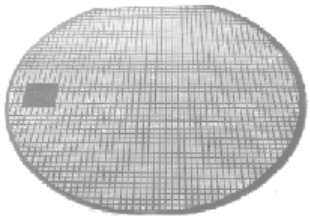
KB1088EP

VEHICLE-BOARD NETWORK VOLTAGE REGULATOR

Family of unpackaged ICs of regulator of car - system voltage of automobiles and tractors.



IC of voltage regulator is meant for stabilization of voltage, which is produced by car-system generating set of automobiles and tractors, not depending on engine rotation number and load current in car - system.

Principle of voltage regulator action is in change of output pulse duty ratio within wide limits, affected by changes of voltage that is produced by car - system generator, from which the IC is supplied.

IC output works for power composite transistor that is directly connected to excitation generator winding. With change of regulated voltage, affected by external factors, output pulse duty ratio changes and accordingly high or low power is supplied to excitation winding in order to recover broken balance. In the middle of the control range, duty ratio is approximately equal to two (Q=2) at pulse repetition frequency on IC output not less than 1000Hz.

Device type/nominal features

Conventional designation	Basic functional purpose	Tuning voltage U_T, V, min … max	Temperature coefficient of tuning TKV, mV/°C	Min output current , Io, mA,	Min load current of load of output transistor I_L, mA
KB1088EP1-4	Electronic voltage regulator	13.9 … 14.3	-7 ± 1.5	|-9.5|	9.5
KB1088EP1-01-4, KB1088EP1-11-4		14.0 … 14.2	-7 ± 1.5	|-9.5|	9.5
KB1088EP1-02-4		14.0 … 14.2	-7 ± 1.5	-	9.5
KB1088EP1-03-4		13.5 … 13.7	± 2.0	|-9.5|	9.5
KB1088EP1-04-4		13.5 … 13.7	± 2.0	-	9.5
KB1088EP1-12-4		14.0 … 14.2	-7 ± 1.5	|-9.5|	33
KB1088EP1-12A-4		14.4 … 14.6	-7 ± 1.5	|-9.5|	33
KB1088EP1-12Б-4		14.7 … 14.9	-7 ± 1.5	|-9.5|	33
KB1088EP1-13-4		14.0 … 14.2	-7 ± 1.5	|-33|	33
KB1088EP1-14-4		14.0 … 14.2	-7 ± 1.5	|-9.5|	33
KB1088EP1-15-4		13.5 … 13.7	± 2.0	|-9.5|	33
KB1088EP1-16-4		13.5 … 13.7	± 2.0	|-33|	33
KB1088EP1-17-4		13.5 … 13.7	± 2.0	|-9.5|	33

Note

1 Microcircuits KB1088EP1-4, KB1088EP1-01-4, KB1088EP1-03-4, KB1088EP1-11-4, KB1088EP1-12-4, KB1088EP1-12A-4, KB1088EP1-12Б-4, KB1088EP1-13-4, KB1088EP1-15-4, KB1088EP1-16-4 have output for controlling of power composite bipolar transistor.

Microcircuits KB1088EP1-02-4, KB1088EP1-04-4, KB1088EP1-14-4,KB1088EP1-17-4 have output for controlling power field - effect transistor (MOSFET).

2 Microcircuits KB1088EP1-11-4, KB1088EP1-12-4, KB1088EP1-12A-4, KB1088EP1-12Б-4, KB1088EP1-13-4, KB1088EP1-14-4, KB1088EP1-15-4, KB1088EP1-16-4, KB1088EP1-17-4 have enlarged sizes of pads for stitch bonding of interconnections on assembling of hybrid voltage regulators.

3 Microcircuits KB1088EP1-12-4, KB1088EP1-12A-4, KB1088EP1-12Б-4, KB1088EP1-13-4, KB1088EP1-14-4, KB1088EP1-15-4, KB1088EP1-16-4, KB1088EP1-17-4 have output with increased output capability

Korzhenevskogo 12, Minsk, 220108, Republic of Belarus
Fax: +375 (17) 278 28 22,
Phone: +375 (17) 278 07 11, 212 24 70, 212 24 61, 212 69 16
E-mail: office@bms.by
URL: www.bms.by

