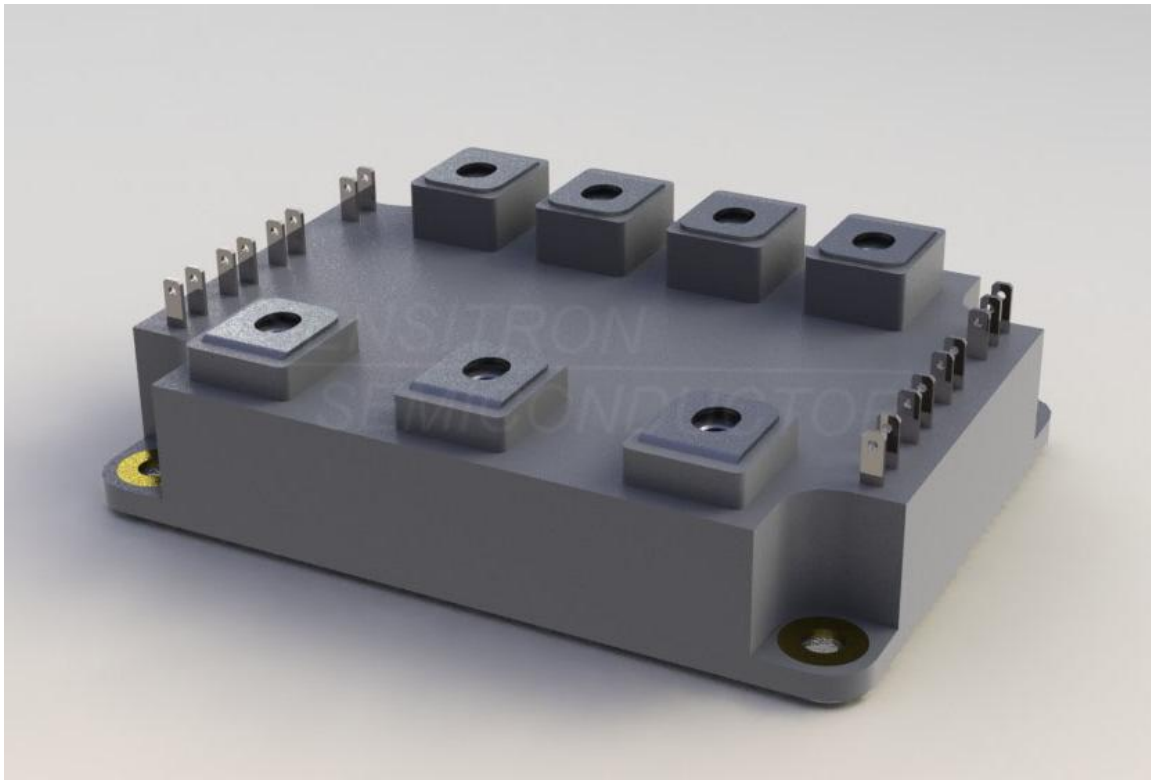


TECHNICAL DATA
DATASHEET 5280, Rev. -

Three-Phase IGBT BRIDGE + HIGH SIDE BRAKE IGBT

DESCRIPTION:

- 1200 VOLT, 150 AMP, THREE PHASE IGBT BRIDGE AND BRAKE IGBT.
- NEAR HERMETIC PACKAGE.
- USE OF LATEST 4TH GENERATION IGBT AND DIODE TO MINIMIZE TOTAL LOSSES.
- AISiC BASE PLATE FOR HIGH TEMPERATURE CYCLE CAPABILITY.
- LOW PROFILE LIGHTWEIGHT PACKAGE.
- INTERNAL BUSBAR LAYOUT MINIMIZES INDUCTANCE.
- INTERNAL GATE SOURCE PROTECTION ZENERS



TECHNICAL DATA
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THREE PHASE AND BRAKE IGBT SECTION
ELECTRICAL CHARACTERISTICS PER IGBT DEVICE

