	/	1500	3000	Hz
	Single PE Charge Spectrum Peak/Valley	/	2.5	/	
Time Response	Rise Time	/	1.9	/	ns
	Transit Time Spread (FWHM)	/	1.4	1.8	
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

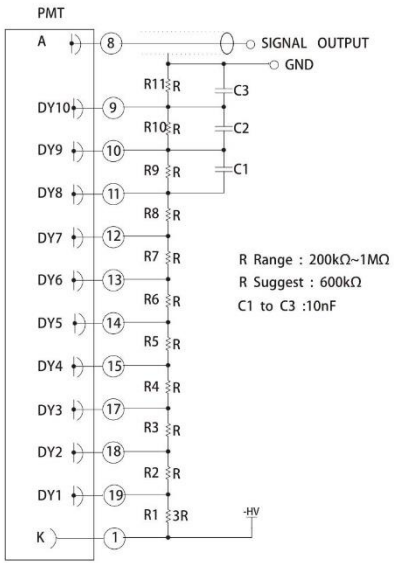


Typical Spectral Response Curve



Typical Gain Curve

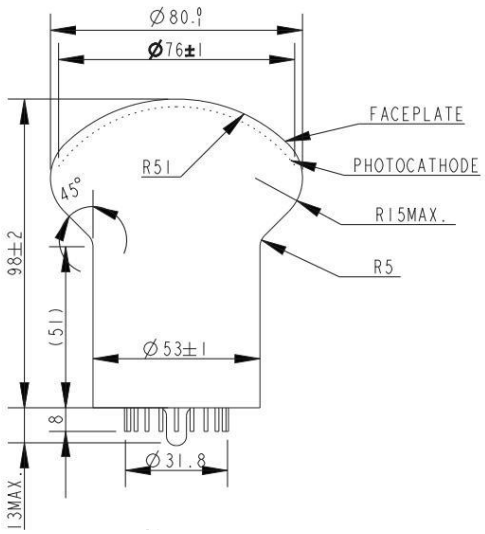
Voltage Distribution Ratio

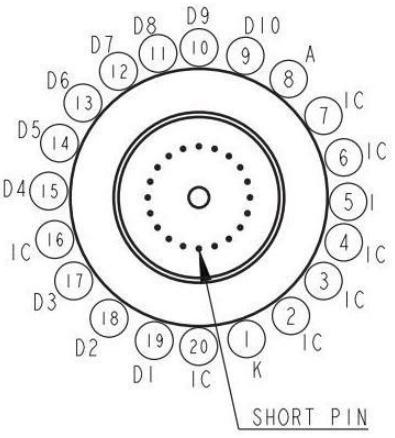


Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	3	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension





Photomultipliers Tube (Tube Only) – STN2041

This STN2041 is a head-on side photomultiplier tube with 4" diameter and 10 stages.

