

IC High input voltage LED source driver BD8372HFP-M/BD8372EFJ-M

•Description

BD8372HFP-M/EFJ-M is a LED source driver with the capability of withstanding high input voltage (50V Max.).

The fixed current output can change in the H/L current, and it is the best for automotive LED drive. It is built into LED open/short protection, external resistance open/short protection and overvoltage overheating protection, and high reliability can be achieved.

When driving two or more LED by using two or more IC, it can be done to control LED all together turning off even if LED causes short/open in a certain row.

•Features

- 1) Input voltage range 5.5 to 40V
- 2) Changeable type fixed current source driver(200mA Max.), Current accuracy $\pm 3\%$ ($V_{IN}=13V$, $T_a=25^\circ C$)
- 3) H/L Current setting switch control
- 4) Built-in LED open/short protection circuit
- 5) Built-in ISET open/short protection circuit
- 6) Built-in overvoltage overheating protection and temperature protection circuit
- 7) Error state output detection function(PBUS)
- 8) HRP7/HTSOP-J8 package

•Applications

For automotive (Rear lamp, Interior light, etc.)

•Absolute Maximum Ratings ($T_a=25^\circ C$)

Parameter	Symbol	Rating	Unit
Power supply voltage	V_{VIN}	50	V
STOP, IOUT, PBUS terminal	V_{STOP} , V_{IOUT} , V_{PBUS}	50	V
ISETH, ISETL terminal	V_{ISETH} , V_{ISETL}	7	V
Power Consumption	P_d	2.3(HRP7) ¹	W
		1.1(HTSOP-J8) ²	
Operating temperature range	T_{opr}	-40 to 125	$^\circ C$
Storage temperature range	T_{stg}	-55 to 150	$^\circ C$
Joint part temperature	T_{jmax}	150	$^\circ C$
IOUT output maximum current	I_{IOUT}	200	mA

* 1) HRP7 : IC mounted on glass epoxy 2 layer board, area 15mm \times 15mm of the back copper foil, measuring 70mm \times 70mm \times 1.6mm less than copper foil share 3%, power dissipated at a rate of 18.4mw/ $^\circ C$ at temperatures above 25 $^\circ C$.

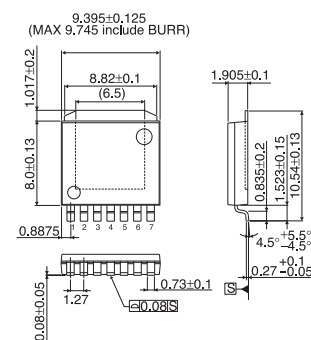
* 2) HTSOP-J8 : IC mounted on glass epoxy 2 layer board, area 15mm \times 15mm of the back copper foil, measuring 70mm \times 70mm \times 1.6mm less than copper foil share 3%, power dissipated at a rate of 8.8mw/ $^\circ C$ at temperatures above 25 $^\circ C$.

•Operating Conditions ($T_a=-40$ to $+125^\circ C$)

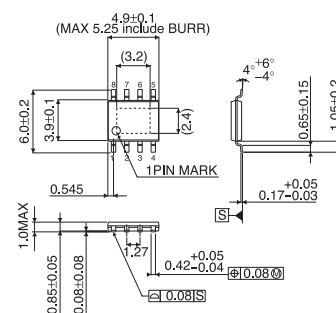
[Please set after considering power consumption for the power-supply voltage.]

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Power supply voltage	V_{IN}	5.5	13	40	V	-
Current setting resistance	R_{ISETH}	10k	-	100k	Ω	STOP=H
	R_{ISETL}	10k	-	100k	Ω	STOP=L

•Package (Unit:mm)



