TECHNICAL DATA DATASHEET 4109, REV ENG-

Three-Phase IGBT BRIDGE, With Gate Driver and Optical Isolation

DESCRIPTION: A 1200 VOLT, 250 AMP, THREE PHASE IGBT BRIDGE

ELECTRICAL CHARACTERISTICS PER IGBT DEVICI	E	(Tj=25 ^⁰ C UNLESS OTHERWISE SPECIFIED)					
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT	
IGBT SPECIFICATIONS							
Collector to Emitter Breakdown Voltage $I_{C} = 250 \ \mu A, \ V_{GE} = 0V$		BV _{CES}	1200	-	-	V	
	T _c = 25 ^o C T _c = 90 ^o C	I _C	-	-	250 240	А	
Pulsed Collector Current, 1mS		I _{CM}	-	-	600	А	
Gate to Emitter Voltage		V _{GE}	-	-	+/-20	V	
Gate-Emitter Leakage Current , V_{GE} = +/-20V		I _{GES}	-	-	+/- 300	nA	
Gate Threshold Voltage, I _c =2mA		V _{GE(TH)}	3.0	-	6.0	V	
Zero Gate Voltage Collector Current $V_{CE} = 1200 \text{ V}, V_{GE} = 0 \text{ V} T_i = 25^{\circ}\text{C}$ $V_{CE} = 900 \text{ V}, V_{GE} = 0 \text{ V} T_i = 125^{\circ}\text{C}$		I _{CES}	-	-	5 40	mA mA	
Collector to Emitter Saturation Voltage, $I_{C} = 200A, V_{GE} = 15V,$	$T_{c} = 25 \ ^{o}C$	V _{CE(SAT)}	-	2.5	2.8	V	
Maximum Thermal Resistance		R _{eJC}	-	-	0.10	°C/W	
Brake IGBT 60A Maximum Current					0.20	°C/W	
Brake IGBT SPECIFICATIONS							
Continuous Collector Current	T _c = 25 ^o C T _c = 90 ^o C	Ι _C	-	-	150 120	A	
Pulsed Collector Current, 0.5mS		I _{см}	-	-	300	А	
Over-Temperature Shutdown		•	•	•	•	•	
Over-Temperature Shutdown		Tsd	100	110	120	°C	
Over-Temperature Shutdown Hysteresis				20		°C	
Over-Temperature Output		Tso		10		10mV/°C	

• 221 West Industry Court 🗉 Deer Park, NY 11729 🗉 (631) 586 7600 FAX (631) 242 9798 •

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Diode Peak Inverse Voltage	PIV	1200	-	-	V
Continuous Forward Current, $T_c = 90$ °C	I _F	-	-	240	А
Forward Surge Current, $t_p = 10$ msec	I _{FSM}	-	-	700	А
Diode Forward Voltage, $I_F = 200A$	V _F	-	2.0	2.3	V
Diode Reverse Recovery Time (I _F =200A, V _{RR} =600V , di/dt=200 A/μs)	t _{rr}	-	180	250	nsec
Maximum Thermal Resistance	$R_{ ext{ hetaJC}}$	-	-	0.15	°C/W
Gate Driver					
Supply Voltage	VCC	10	15	20	V
Input On Current	HIN, LIN	2		5.0	mA
Opto-Isolator Logic High Input Threshold	l _{th}	-	1.6	-	mA
Input Reverse Breakdown Voltage	BV _{in}	5.0	-	-	V
Input Forward Voltage @ I _{in} = 5mA	V _F	-	1.5	1.7	V
Under Voltage Lockout	VCCUV	7.0	-	9.7	V
ITRIP Refernce Voltage ⁽¹⁾	Itrip-ref	1.45	1.5	1.55	V
Desaturation Over-Current Protection Blanking time ⁽²⁾		3	5	TBD	μsec
Input-to-Output Turn On Delay	t _{ond}	-		800	nsec
Output Turn On Rise Time	t _r	-		180	
Input-to-Output Turn Off Delay	t _{offd}	-		1000	
Output Turn Off Fall Time	t _f			160	
At VCC=300V, IC=50A, T _c = 25					
Input-Output Isolation Voltage	-	1000	-	-	V
Hall Current Sensors Gain, at DC bus, Phase A, and Phase		TBD	TBD	TBD	V/A