Feature

- High quantum efficiency , fast response, low noise

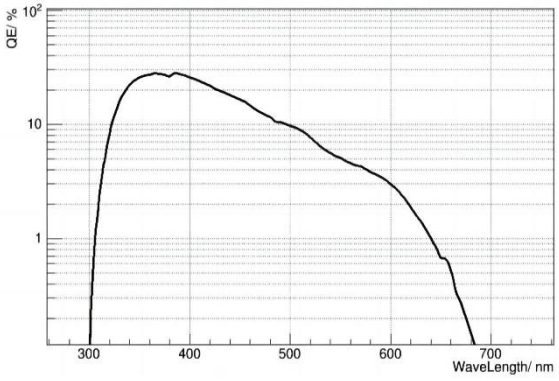
Application

- High energy physics

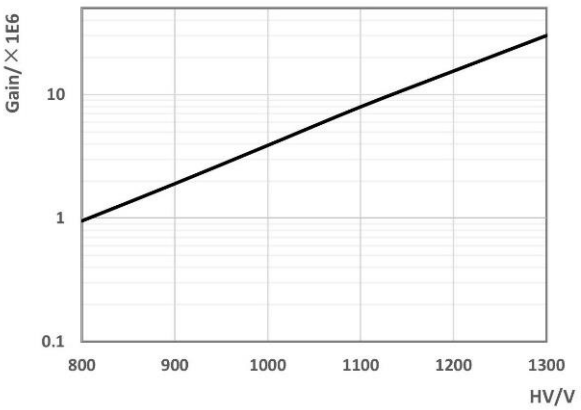
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		4"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Circular and Linear Focused			
Stage		10			
STN2041		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Spectral Response Range		290-650		nm
	Quantum Efficiency @ 410 nm	25	28	/	%
	Top Detection Efficiency	22	24	/	%
	Top Collection Efficiency	/	90	/	%
Anode Parameters	Supply Voltage	/	1050	1350	V
	Gain	/	5×10^6	/	/
	Dark Count Rate@0.2pe at Room Temperature	/	/	1000	Hz
	Charge Resolution	/	40	/	%
	Single PE Charge Spectrum Peak/Valley	2	2.5	/	/
Time Response	Anode Pulse Rise Time	/	2.7	/	ns
	Transit Time Spread (FWHM)	/	2.5	3	ns
	Pre Pulsing	/	0.1	/	%
	Late Pulsing	/	3	/	%
	After Pulsing	/	8	/	%
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

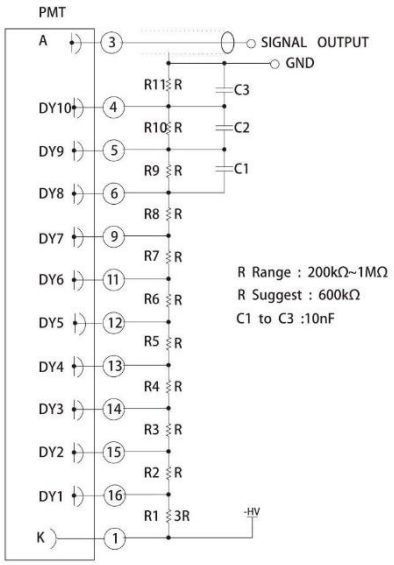


Typical Spectral Response Curve



Typical Gain Curve

Voltage Distribution Ratio

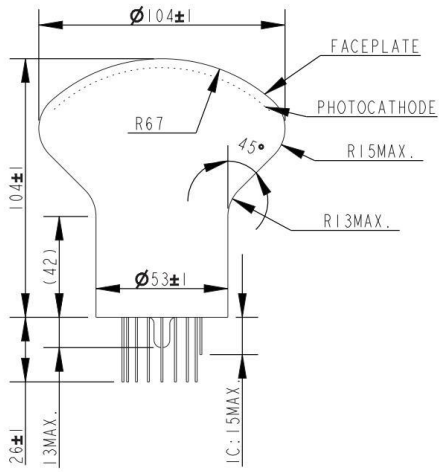


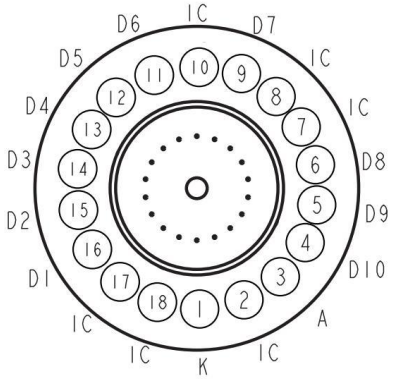
R Range : 200kΩ~1MΩ
R Suggest : 600kΩ
C1 to C3 :10nF

Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	3	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension





Photomultipliers Tube (Tube Only) – STN4021

This STN4021 is a head-on side photomultiplier tube with 2" diameter and 10 stages.

