上海复旦微电子股份有限公司
SHANGHAI FUDAN MICROELECTRONICS CO., LTD

Automotive Flashers Controller VG2043

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_{Batt} or GND.

FEATURES

- 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)

ABSOLUTE MAXIMUM RATINGS

Reference point ground PIN1,voltage:12V/24V

parameters	Symbol	Value	Unit
PINS2.6 Supply voltage	V_S	30.0	V
Surge forward current			
t_p=0.1ms PINS2,6	I_{FSM}	1.5	A
t_p=2ms PINS2,6	I_{FSM}	1.0	A
t_p=2ms PIN8	I_{FSM}	50	mA
PIN3 output current	I_O	0.3	A
Power dissipation			
Tamb=95℃ DIP8	P_{tot}	420	mW
SO8	P_{tot}	340	mW
Tamb=60℃ DIP8	P_{tot}	690	mW
SO8	P_{tot}	560	mW
Junction temperature	T_j	150	℃
Ambient temperature range	T_{amb}	-40 ~ +95	℃
Storage temperature range	T_{stg}	-55 ~ +150	℃

ELECTRICAL CHARACTERISTICS

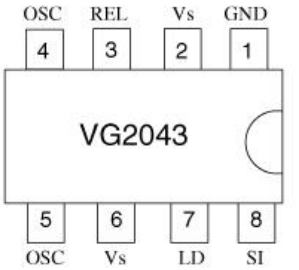
Typical values under normal operation in application circuit figure 2,Vs(+49,Pins 2 and 6)=12 V.
Reference point ground(-31), Tamb=25℃,unless otherwise specified

Parameters	Test Conditions/pins	Symbol	Min	Typ	Max	Unit
		Vs		9to28		V
		Is		4.5	8	mA

Relay output reverse current	Pin 3	Io			0.1	mA
Relay coil resistance		R_L	60			Ω
Start delay	First bright phase	ton			10	ms
Frequency determining resistor		R1	6.8		510	KΩ
Frequency determining capacitor		C1			47	μF
Frequency tolerance	Normal flashing	△f1	-5		+5	%
Bright period	Basic frequency f1	△f1	47		53	%
Bright period	Control frequency f2	△f2	37		45	%
Frequency increase	Lamp outage	f2	2.15x f1		2.3xf1	Hz
Control signal threshold	Vs=15V Pin7	V_{R3}	85	91	97	mV
	Vs=9V	V_{R3}	66	71	76	mV
	Vs=15V	V_{R3}	76	81	87	mV
Leakage resistance	49a to GND	R_P		2	5	KΩ
Lamp load		P_L	10			W

PIN CONFIGURATIONS,DEFINITIONS

pin	symbol	function
1	GND	IC ground
2	Vs	Supply voltage
3	REL	Relay driver
4	OSC	C1 oscillator
5	OSC	R1 oscillator
6	Vs	Supply voltage
7	LD	Lamp failure detection
8	SI	Start input(49a)



APPLICATION CIRCUIT