

THYRATRON, mercury-vapour triode
 THYRATRON, triode à vapeur de mercure
 STROMTORRÖHRE, Quecksilberdampftriode

Application: electronic motor control equipment (continuous service up to 600 V D.C.), production machine control, automatic elevator control, resistance welding

Application: équipement électronique pour la commande de moteurs (service continue jusqu'à 600 V tension continue), la commande des machines de production, la commande automatique des éleveurs, soudure par résistance

Anwendung : elektronische Einrichtungen für Regelung von Motoren (Dauerbetrieb bis 600 V Gleichspannung), Regelung von Produktionsmaschinen, automatische Steuerung von Aufzüge, Widerstandsschweißung

Heating : indirect

$V_f = 5,0 \text{ V}$

Chauffage : indirect

$I_f = 14 \text{ A}$

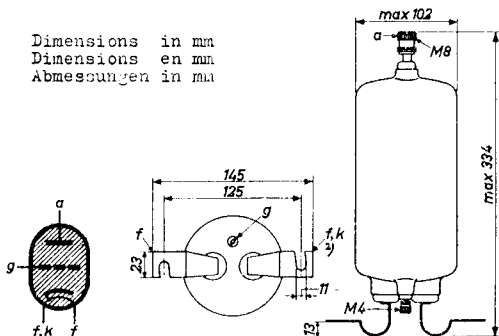
Heizung : indirekt

$T_w = \text{min. } 5 \text{ min}^1)$

Dimensions in mm

Dimensions en mm

Abmessungen in mm



Mounting position: vertical, base down

Montage : vertical, culot en bas

Einbau : senkrecht, Sockel unten

Net weight

Shipping weight

Poids net 820 g

Poids brut

1500 g

Nettogewicht

Bruttogewicht

See also "Explanation of the technical data of thyratrons" in front of this section

Voir aussi "L'explication des caractéristiques techniques des thyratrons" en tête de ce chapitre

Siehe auch die "Erläuterung zu den technischen Daten der Stromtorröhren" am Anfang dieses Abschnitts

1) See page 3; voir page 3; siehe Seite 3

2) Marked red; marqué en rouge; rot gemerkt

THYRATRON, mercury-vapour triode

APPLICATION

Electronic motor control equipment (continuous service up to 600 V D.C.)

Production machine control

Automatic elevator control

Resistance welding

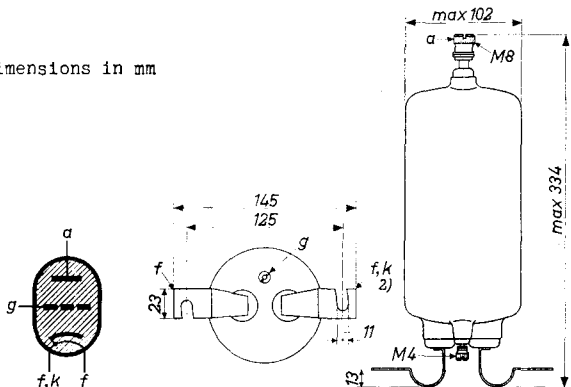
HEATING: indirect

Heater voltage $V_f = 5.0 \text{ V}$

Heater current $I_f (V_f = 5.0 \text{ V}) = \begin{matrix} 11 \text{ A} \\ \text{max. } 13 \text{ A} \end{matrix}$

Waiting time $T_w = \text{min. } 10 \text{ min.}^1)$

Dimensions in mm



Mounting position: vertical, base down

Net weight: 820 g

Shipping weight: 1500 g

CAPACITANCES

Grid to all other elements except anode $C_g = 30 \text{ pF}$

Anode to grid $C_{ag} = 8 \text{ pF}$

¹⁾ See page B

If during long periods of service interruption (e.g. during night hours) the heater voltage is maintained at 5 V, the waiting time can be omitted