HRP-7

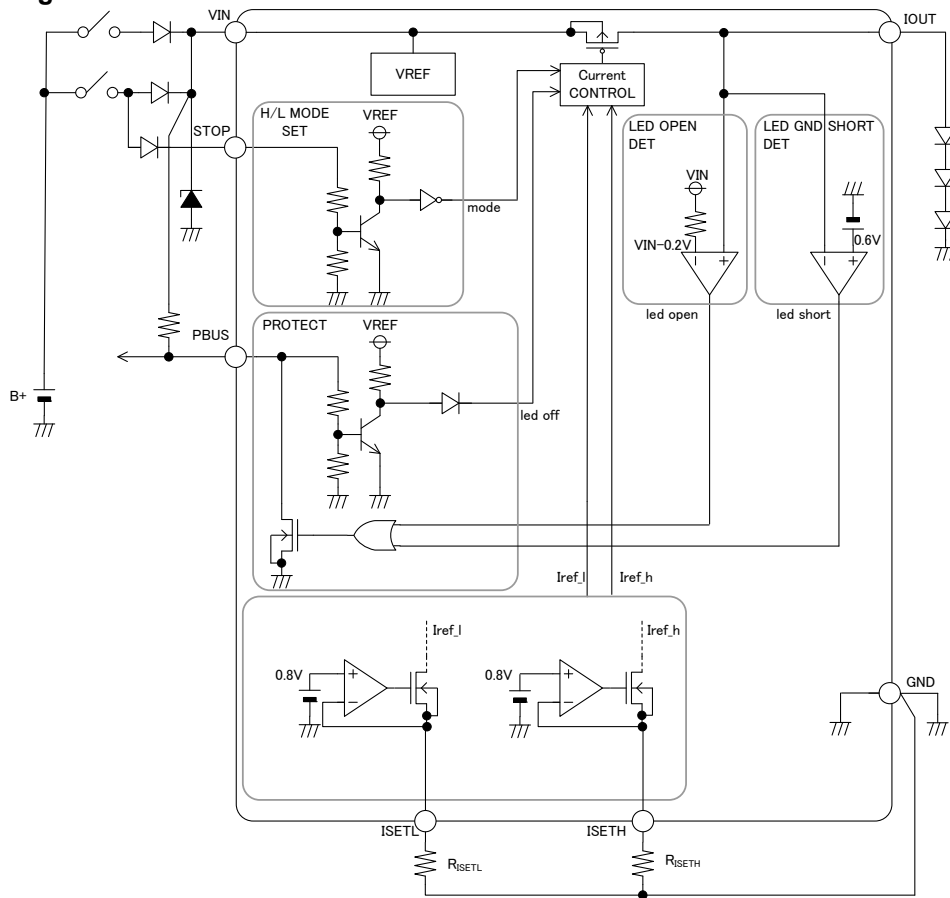


HTSOP-J8

●Electrical Characteristics (Unless otherwise specified, Ta=-40 to 125°C, VIN=13V, R_{ISETL}=R_{ISETH}=40kΩ, PBUS=10kΩ)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Circuit current	IVIN	-	2.9	5	mA	
IOUT output current different width H	IOUT_H	48.5	50	51.5	mA	50mA setting (ISET=40kΩ) STOP=High, Ta=25°C
		46	50	54	mA	50mA setting (ISET=40kΩ) STOP=High, Ta=-40 to 125°C
IOUT output current different width L	IOUT_L	4.85	5	5.15	mA	5mA setting (ISET=40kΩ) STOP=Low, Ta=25°C
		4.6	5	5.4	mA	5mA setting (ISET=40kΩ) STOP=Low, Ta=-40 to 125°C
IOUT drop voltage H	VDRH_IOUT	-	0.7	1.2	V	200mA setting(ISET=10kΩ) STOP=High
IOUT drop voltage L	VDRL_IOUT	-	0.5	0.7	V	20mA setting(ISET=10kΩ) STOP=Low
IOUT OFF current	I _{IOUT_OFF}	-	-	1	μA	VIOUT=2V, PBUS=L, Ta=25°C
IOUT current at GND short	I _{IOUT_SHORT}	-	-	40	μA	VIOUT=0V
ISET terminal voltage	VISET	-	0.8	-	V	ISETH, ISETL
ISET short detection resistance	R _{ISET_SHORT}	-	5.1k	7.5k	Ω	ISETH, ISETL
ISET open detection resistance	R _{ISET_OPEN}	125k	400k	-	Ω	ISETH, ISETL
IOUT LED OPEN detection	VIOUT_OPEN	VIN-0.3	VIN-0.2	VIN-0.1	V	
IOUT LED short detection	VIOUT_SHORT	0.2	0.6	1.0	V	
STOP input voltage H	VIH_STOP	4.0	-	VIN+0.2	V	
STOP input voltage L	VIL_STOP	GND	-	1.0	V	
STOP input current	VIN_STOP	-	40	100	μA	STOP=13V
PBUS input voltage H	VIH_PBUS	4.0	-	VIN+0.2	V	
PBUS input voltage L	VIL_PBUS	GND	-	2.0	V	
PBUS Low voltage	VOL_PBUS	-	-	1.5	V	IPBUS=20mA
PBUS input current	IIN_PBUS	-	38	100	μA	PBUS=13V
VIN Reduce voltage open mask	VUVLO_IOPEN	7.5	8.0	8.5	V	
VIN Over voltage mute current	VIN_OVPMUTE	16	19	24	V	200mA setting (ISET=10kΩ) STOP=High

●Block Diagram



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