Electric parameters

Parameter	Symbol	Measurements mode	Device	Min	Max	Tempe-rature °C
Consumption current, mA	Icc	Ucc=12.5V, Uo=1.5V R1=200 Ohm ± 5% R2=500 Ohm ± 5%	KB1088EP1-4	-	22	25±10 100±3 -45±3
Output current, mA	Io	Uo = 1.5 V Ucc=12.5 V ± 1% Ucc = 2.5 V ± 1%		|-9.5| |-0.6|	- -	
Tuning voltage, V	U_T			13.9	14.3	25±10
				13.26	13.96	100±3
				14.2	14.9	-45±3
Consumption current, mA	Icc	Ucc=12.5V, Uo=1.5V R1=200 Ohm ± 5% R2=500 Ohm ± 5%	KB1088EP1-01-4 KB1088EP1-03-4 KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-12А-4 KB1088EP1-12Б-4 KB1088EP1-15-4 KB1088EP1-02-4 KB1088EP1-04-4 KB1088EP1-14-4 KB1088EP1-17-4 KB1088EP1-13-4 KB1088EP1-16-4	- -	22 45	25±10 100±3 -45±3
Low level output Voltage, V	U_{OL}	Ucc = 18 V Ucc = 18 V Io = 25 mA	KB1088EP1-01-4 KB1088EP1-02-4 KB1088EP1-03-4 KB1088EP1-04-4 KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-12А-4 KB1088EP1-12Б-4 KB1088EP1-13-4 KB1088EP1-14-4 KB1088EP1-15-4 KB1088EP1-16-4 KB1088EP1-17-4	-	0.4	
High level output Voltage, V	U_{OH}	Ucc = 13 V	KB1088EP1-01-4 KB1088EP1-03-4 KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-12А-4 KB1088EP1-12Б-4 KB1088EP1-13-4 KB1088EP1-15-4 KB1088EP1-16-4	1.1	-	
			KB1088EP1-02-4 KB1088EP1-04-4 KB1088EP1-14-4 KB1088EP1-17-4	8.5	-	

Korzhenevskogo 12, Minsk, 220064, Republic of Belarus
Fax: +375 (17) 278 28 22,
Phone: +375 (17) 278 07 11, 212 24 70, 212 24 61, 212 69 16
E-mail: office@bms.by
URL: www.bms.by

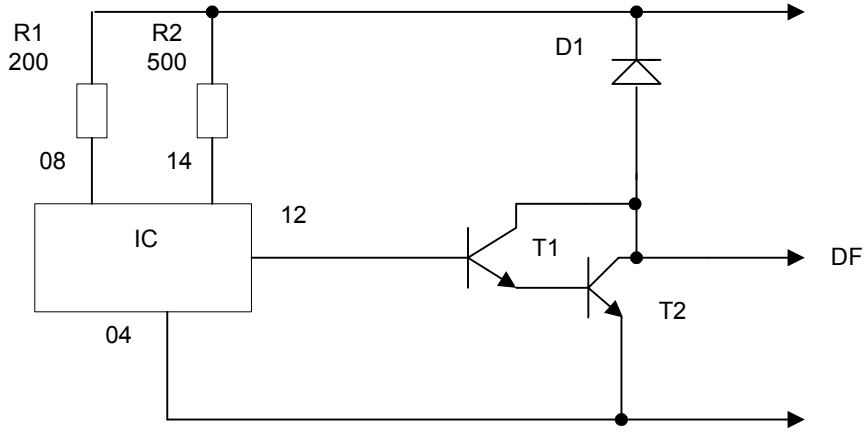
Parameter	Symbol	Measurements mode	Device	Min	Max	Temperature °C
Input limiter supply circuit voltage, V	U_{IP}	Ucc = 12.5 V R1=200 Ohm ± 5% R2=500 Ohm ± 5%	KB1088EP1-12-4 KB1088EP1-12A-4 KB1088EP1-12B-4 KB1088EP1-14-4 KB1088EP1-15-4 KB1088EP1-17-4	9.0	10	25±10
		Ucc = 12.5 V R3=80 Ohm ± 5% R2=500 Ohm ± 5%	KB1088EP1-13-4 KB1088EP1-16-4			
Output current, mA	Io	Uo = 1.5 V Ucc=12.5 V ± 1% Uo = 1.8 V Ucc=12.5 V ± 1%	KB1088EP1-01-4 KB1088EP1-03-4 KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-12A-4 KB1088EP1-12B-4 KB1088EP1-14-4 KB1088EP1-15-4 KB1088EP1-17-4	|-9.5|	-	25±10 -45±3
		Uo = 1.5 V Ucc=12.5 V ± 1%	KB1088EP1-13-4 KB1088EP1-16-4 KB1088EP1-13-4 KB1088EP1-16-4 KB1088EP1-13-4 KB1088EP1-16-4	|-33|	-	25±10
		Uo = 1.5 V Ucc = 2.5 V ± 1%	KB1088EP1-01-4 KB1088EP1-03-4 KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-12A-4 KB1088EP1-12Б-4 KB1088EP1-13-4 KB1088EP1-14-4 KB1088EP1-15-4 KB1088EP1-16-4 KB1088EP1-17-4	|-0.6|	-	25±10 100±3 -45±3
Tuning voltage, V	U_T	-	KB1088EP1-01-4	14.0	14.2	25±2
			KB1088EP1-02-4	13.32	13.82	100±3
			KB1088EP1-11-4 KB1088EP1-12-4 KB1088EP1-13-4 KB1088EP1-14-4	14.36	14.84	-45±3
			KB1088EP1-03-4	13.5	13.7	25±10
			KB1088EP1-04-4	13.34	13.86	100±3
			KB1088EP1-15-4 KB1088EP1-16-4 KB1088EP1-17-4	13.35	13.85	-45±3
			KB1088EP1-12A-4	14.4	14.6	25±2
				13.72	14.22	100±3
				14.76	15.24	-45±3
			KB1088EP1-12Б-4	14.7	14.9	25±2
				14.02	14.52	100±3
				15.06	15.54	-45±3