²⁾ Marked red

Capacitances
Capacités
Kapazitäten

$C_{ag} = 8 \text{ pF}$
 $C_g = 30 \text{ pF}$

Typical characteristics
Caractéristiques types
Kenndaten

$V_{arc} = 10 \text{ V}$
 $T_{ion} = 10 \text{ } \mu\text{s}$
 $T_{dion} = 1000 \text{ } \mu\text{s}$
 $f = \text{max } 150 \text{ c/s}$

Limiting values (absolute limits)
Caractéristiques limites (limites absolues)
Grenzdaten (Absolute Grenzen)

Continuous service (motor control)
Service continue (commande de moteur)
Dauerbetrieb (Regelung von Motoren)

V_{ap}	=	max.	1500 V
V_{ainv_p}	=	max.	2500 V
$-V_g$	=	max.	300 V
$-V_g$	=	max.	10 V ⁵⁾
$I_{surge}(I=\text{max. } 0,1\text{s})$	=	max.	1500 A
$I_g(V_a=\text{pos})$	=	max.	0,25 A
I_{gp}	=	min.	0,5 mA
I_{gp}	=	max.	1 A
R_g	=	max.	50 k Ω
R_g	=		10 k Ω^2)
I_{kp}	= max.	30 A	100 A 160 ³⁾ A
I_k	= max.	12,5 A	10 A 20 ³⁾ A
I_{krms}	= max.	30 A	30 A 50 ³⁾ A
T_{av}	= max.	15 s	max. 15 s 4)
t_{Hg}	=	35-75 °C	35-75 °C 40-75 °C
t_{Hg}	=	60 °C	60 °C 60 °C ²⁾

2) Recommended value; valeur recommandée; Empfohlener Wert

3) Overload, during max. 5 sec in each 5 minutes operating period
Surcharge, durée 5 sec au max. dans chaque période d'opération de 5 minutes
Überlastung, während max. 5 Sek. in jeder Betriebsperiode von 5 Minuten

4) Max. 1 cycle
1 cycle au max.
Max. 1 Periode

5) Tube conductive
Tube conductif
Gezündete Röhre

TYPICAL CHARACTERISTICS

Tube voltage drop	$V_{arc} = 10 \text{ V}$
Ionisation time	$T_{ion} = 10 \text{ } \mu\text{sec}$
Deionisation time	$T_{dion} = 1000 \text{ } \mu\text{sec}$

LIMITING VALUES (Absolute limits)

I. For continuous service (motor control)

Frequency	$f = \text{max. } 150 \text{ c/s}$
Peak anode voltage	$V_{ap} = \text{max. } 1500 \text{ V}$
Peak inverse anode voltage	$V_{a \text{ inv } p} = \text{max. } 2500 \text{ V}$
Grid voltage before conduction	$-V_g = \text{max. } 300 \text{ V}$
Grid voltage during conduction	$-V_g = \text{max. } 10 \text{ V}$
Surge current	$I_{a \text{ surge}} = \text{max. } 1500 \text{ A}$
Max. duration	$T = \text{max. } 0.1 \text{ sec}$
Grid current (anode positive)	$I_g = \text{max. } 0.25 \text{ A}$
Peak grid current	$I_{gp} = \text{max. } 1 \text{ A}$ $= \text{min. } 0.5 \text{ mA}$
Grid circuit resistance	$R_g = \text{max. } 50 \text{ k}\Omega^1)$
Peak cathode current	$I_{kp} = \text{max. } 80 \text{ } 100 \text{ } 160^2) \text{ A}$
Cathode current (RMS value)	$I_k = \text{max. } 30 \text{ } 30 \text{ } 50^2) \text{ A(RMS)}$
Average cathode current	$I_{k \text{ Tav}} = \text{max. } 12.5 \text{ } 10 \text{ } 20^2) \text{ A}$
Averaging time	$T_{av} = \text{max. } 15 \text{ } 15 \text{ } 3^3) \text{ sec}$
Mercury temperature	$t_{Hg} = \text{max. } 75 \text{ } 75 \text{ } 75 \text{ } ^\circ\text{C } 4)$ $= \text{min. } 35 \text{ } 35 \text{ } 40 \text{ } ^\circ\text{C}$

