

Monofunction regulator E10-14V

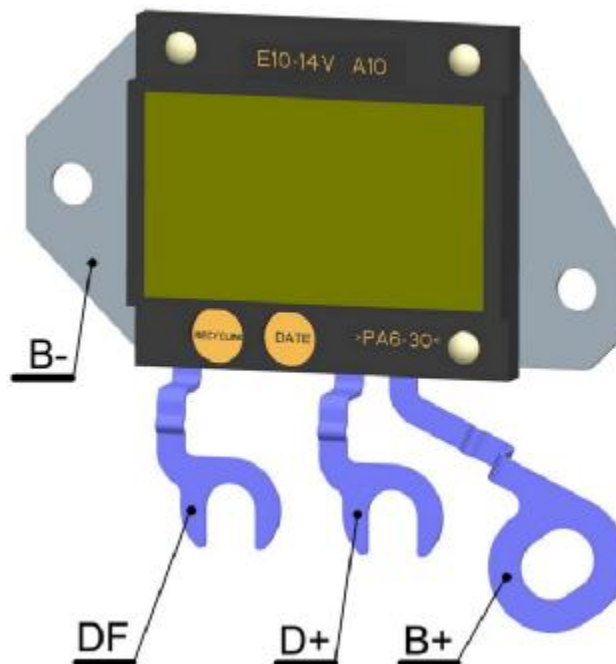
Monofunction regulator E10-14V

Feature summary:

- No external components
- Precise temperature coefficient
- Precise regulated voltage
- High output current
- Short circuit protected
- Reverse battery protection
- + 80V load dump protection
- Low energy spike protection
- Thermal shutdown
- Very low start up voltage
- $C = 2\mu\text{F}/100\text{V}$

Description:

The devices are a "single function" self-oscillating voltage regulator for car alternators. Integrating both the control section and the output power stage on a single chip, the devices require no external components, reducing significantly the cost of the system and increasing reliability.



Alternator: Radiovolna F97.3701

Application: MMZ

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Electrical specifications

Absolute maximum ratings

Symbol	Parameter	Value	Unit
V _s	Transient Overvoltage: Load Dump : 5ms ≤ T _{rise} ≤ 10ms, r _f Fall Time Constant ≤ 100ms, R _{source} ≥ 0.5Ω	80	V
I _{clamp}	Current into Low Energy Clamping Zener (T _{rise} = 5ms ; T _{decay} ≤ 2ms ; duty cycle ≤ 5%)	100	mA
I _{out}	Maximum Output Current	5.5	A
T _j , T _{stg}	Junction and Storage Temperature Range	- 55 to + 150	°C

Thermal data

Symbol	Parameter	Value	Unit
R _{th l-case}	Thermal Resistance Junction-case Max.	3	°C/W

Electrical specifications

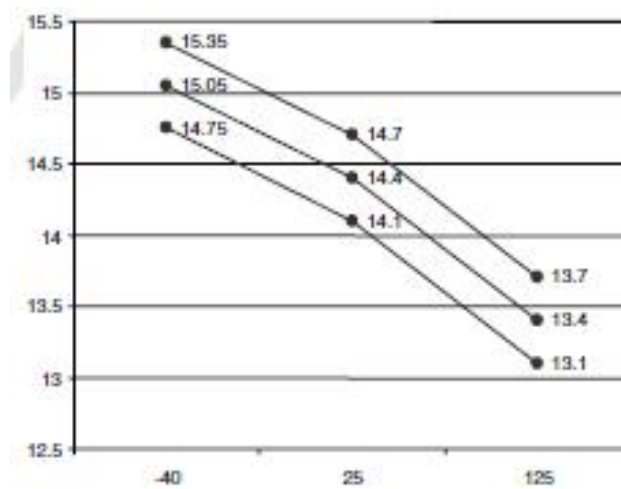
(- 40 °C ≤ T_J ≤ 125 °C, unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V _r	Voltage regulation	T _j = -40°C	14.75	15.05	15.35	V
		T _j = 25°C	14.1	14.4	14.7	V
		T _j = 125°C	13.1	13.4	13.7	V
C _T	Temperature coeff. of the regulation voltage			-10		mV/°C
eC _T	Error on nominal temperature coeff.			± 30		%
V _r	Load regulation	0.1 I _n < I _{ait} < 0.9 I _n		250		mV
V _{su}	Control circuit minimum start up voltage	Measured at Supply Pin		2	3	V
V _{sd}	Shutdown voltage (dump protection threshold)			22		V
V _{sat 1}	Output saturation voltage	I _{field} = 4 A _p		1.2	2	V
V _{sat 2}	Start up saturation voltage	I _{field} = 200 mA		0.7	1	V
I _q	Quiescent current	Field Off		20		mA