Feature

- High gain , high collection efficiency

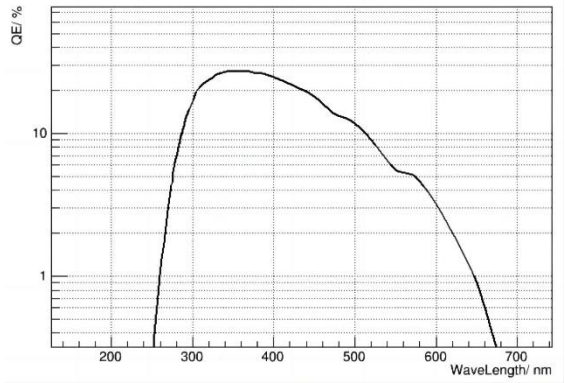
Application

- Scintillation counting, radiation measurement

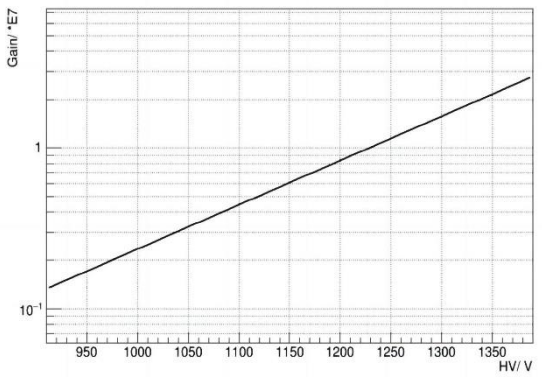
Specification

Parameter			Description			
Type			Head-on Type			
Diameter			2"			
Window Material			Borosilicate Glass			
Photocathode Material			Bialkali			
Dynode Structure			Box-and-Grid Focused			
Stage			10			
STN4021			**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Cathode Effective Diameter		46	/	/	mm
	Spectral Response Range		290-650			nm
	Quantum Efficiency Peak Wavelength		/	380	/	nm
	Luminous Sensitivity		60	/	/	μA/lm
	Blue Sensitivity	N4021-1	10.5	/	/	μA/lmf
		N4021-2	9	/	/	
		N4021-3	7	/	/	
Anode Parameters	Anode Sensitivity	N4021-1	1500	2000	/	A/lm
		N4021-2	1000	1250	/	
		N4021-3	100	400	/	
	Supply Voltage		/	1250	1500	V
	Gain	N4021-1	/	2.5×10^{7}	/	
		N4021-2	/	1.6×10^{7}	/	
		N4021-3	/	1.6×10^{6}	/	
	Anode Dark Current	N4021-1	/	/	30	nA
		N4021-2	/	/	50	
		N4021-3	/	/	100	
Time Response	Rise Time		7	/	/	ns
Operating Ambient Temperature			-30~+50			℃
Storage Temperature			-50~+50			℃

Spectral Graph

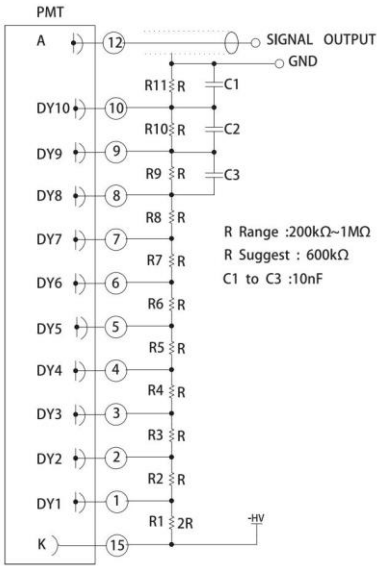


Typical Spectral Response Curve



Typical Gain Curve(STN4021-2)

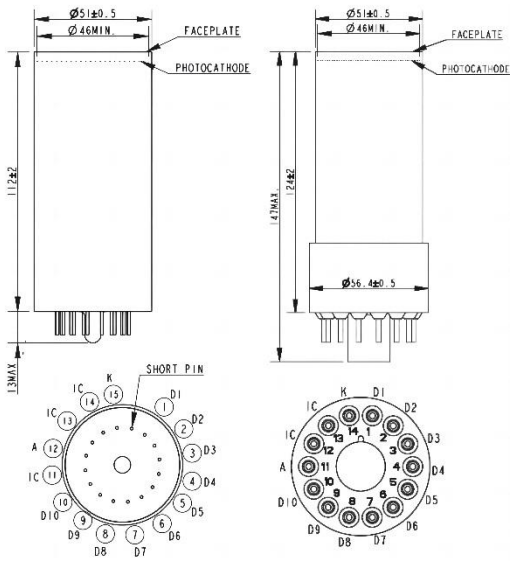
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	A
Divider Ratio	2	1	1	1	1	1	1	1	1	1	1	1

K:Cathode; Dy: Dynode; A: Anode

Dimension

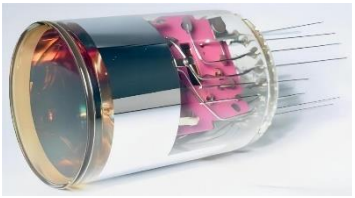


Photomultipliers Tube (Tube Only) – STN4022

This STN4022 is a head-on side photomultiplier tube with 2" diameter and 8 stages.

