

Three-Phase MOSFET Bridge, With Gate Driver and Optical Isolation

DESCRIPTION: A 100 VOLT, 60 AMP, THREE PHASE MOSFET BRIDGE

ELECTRICAL CHARACTERISTICS PER MOSFET DEVICE (T_j=25°C UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
MOSFET SPECIFICATIONS					
Drain to Source Breakdown Voltage I _C = 250 μA, V _{GS} = 0V	BV _{CSS}	100	-		V
Continuous Drain Current T _C = 25 °C T _C = 90 °C	I _D	-	-	60 50	A
Pulsed Drain Current, 1mS	I _{DM}			100	A
Gate to Source Voltage	V _{GS}	-	-	+/-20	V
Gate-Source Leakage Current , V _{GS} = +/-20V	I _{GSS}			+/- 100	nA
Gate Threshold Voltage, I _C =1mA	V _{GS(TH)}	2		4	V
Zero Gate Voltage Drain Current V _{CS} = 600 V, V _{GE} =0V T _i =25°C V _{CS} = 480 V, V _{GE} =0V T _i =125°C	I _{CSS}	-	-	250 500	μA μA
On-State Resistance, T _C = 25 °C I _D = 10A, V _{GS} = 15V,	R _{DSon}	-	0.012	0.015	V
Input Capacitance Output Capacitance Reverse Transfer Cap. V _{CS} = 25 V, V _{GE} = 0 V, f = 1 MHz	C _{iss} C _{oss} C _{res}		3950 850 250		pF
Maximum Thermal Resistance	R _{θJC}	-	-	0.7	°C/W

SENSITRON SEMICONDUCTOR

TECHNICAL DATA

DATA SHEET 4096, Rev A

Gate Driver

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	VCC	10	15	20	V
Input On Current	HIN, LIN	1.6	-	5	mA
Opto-Isolator Logic High Input Threshold	I _{th}		1.6		mA
Input Reverse Breakdown Voltage	BV _{in}	5			V
Input Forward Voltage @ I _{in} = 5mA	V _F		1.5	1.7	V
Under Voltage Lockout	VCCUV	7.0	-	9.7	V
ITRIP Threshold Voltage ⁽¹⁾	ITRIP _{th}	0.4	0.49	0.58	V
Turn On Delay	t _{ond}	-	-	1000	nsec
Turn On Rise Time	t _r	-	-	100	nsec
Turn Off Delay	t _{offd}	-	-	1300	nsec
Turn Off Fall Time	t _f	-	-	100	nsec
Input-Output Isolation Voltage		1000			V

Maximum operating Junction Temperature	T _{jmax}	-40	-	150	°C
Maximum Storage Junction Temperature	T _{jmax}	-55	-	150	°C

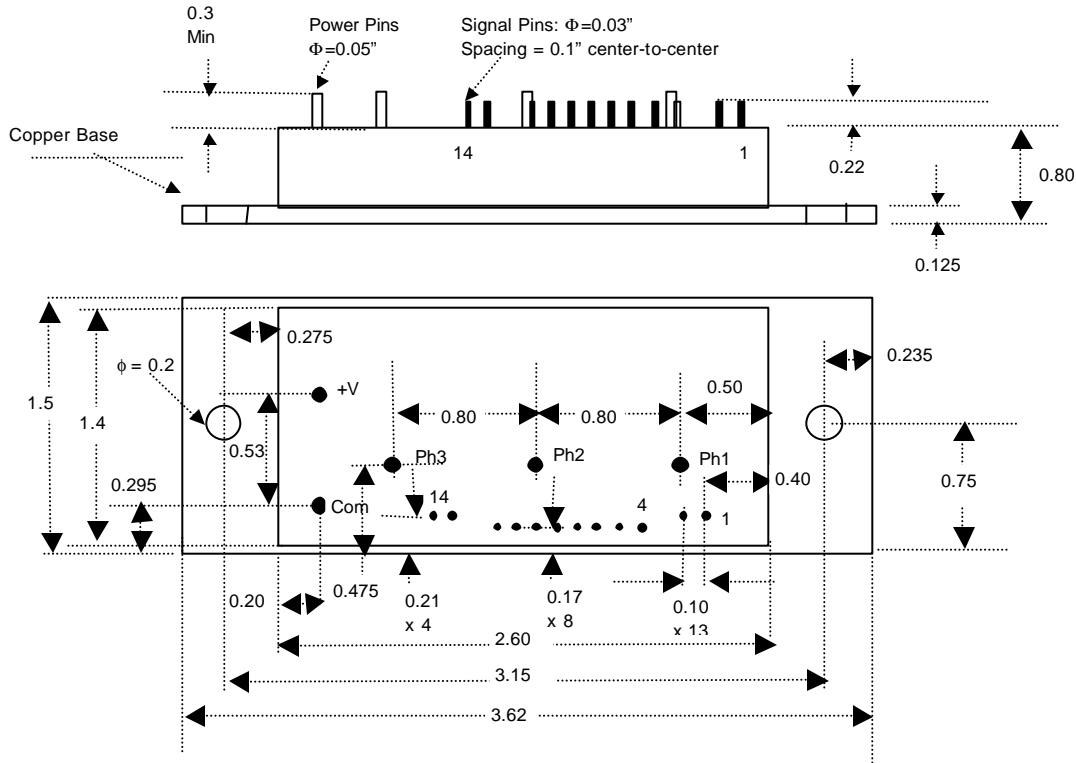
- (1) Once ITRIP reaches threshold, the driver latches off. This condition can be reset by holding all three low-side inputs high for more than 10 μ sec or by recycling the V_{cc} supply.

SENSITRON SEMICONDUCTOR

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Package Drawing:



Package Material:

Base: Copper

Frame: Nickel

Lid: Plastic

Power Terminals: Copper

Signal Terminals & Truth Table:

Gate Driver Truth Table			
HIN1,2,3	LIN1,2,3	HO1,2,3	LO1,2,3
0	0	0	0
0	1	1	0
1	0	0	1
1	1	0	0

Signal Pins	
Pin #	Function
1	+15V
2	PWR-GRND
3	NC
4	HIN1
5	HIN2
6	HIN3
7	SGN-GRND
8	LIN1
9	LIN2
10	LIN3
11	SGN-GRND
12	NC
13	ITRIP
14	ITRIP-RTN

Note: This device can be used with a non-inverting input logic, if LIN and HIN are swapped.

TECHNICAL DATA

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