KB1088EP

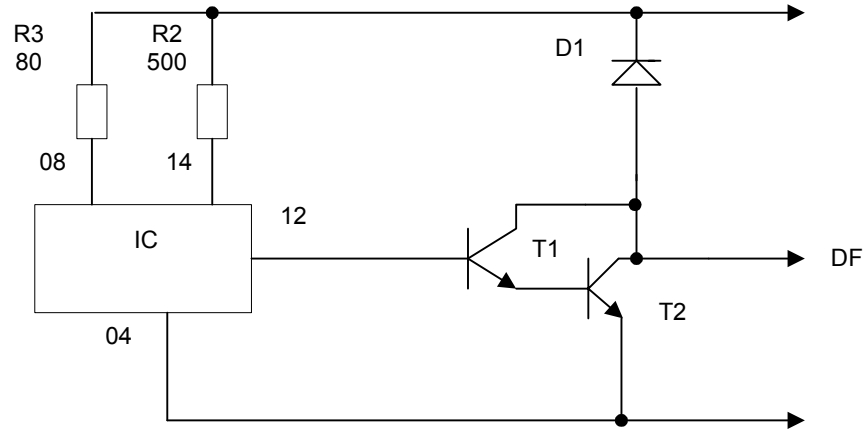
Maximum rating

Parameter	Symbol	Absolute maximum ratings		Maximum ratings	
		Min	Max	Min	Max
Constant supply voltage, V	Ucc	-	18	-	-
Storage temperature, °C	Tstg	-	-	-60	150

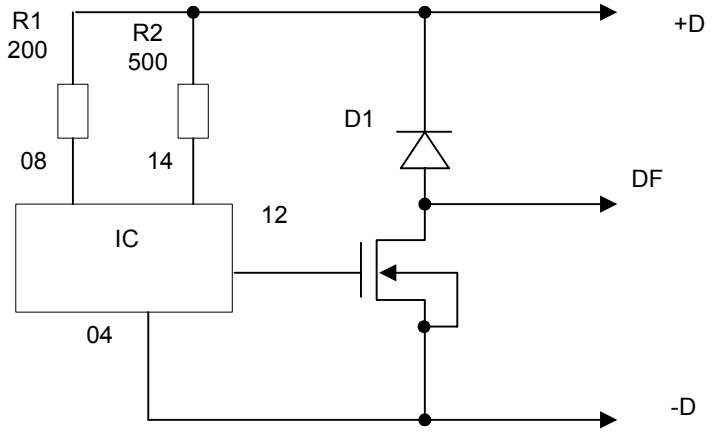
Diagram of connection (application inside of hybrid voltage regulator)



For ICs KB1088EP1-4, KB1088EP1-01-4, KB1088EP1-03-4, KB1088EP1-11-4, KB1088EP1-12-4, KB1088EP1-12A-4, KB1088EP1-12Б-4, KB1088EP1-15-4



For ICs KB1088EP1-13-4, KB1088EP1-16-4



For ICs KB1088EP1-02-4, KB1088EP1-04-4, KB1088EP1-14-4,KB1088EP1-17-4