

Monofunction regulator E10-14V/3 – for 3 phase alternator

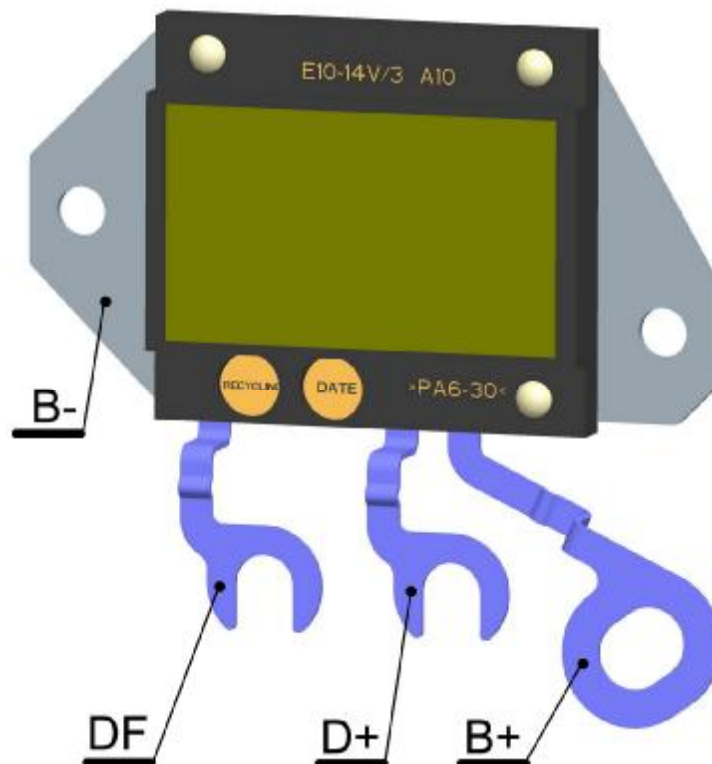
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Feature summary:

- Precise temperature coefficient
- Precise regulated voltage
- High output current
- Short circuit protected
- + 80V load dump protection
- Low energy spike protection
- Very low start up voltage
- C = 2 μ 2/100V

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.



Application: MMZ

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Electrical specifications

Absolute maximum ratings

Symbol	Parameter	Value	Unit
Vs	Transient Overvoltage: Load Dump : 5ms ≤ Trise ≤ 10ms, rFall Time Constant ≤ 100ms, Rsource ≥ 0.5Ω	80	V
Iclamp	Current into Low Energy Clamping Zener (Trise= 5ms ; Tdecay ≤ 2ms ; duty cycle ≤ 5%)	100	mA
Iout	Maximum Output Current	5.5	A
Tj, Tstg	Junction and Storage Temperature Range	- 55 to + 150	°C

Thermal data

Symbol	Parameter	Value	Unit
Rth i-case	Thermal Resistance Junction-case Max.	3	°C/W

Electrical specifications

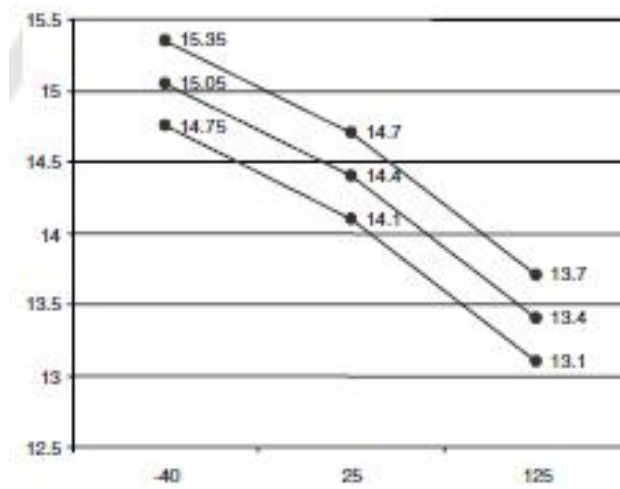
(- 40 °C ≤ Tj ≤ 125 °C, unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
Vr	Voltage regulation	Tj = -40°C	14.75	15.05	15.35	V
		Tj = 25°C	14.1	14.4	14.7	V
		Tj = 125°C	13.1	13.4	13.7	V
CT	Temperature coeff. of the regulation voltage			-10		mV/°C
eCT	Error on nominal temperature coeff.			± 30		%
Vr	Load regulation	0.1 In < Iait < 0.9 In		250		mV
Vsu	Control circuit minimum start up voltage	Measured at Supply Pin		2	3	V
Vsd	Shutdown voltage (dump protection threshold)			22		V
Vsat 1	Output saturation voltage	Ifield = 4 Ap		1.2	2	V
Vsat 2	Start up saturation voltage	Ifield = 200 mA		0.7	1	V
Iq	Quiescent current	Field Off		20		mA

