

SENSITRON

SEMICONDUCTOR

TECHNICAL DATA DATA SHEET 1161, REV. PRELIMINARY A

Three-Phase MOSFET BRIDGE, 100 VOLT, 50 AMP

ELECTRICAL CHARACTERISTICS PER MOSFET DEVICE ($T_j=25^{\circ}\text{C}$ UNLESS OTHERWISE SPECIFIED)

MOSFET Characteristics

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Continuous Drain Current	I_D	$V_{GS}=10\text{V}$, $T_C = 25^{\circ}\text{C}$ $T_C = 80^{\circ}\text{C}$	-	-	50 50	A
Maximum Pulsed Drain Current	I_{DM}	$T_C = 25^{\circ}\text{C}$	-	-	150	A
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$T_j=25^{\circ}\text{C}$, $V_{GS}=0\text{V}$, $I_D=500\mu\text{A}$	100	-	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $T_j=25^{\circ}\text{C}$ $I_D = 500\mu\text{A}$	1.0	-	3.0	V
Static Drain-to-Source On Resistance	R_{DS}	$V_{GS} = 10\text{V}$, $I_D = 40\text{A}$	-	0.013	0.018	Ω
Drain-to-Source Leakage Current	I_{DSS}	$V_{GS}=0\text{V}$, $V_{DS}=100\text{V}$, $T_j=25^{\circ}\text{C}$	-	-	250	μA
Turn-on Delay Rise Time Turn-off Delay Fall Time	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$I_D = 50\text{A}$, $V_{GS} = 10\text{V}$, $T_j=25^{\circ}\text{C}$, $R_G = 5\Omega$, $V_{DD} = 30\text{V}$	-	25 150 60 120		ns
Input Capacitance Output Capacitance Reverse Transfer Capacitance	C_{iss} C_{oss} C_{rss}	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$	-	3.8 0.90 0.30	-	nF
Thermal Resistance	R_{thjc}	-	-	0.7	1	$^{\circ}\text{C/W}$
Operating and Storage Junction Temperature	T_j	-	-40	-	150	$^{\circ}\text{C}$

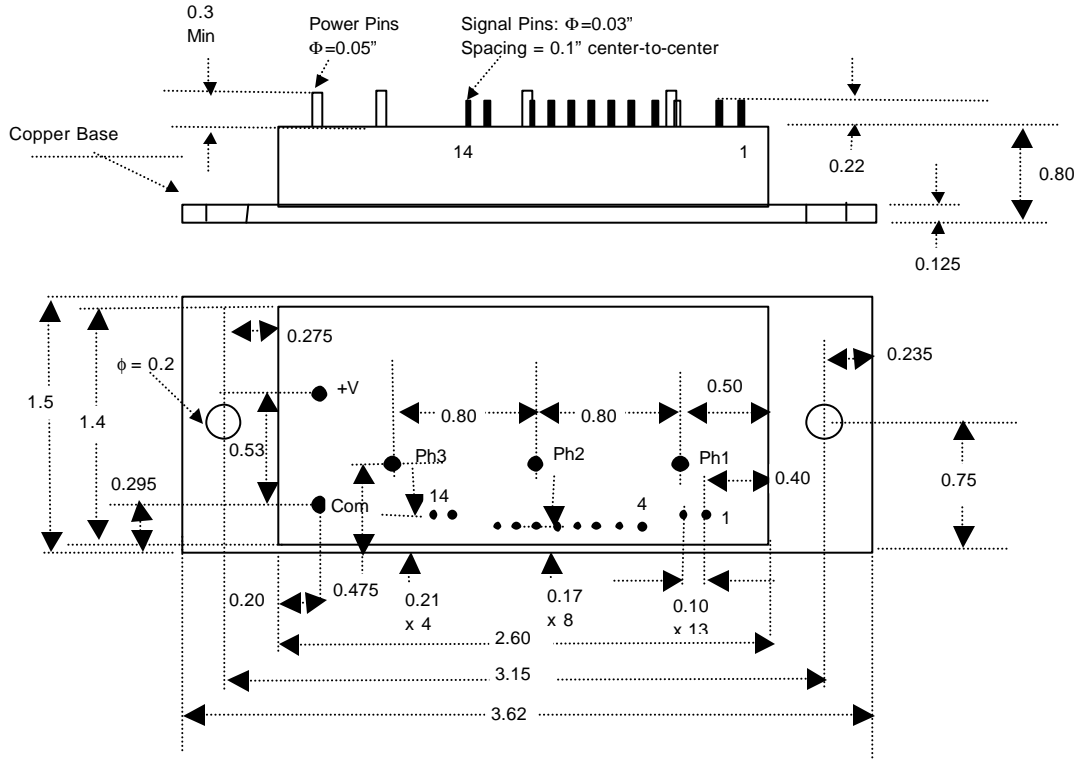
Source Drain Diode Characteristics

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V_{SD}	$T_j=25^{\circ}\text{C}$, $I_F = 30\text{A}$	-	0.80	1.1	V
Reverse Recovery Time	t_{rr}	$T_j = 25^{\circ}\text{C}$, $I_S = 30\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$	-	90	130	ns

SENSITRON**TECHNICAL DATA****DATA SHEET 1161, REV. PRELIMINARY 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	-	-	200	nsec
Turn Off Delay	t _{offd}	-	-	1300	nsec
Turn Off Fall Time	t _f	-	-	200	nsec
Input-Output Isolation Voltage		1000			V

(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**TECHNICAL DATA****DATA SHEET 1161, REV. PRELIMINARY A****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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