¹⁾ Recommended value $10 \text{ k}\Omega$

²⁾ Overload during max. 5 sec in each 5 minutes operation period

³⁾ Max. 1 cycle

⁴⁾ Recommended value $60 \text{ } ^\circ\text{C}$

Limiting values (absolute limits)
Caractéristiques limites (limites absolues)
Grenzdaten (absolute Grenzen)

A.C. and welder operation (two tubes in inverse parallel)
Opération C.A. et de soudure (deux tubes en montage anti parallèle)
Wechselstrom- und Schweissbetrieb (zwei Röhren in Antiparallelschaltung)

V_{ap}	=	max.	750 V
V_{ainv_p}	=	max.	750 V
$-V_g$	=	max.	300 V
$-V_g$	=	max.	10 V ⁵⁾
Duty cycle			
Facteur de marche	=	10	50
Einschaltdauer			100 %
I_{kp}	= max.	156	73
I_k	= max.	5	12,5
I_{orms}	= max.	110	55
T_{av}	= max.	5	5
$I_{surge}(T_{max}, Q_1 s)$	=	max.	1500 A
$I_g (V_a = pos.)$	=	max.	0,25 A
R_g	=	max.	50 k Ω
R_g	=		10 k Ω ²⁾
t_{Hg}	=		40-80 °C
t_{Hg}	=		60 °C ²⁾

²⁾⁵⁾ See page 2; voir page 2; siehe Seite 2

¹⁾ See curves on page B

During long periods of interrupted service (e.g. during night hours) it is recommended to reduce V_f to 60-80% instead of switching off the filament. In this way the value of T_w can be decreased according to the dotted curve

Voir les courbes sur page B

Pendant les périodes du service interrompu longues (p.e. pendant les heures de nuit) il est recommandé de réduire V_f à 60-80% au lieu de mettre hors circuit le filament. De cette manière la valeur de T_w peut être diminuée selon la courbe pointillée

Siehe die Kurven auf Seite B

Während langen Betriebsunterbrechungen (z.B. während der Nachtstunden) ist es empfehlenswert V_f zu reduzieren bis auf 60-80% statt den Glühfaden auszuschalten. In dieser Weise kann den Wert von T_w entsprechend die gestrichelte Kurve verringert werden

LIMITING VALUES (Absolute limits; continued)

II. For A.C. and welding control operation

Two tubes in inverse parallel

Frequency	f	= max.	150 c/s
Peak anode voltage	V_{ap}	= max.	750 V
Peak inverse anode voltage	$V_{a \text{ inv } p}$	= max.	750 V
Grid voltage before conduction	$-V_g$	= max.	300 V
Grid voltage during conduction	$-V_g$	= max.	10 V
Surge current	$I_{a \text{ surge}}$	= max.	1500 A
Max. duration	T	= max.	0.1 sec
Grid current (anode positive)	I_g	= max.	0.25 A
Grid circuit resistance	R_g	= max.	50 k Ω ¹⁾
Mercury temperature	t_{Hg}	= max.	80 °C
		= min.	40 °C ²⁾
Duty factor	δ	=	10 50 100 %
Peak cathode current	I_{kp}	= max.	156 78 39 A
Cathode current (RMS value)	I_k	= max.	110 55 27.5 A(RMS)
Average cathode current	I_k	= max.	5 12.5 12.5 A
Averaging time	T_{av}	= max.	5 5 15 sec