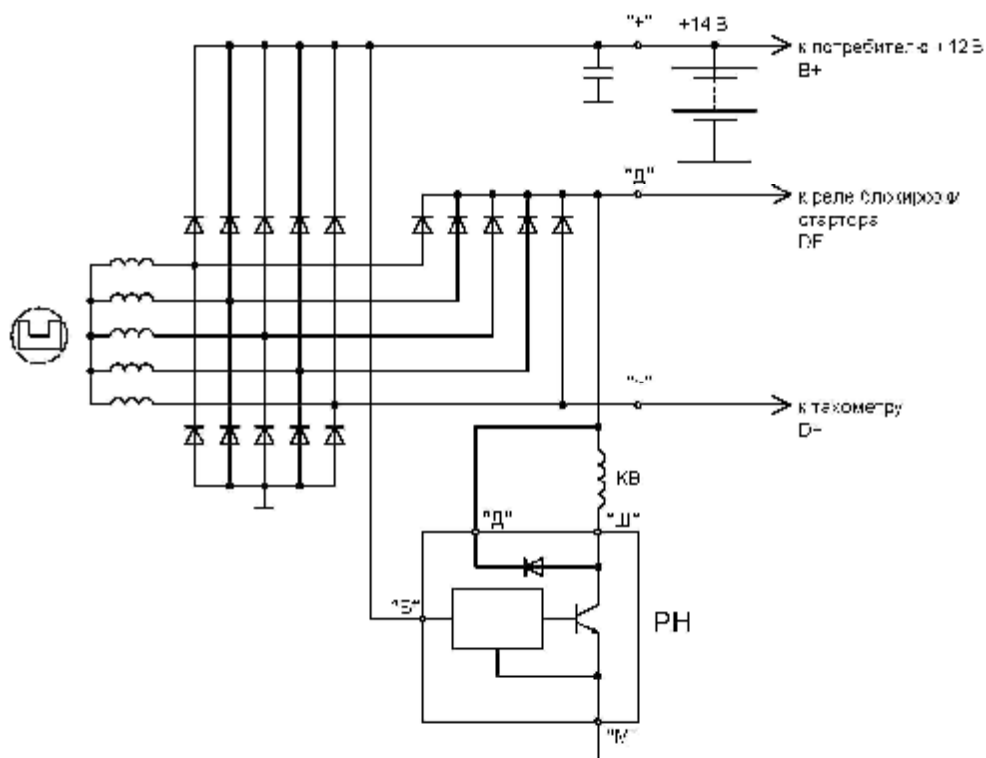
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I_s	Supply current	$I_{field} = 4 A_p$		50		mA
I_{fs}	Field pin sink current	Field Off Field Pin @ 16 V			5	mA
$V_1 CLAMP$	Low energy clamping zener Voltage	$I_{clamp} = 50 mA$		120		V
f_{sw}	Switching frequency	$0.1 I_n < I_{alt} < 0.9 I_n$	30		1000	Hz