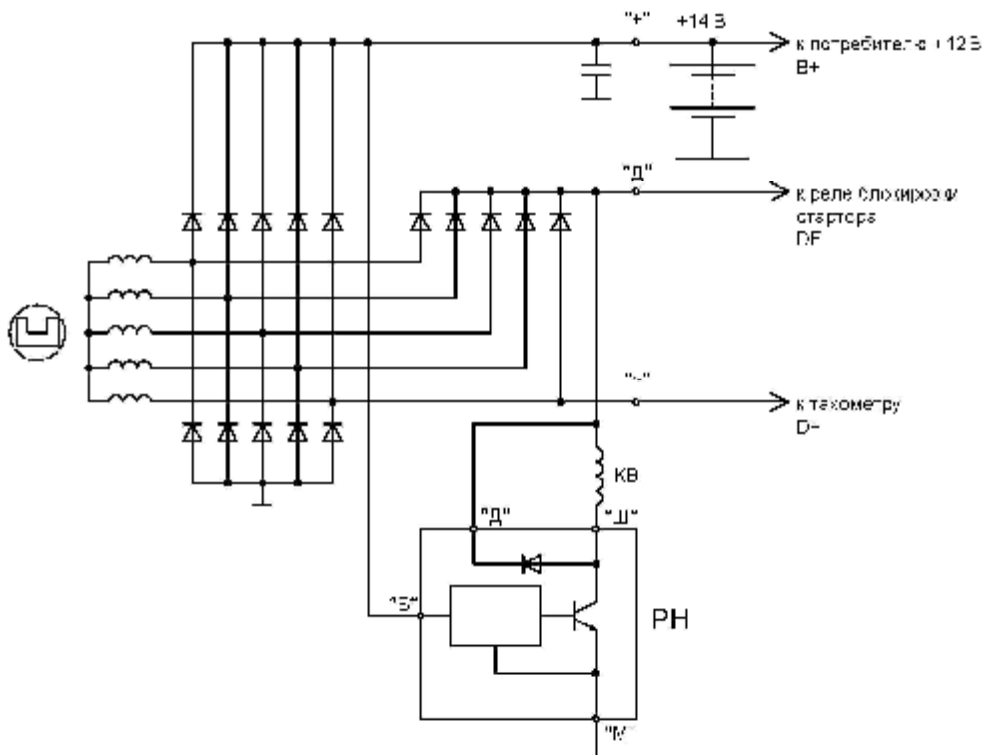
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I_s	Supply current	$I_{field} = 4 A_p$		50		mA
I_{fs}	Field pin sink current	Field Off Field Pin @ 16 V			5	mA
$V1_{CLAMP}$	Low energy clamping zener Voltage	$I_{clamp} = 50 \text{ mA}$		120		V
f_{sw}	Switching frequency	$0.1 I_n < I_{alt} < 0.9 I_n$	30		1000	Hz

Set-point voltage versus case temperature



Application circuit



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