

VG2043

Automotive Flashers Controller

Specification

May. 2008



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Specification



Product Overview

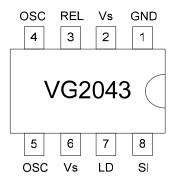
Instruction

The integrated circuit VG2043 is used in relay-controlled automotive flashers where a high EMC level is required. A lamp outage is indicated by frequency doubling during hazard mode as well as direction mode. The pilot lamp can be connected either to V_{Balt} or GND.

Feature

- **♦** Temperature and voltage compensated frequency
- ♦ Warning indication of lamp failure by means of frequency doubling
- **♦** Minimum lamp load for flasher operation ≥ 10W
- ♦ Relay output with high current carrying capacity and low saturation voltage
- ♦ DIP8 or Sop8 package
- ◆ Two type supply voltage for selection: 12V and 24V (2043B is for 12V, 2043C is for 24V)

Pin Configurations



Pin Function

Pin	Symbol	Function	
1	GND	IC ground	
2	Vs	Supply voltage	
3	REL	Relay driver	
4	OSC	Oscillator C ₁	
5	OSC	Oscillator R ₁	
6	Vs	Supply voltage Vs	
7	LD	Lamp failure detection	
8	SI	Start input (49a)	



Electronics Characteristics

Absolute Maximum Ratings

Reference point ground Pin1, voltage: 12V/24V

Symbol	Parameter			Value	Unit
Vs	Supply voltage		Pins2, 6	30	V
	Surge forward	$t_p = 0.1 ms$	Pins2, 6	1.5	Α
I _{FSM}	Surge forward current	$t_{p} = 2.0 \text{ms}$	Pins2, 6	1.0	Α
. 2	Current	$t_p = 2.0 ms$	Pin8	50	mA
Io	Output current	•	Pin3	0.3	Α
P _{tot}		T _{amb} = 95°C	DIP8	420	mW
	Power dissipation	T _{amb} = 95°C	SOP8	340	mW
		T _{amb} = 60 ℃	DIP8	690	mW
		T _{amb} = 60 ℃	SOP8	560	mW
T _i	Junction temperature			150	$^{\circ}\!\mathbb{C}$
T _{amb}	Ambient temperature range			-40 ~ +95	$^{\circ}$
T _{stq}	Storage temperature range			-55 ~ +150	$^{\circ}\!\mathbb{C}$

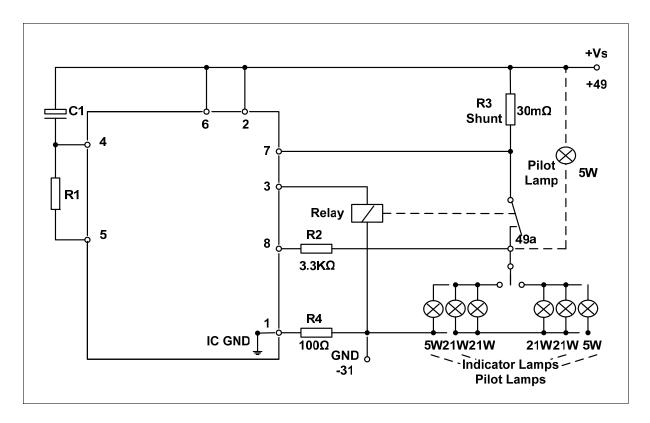
Electronics Characteristics

Typical values under normal operation in application circuit figure, Vs (+49, Pins2 and 6) = 12V, Reference point ground (-31), $T_{amb} = +25^{\circ}C$, unless otherwise specified.

Symbol	Parameters	Test Conditions/Pins	MIN	Тур	Max	unit
Vs	Supply voltage range	Pins2, 6	_	9~28	_	V
Is	Supply current	Dark phase or stand by Pins2, 6	_	4.5	8	mA
I_S	Supply current	Bright phase Pins2, 6	_	7.0	11	mA
Vo	Relay output	Saturation voltage I _O = 150mA, Vs = 9V Pin3	_	_	1.0	V
Io	Relay output reverse current	Pin3	_	-	0.1	mA
R_L	Relay coil resistance	_	60		_	Ω
t_{on}	Start delay	First bright phase		I	10	ms
R ₁	Frequency determining resistor	_	6.8	-	510	ΚΩ
C ₁	Frequency determining capacitor	_	_	_	47	μF
Δf_1	Frequency tolerance	Normal flashing	-5	-	+5	%
Δf_1	Bright period	Basic frequency f ₁	47	1	53	%
Δf_2	Bright period	Control frequency f ₂	37	-	45	%
f ₂	Frequency increase	Lamp outage	2.15 x f ₁	-	2.3 x f ₁	Hz
V _{R3}	Control signal threshold	Vs = 15V Pin7 Vs = 9V Vs = 15V	85 66 76	91 71 81	97 76 87	mV
R_P	Leakage resistance	49a to GND	_	2	5	ΚΩ
P _L	Lamp load	_	10	-	_	W



Application Circuit





Revision History

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Mar. 2001	2		Initial Release.
2.0	Oct. 2007	7		Updated format.
2.1	May. 2008	7	Sales and service	Updated the address of HK office.



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