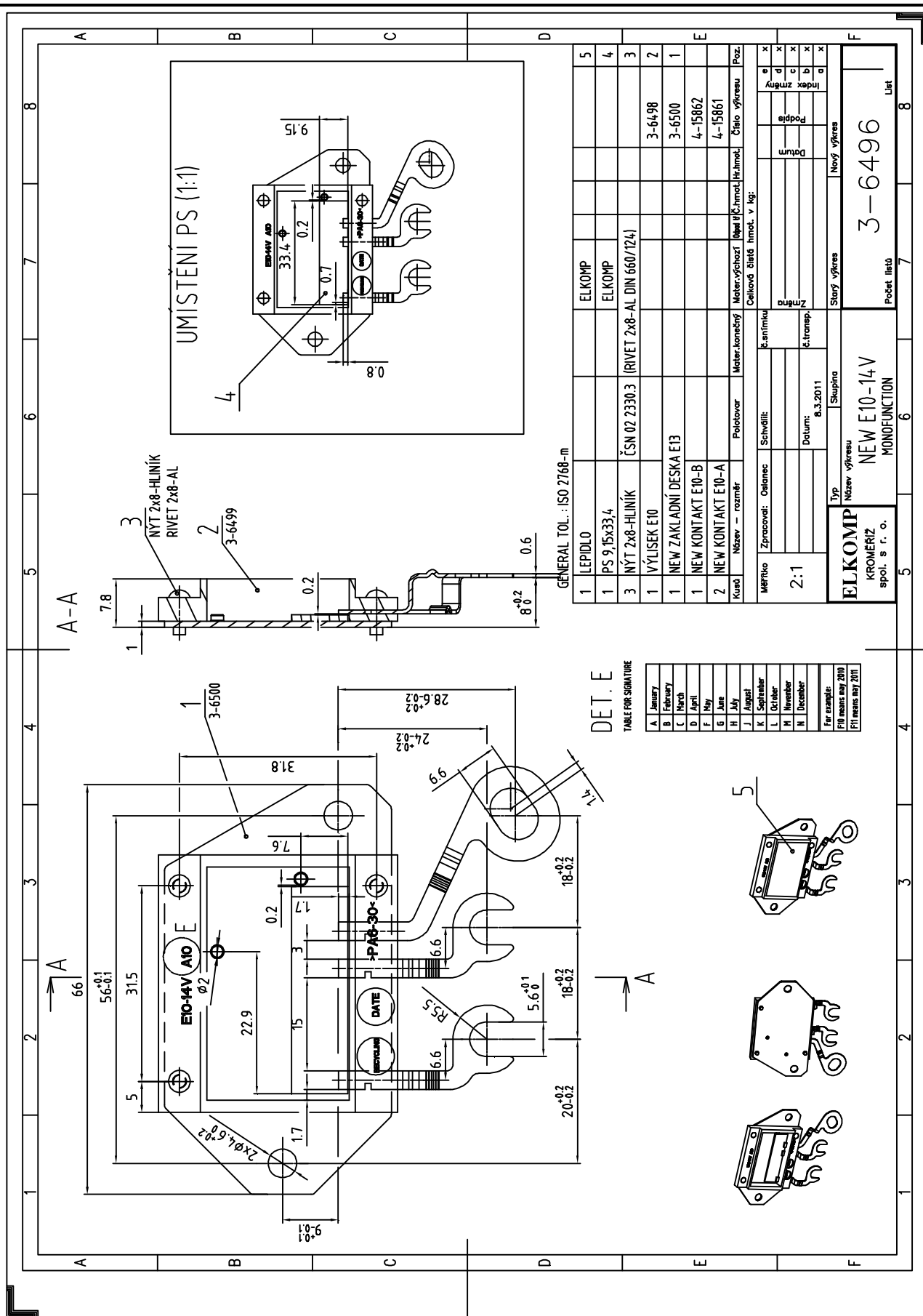
Set-point voltage versus case temperature



Application circuit



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Kód	Název – rozměr	Podtovar	Mater. konečky	Mater. výchozí	Obj. č. / Hmot.	H. / Hmot.	Číslo výřezu	Poz.
1	LEPIDLO							
1	PS 9,15x33,4	ELKOMP						5
3	NYT 2x8-HLINÍK (ČSN 02 2330.3 (RIVET 2x8-AL DIN 660/124)	ELKOMP						4
1	VÝLISEK E10							3
1	NEW ZAKLADNÍ DESKA E13							2
1	NEW KONTAKT E10-B							1
2	NEW KONTAKT E10-A							E

MPR/KO	Zpracoval:	Ověřil:	Schválil:	k. an / m. u.		
2:1				Datum:	8.3.2011	
Typ			Shrupina	Nový výřez		
Název výřezu			NEW E10-14V			
MONOFUNCTION			Počet listů			8
3-6496			Liet			

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TABLE FOR SIGNATURE

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
K	October
L	November
M	December

For example:
 F10 means may 2010
 F11 means may 2011