¹⁾ Recommended value 10 k Ω

²⁾ Recommended value 60 °C

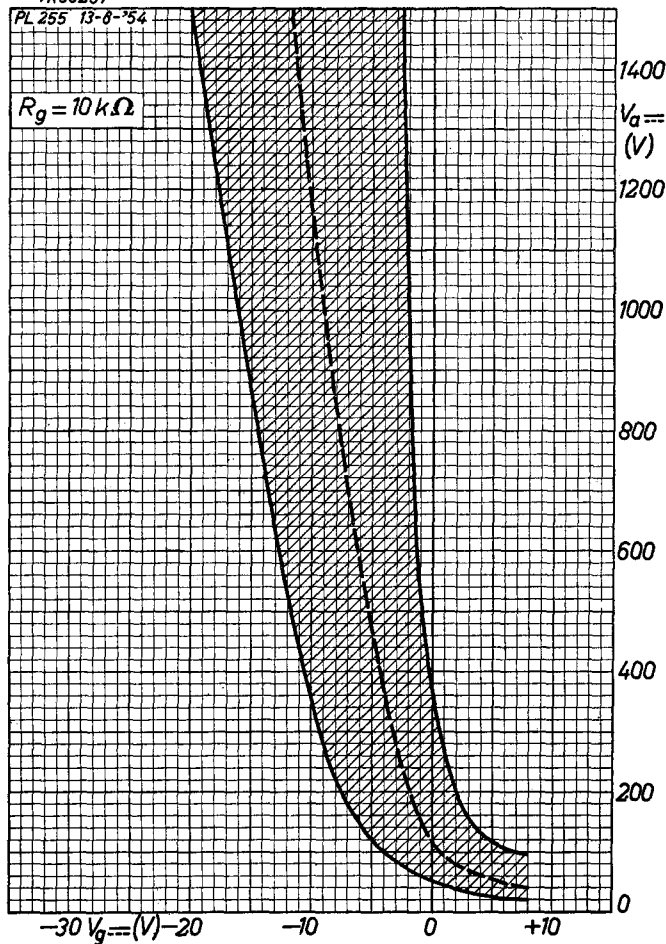
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$R_g = 10\text{ k}\Omega$



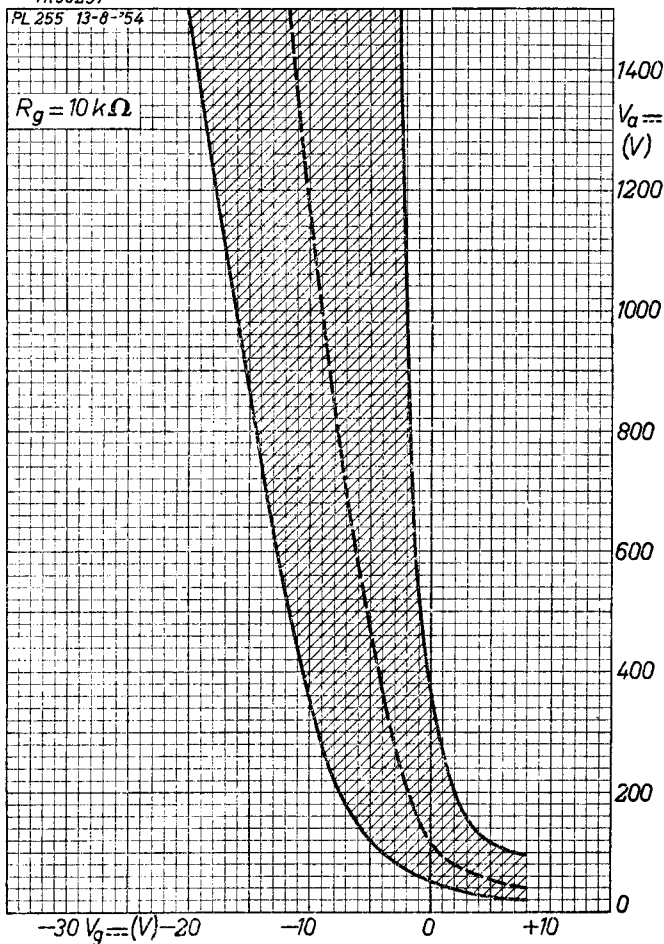
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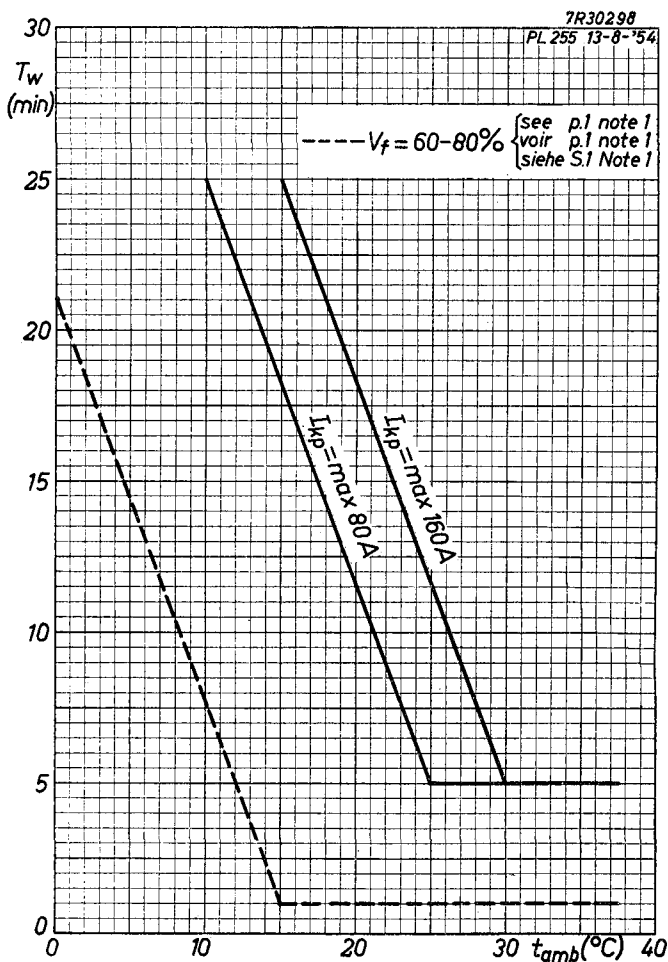
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$R_g = 10\text{ k}\Omega$