Feature

- High energy resolution , high collection efficiency



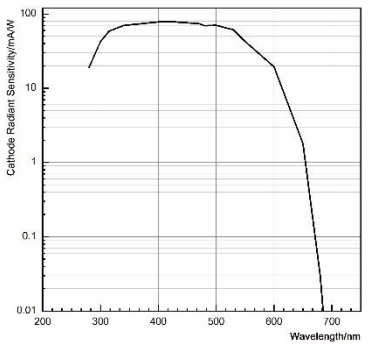
Application

- Radiation measurement, nuclear medical instrument

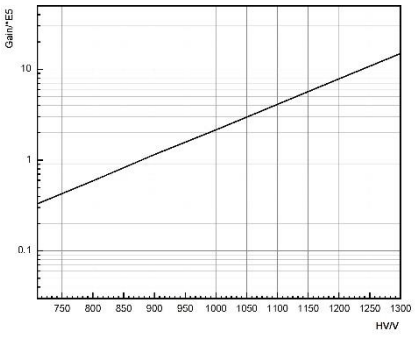
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		2"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Box and Linear Focused			
Stage		8			
STN4022		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Spectral Response Range	290-650			nm
	Peak Wavelength of Radiant Sensitivity	/	420	/	nm
	Blue Sensitivity	8	10	/	μA/lmf
Anode Parameters	Anode Sensitivity	3	30	/	A/lm
	Supply Voltage	/	1000	/	V
	Gain	/	2.73×10^5	/	/
	Anode Dark Current	/	2	10	nA
Time Response	Rise Time	/	6	/	ns
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

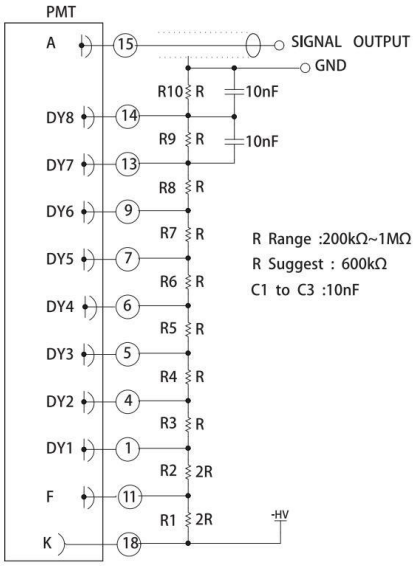


Typical Spectral Response Curve



Typical Gain Curve

Voltage Distribution Ratio

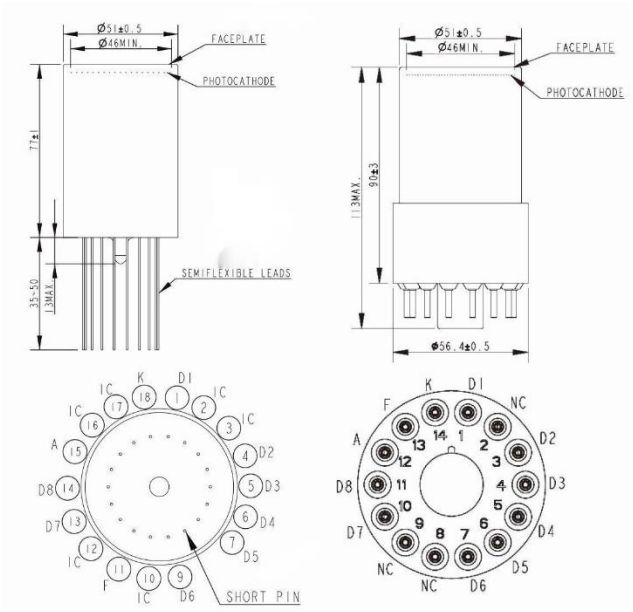


R Range :200kΩ~1MΩ
R Suggest : 600kΩ
C1 to C3 :10nF

Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	A
Divider Ratio	2	2	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) – STN4031

This STN4031 is a head-on side photomultiplier tube with 3" diameter and 8 stages.