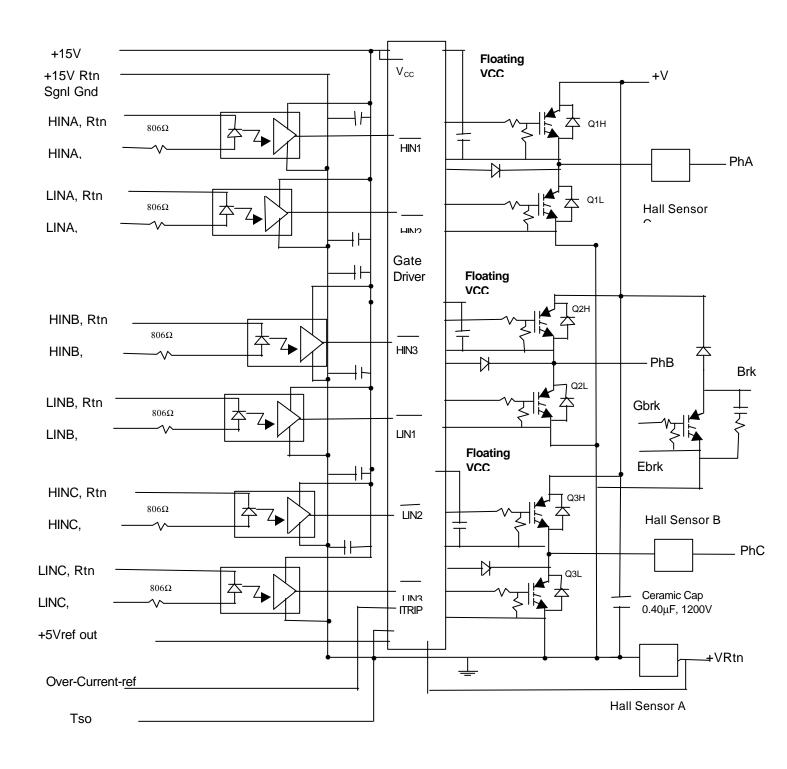
Maximum operating Junction Temperature	T _{jmax}	-40	-	150	°C
Maximum Storage Junction Temperature	T _{jmax}	-55	-	150	٥C

ITRIP Cycle-by cycle current limit is internally set to 200A peak. The set point can be lowered by connecting a resistor between ltrip-ref and Gnd. The set point can be increased by connecting a resistor between ltrip-ref and +5V ref

(2) Desaturation blanking maximum time is TBD and is only provided at the low-side IGBTs.

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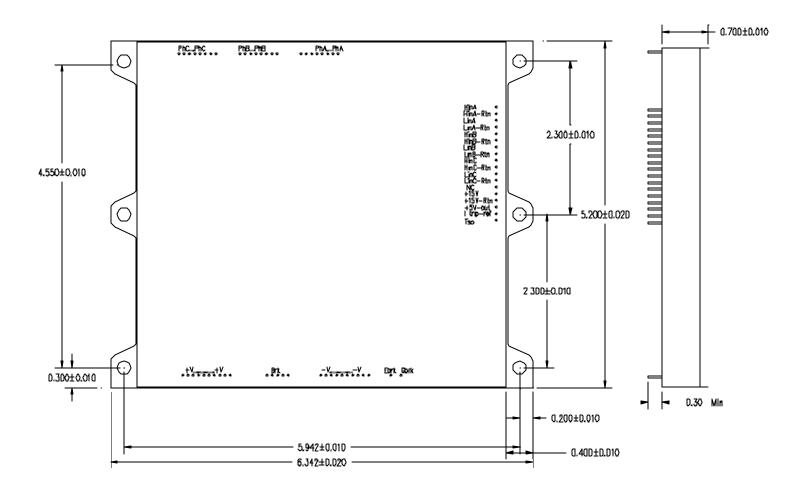
Schematic Diagram:



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SENSITRON TECHNICAL DATA DATASHEET 4109, REV ENG-

Package Drawing:



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