12.12.1962

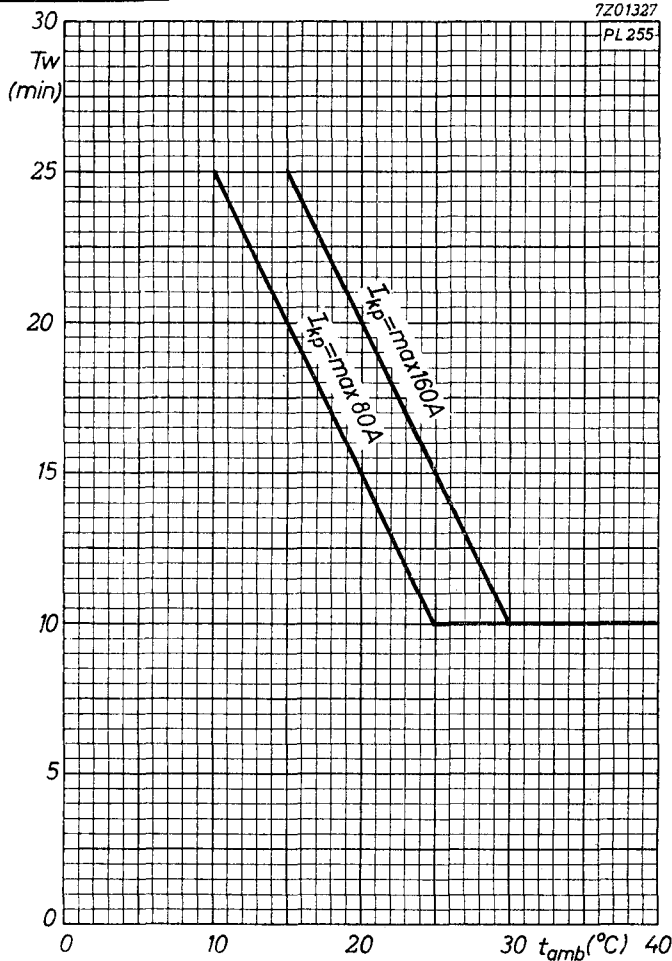
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7	A	1954.08.08
8	A	1962.12.12
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10	B	1962.12.12
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