Feature

- High energy resolution , high collection efficiency

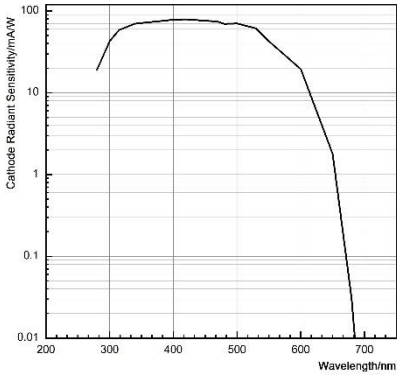
Application

- Radiation measurement, nuclear medical instrument

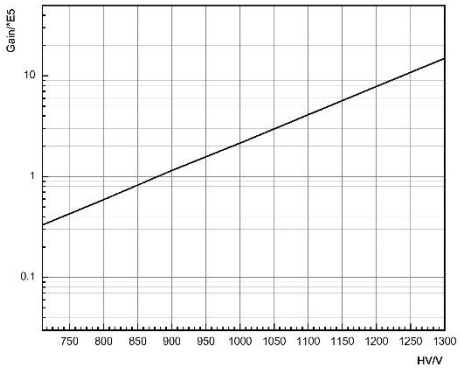
Specification

Parameter		Description			
Type		Head-on Type			
Diameter		3"			
Window Material		Borosilicate Glass			
Photocathode Material		Bialkali			
Dynode Structure		Box and Linear Focused			
Stage		8			
STN4031		**Min.**	**Typ.**	**Max.**	**Unit.**
Cathode Parameters	Spectral Response Range		290-650		nm
	Peak Wavelength of Radiant Ssensitivity	/	420	/	nm
	Blue Sensitivity	10	11.5	/	μA/lmf
Anode Parameters	Anode Sensitivity	3	30	/	A/lm
	Supply Voltage	/	1000	/	V
	Gain	/	2.73×10^5	/	/
	Anode Dark Current	/	2	10	nA
Time Response	Rise Time	/	6	/	ns
Operating Ambient Temperature		-30~+50			℃
Storage Temperature		-50~+50			℃

Spectral Graph

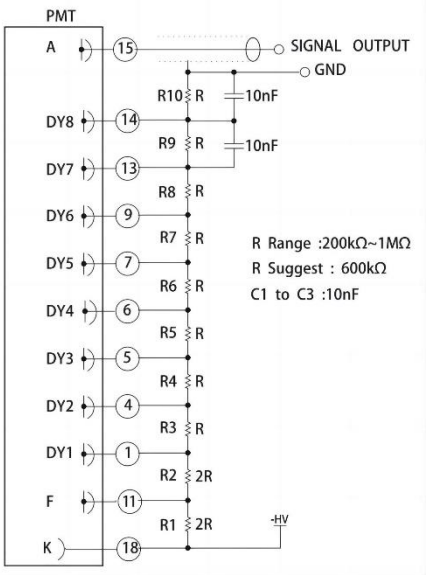


Typical Spectral Response Curve



Typical Gain Curve

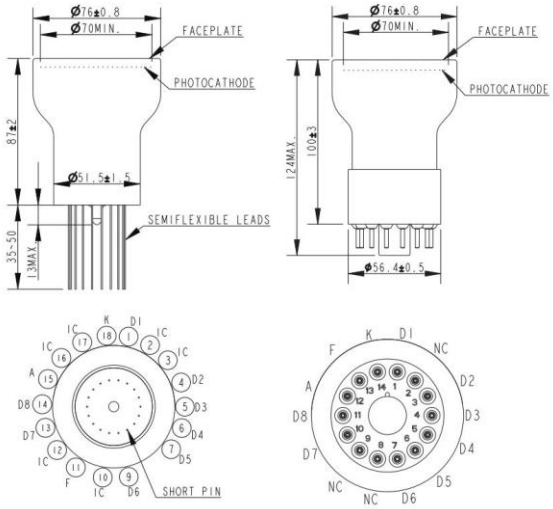
Voltage Distribution Ratio



Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	A
Divider Ratio	2	2	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) – STN1012

This STN1012 is a side-on photomultiplier tube with 1 1/8" diameter and 9 stages.

