



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_{Ref} 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			
$T_{amb}=95^{\circ}C$ DIP8	P_{tot}	420	mW
SOP8	P_{tot}	340	mW
$T_{amb}=60^{\circ}C$ DIP8	P_{tot}	690	mW
SOP8	P_{tot}	560	mW
Junction temperature	T_j	150	$^{\circ}C$
Ambient temperature range	T_{amb}	$-40 \sim +95$	$^{\circ}C$
Storage temperature range	T_{stg}	$-55 \sim +150$	$^{\circ}C$



ELECTRICAL CHARACTERISTICS

Typical values under normal operation in application circuit figure 2, $V_s(+49, \text{Pins } 2 \text{ and } 6)=12V$.

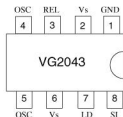
Reference point ground(-31), $T_{amb}=25^{\circ}C$, unless otherwise specified

Parameters	Test Conditions/pins	Symbol	Min	Typ	Max	Unit
Supply voltage range	Pins2,6	V_s		9to28		V
Supply current	Dark phase or stand-by PINS2,6	I_s		4.5	8	mA
Supply current	Bright phase PINS2,6	I_s		7.0	11	mA
Relay output	Saturation voltage $I_o=150mA$ $V_s=9V$ Pin 3	V_o			1.0	V

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

PIN CONFIGURATIONS,DEFINITIONS

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



APPLICATION CIRCUIT