Feature

- Wide spectral response, high gain

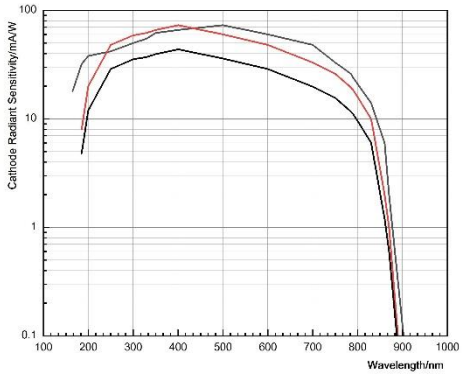
Application

- Environment monitoring
- Semiconductor detection
- Bioluminescence detection

Specification

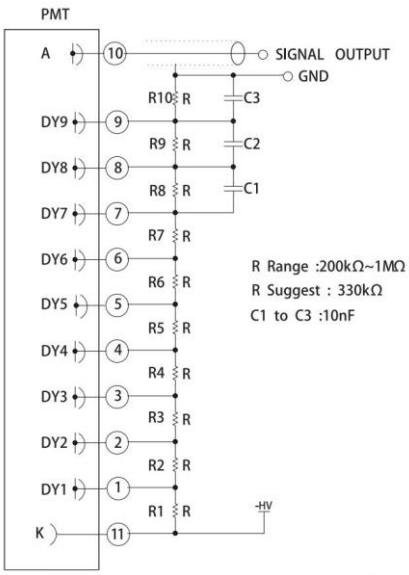
Parameter		Description									
Type		Side-on Type									
Diameter		1 1/8"									
Window Material		Quartz glass									
Photocathode Material		Multi-alkali									
Proportion of cathode		8 x 24 mm^2									
Dynode Structure		Circular									
Stage		9									
Model		N1012-1			N1012-2			N1012-3			Unit
Cathode Parameters	Spectral Response Range	165-900									nm
	Supply Voltage	1250									V
	Product Performance	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	/
	Photocathode Luminous Sensitivity	140	250	/	140	250	/	80	150	/	μA/lm
Anode Parameters	Anode Luminous Sensitivity	1400	2500	/	1500	2000	/	300	500	/	A/lm
	Anode Dark Current(30min later)	/	3	50	/	3	50		3	50	nA
	Gain	1×10^7			8×10^6			3.3×10^6			/
Time Response	Rise Time	2.2									ns
	TTS	1.2									ns
Operating Ambient Temperature		-30~+50									℃
Storage Temperature		-50~+50									℃

Spectral Graph



Typical Spectral Response Curve

Voltage Distribution Ratio

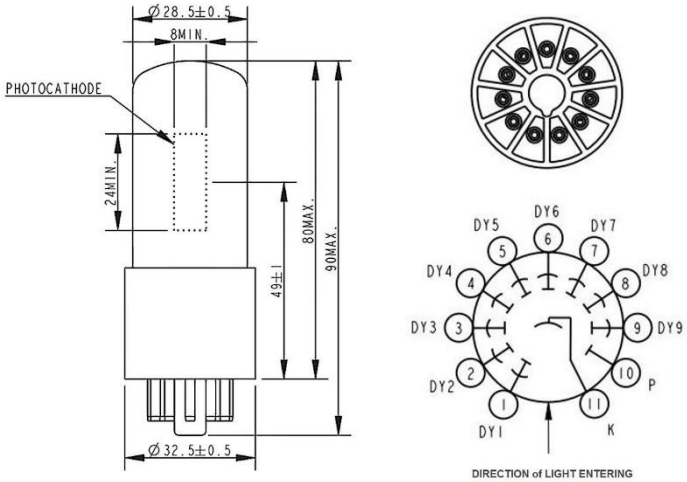


R Range :200kΩ~1MΩ
R Suggest : 330kΩ
C1 to C3 :10nF

Electrode	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	A
Divider Ratio	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

Dimension



Photomultipliers Tube (Tube Only) – STN1013

This STN1013 is a side-on photomultiplier tube with 1 1/8" diameter and 9 stages.

Feature

- Wide spectral response
- High gain
- High cathode sensitivity

Application

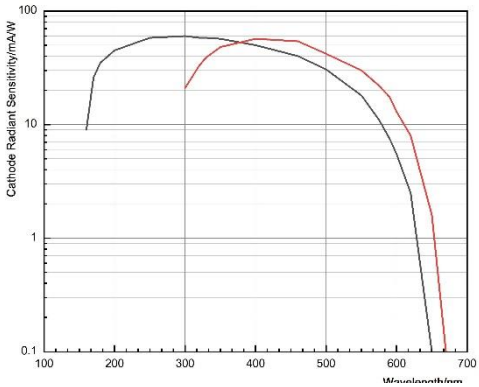
- Environment monitoring
- Semiconductor detection
- Bioluminescence detection
- Invitro diagnosis

Specification

Parameter	Description
Type	Side-on Type
Diameter	1 1/8"
Proportion of Cathode	8 x 24 mm^2
Dynode Structure	Circular
Operating Ambient Temperature	-30℃~+50℃
Storage Temperature	-50℃~+50℃
Stage	9

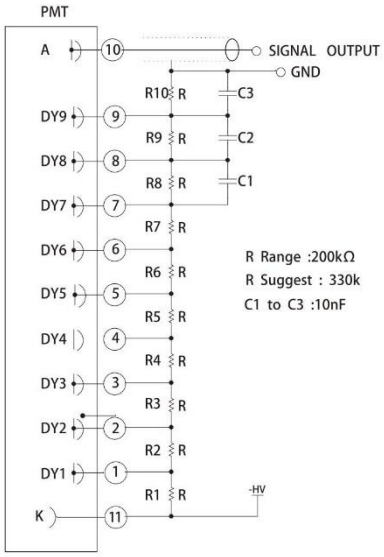
Model	STN1013-1			STN1013-2A			STN1013-2B			STN1013-3A			STN1013-3B			STN1013-4		
Window Material	Quartz glass						Borosilicate glass			Quartz glass			Borosilicate glass			Quartz glass		
Spectral Response（nm）	160-650						290-650			160-650			290-650			160-650		
Product Performance	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
Photocathode Luminous Sensitivity（μA/lm）	40	60	/	40	60	/	40	60	/	25	40	/	25	40	/	25	40	/
Gain	6.7 x 10^6			2 x 10^7			2 x 10^7			7.5 x 10^6			7.5 x 10^6			1 x 10^7		
Anode Luminous Sensitivity （A/lm）	200	400	/	1000	1500	/	1000	1500	/	200	400	/	200	400	/	200	400	/
Anode Current（nA）	/	0.5	2	/	2	10	/	2	10	/	2	10	/	2	10	/	10	50

Spectral Graph



Typical Spectral Response Curve

Voltage Distribution Ratio



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~1MΩ
Ω

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Divider Ratio	1	1	1	1	1	1	1	1	1	1	

K:Cathode; Dy: Dynode; A: Anode

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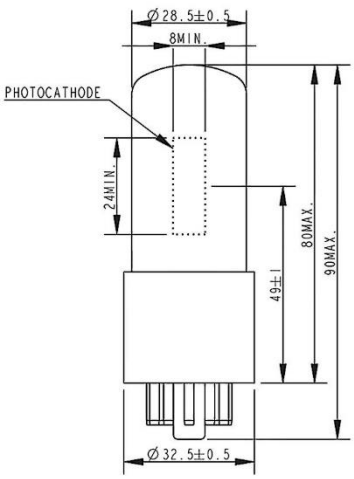

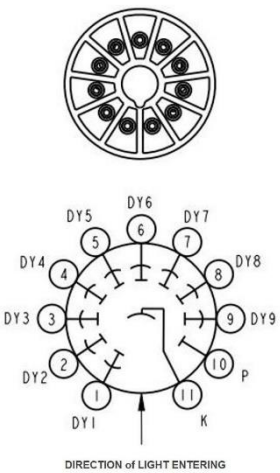

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