(T_j=25°C UNLESS OTHERWISE SPECIFIED)

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT |
|-----------|--------|-----|-----|-----|------|
|-----------|--------|-----|-----|-----|------|

INVERTER AND BRAKE IGBT SPECIFICATIONS

| | | | | | |
|---|----------------------|------|------------|-----------|----------|
| Collector to Emitter Breakdown Voltage I _C = 4mA, V _{GE} = 0V | BV _{CES} | 1200 | - | - | V |
| Gate Threshold Voltage I _C = 5.3mA, V _{CE} = V _{GE} | V _{GETH} | 5.2 | 5.8 | 6.4 | V |
| Continuous Collector Current T _C = 25 °C T _C = 80 °C | I _C | - | - | 150 95 | A |
| Zero Gate Voltage Collector Current V _{CE} = 1200V, V _{GE} = 0V T _i = 25°C V _{CE} = 800V, V _{GE} = 0V T _i = 125°C | I _{CES} | - | - | 1 25 | mA mA |
| Collector to Emitter Saturation Voltage, I _C = 150A, V _{GE} = 15V T _j = 25 °C T _j = 125 °C | V _{CE(SAT)} | - | 1.9 2.2 | 2.4 | V |
| Gate to Emitter Leakage Current V _{CE} = 0V, V _{GE} = 15V | I _{GES} | | | 10 | µA |
| IGBT Internal Gate Resistance | | - | 5 | - | Ohm |
| IGBT turn-on switching loss V _{CE} = 600V, I _C = 150A, T _j = 25°C | | - | 5 | - | mJ |
| IGBT turn-off switching loss V _{CE} = 600V, I _C = 150A, T _j = 25°C | | - | 10 | - | mJ |
| Short Circuit Withstand Time, Conditions 600V DC link, V _{GE} =15V, I _{SC} = 600A, T _{start} < 175 °C | | - | 10 | - | µs |
| Junction To Case Thermal Resistance | R _{θJC} | - | - | 0.24 | °C/W |

INVERTER DIODE SPECIFICATIONS

| | | | | | |
|---|------------------|------|-----|------|------|
| Diode Peak Inverse Voltage | PIV | 1200 | - | - | V |
| Continuous Forward Current, T _C = 80 °C | I _F | - | - | 95 | A |
| Diode Forward Voltage I _F = 150A, T _j = 25 °C | V _F | - | 1.8 | 2.2 | V |
| Diode Peak Reverse Recovery Current I _F =150A, V _{RR} =600V, di/dt = 6000 A/µs, T _j = 25 °C | t _{rr} | - | 220 | - | A |
| Diode switching loss I _F =150A, V _{RR} =600V, di/dt = 6000 A/µs, T _j = 25 °C | | - | 7 | - | mJ |
| Junction To Case Thermal Resistance | R _{θJC} | - | - | 0.42 | °C/W |

TECHNICAL DATA
DATASHEET 5280, Rev. -**BRAKE DIODE SPECIFICATIONS**

| | | | | | |
|--|-----------------|------|---|-----------|--------------------|
| Diode Peak Inverse Voltage | PIV | 1200 | - | - | V |
| Continuous Forward Current, $T_C = 80^\circ\text{C}$ | I_F | - | - | 63 | A |
| Diode Forward Voltage, $I_F = 100\text{A}$, $T_j = 25^\circ\text{C}$ | V_F | - | - | 1.3 | V |
| Diode Leakage Current @ 1200V $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ | I_{RM} | - | - | 0.05 2 | mA |
| Junction To Case Thermal Resistance | $R_{\theta JC}$ | - | - | 0.63 | $^\circ\text{C/W}$ |

MODULE TOTAL WEIGHT

| | | | | | |
|--------------|---|---|---|-----|-----|
| Total Weight | W | - | - | 440 | gms |
|--------------|---|---|---|-----|-----|

MODULE STORAGE AND OPERATING CONDITIONS

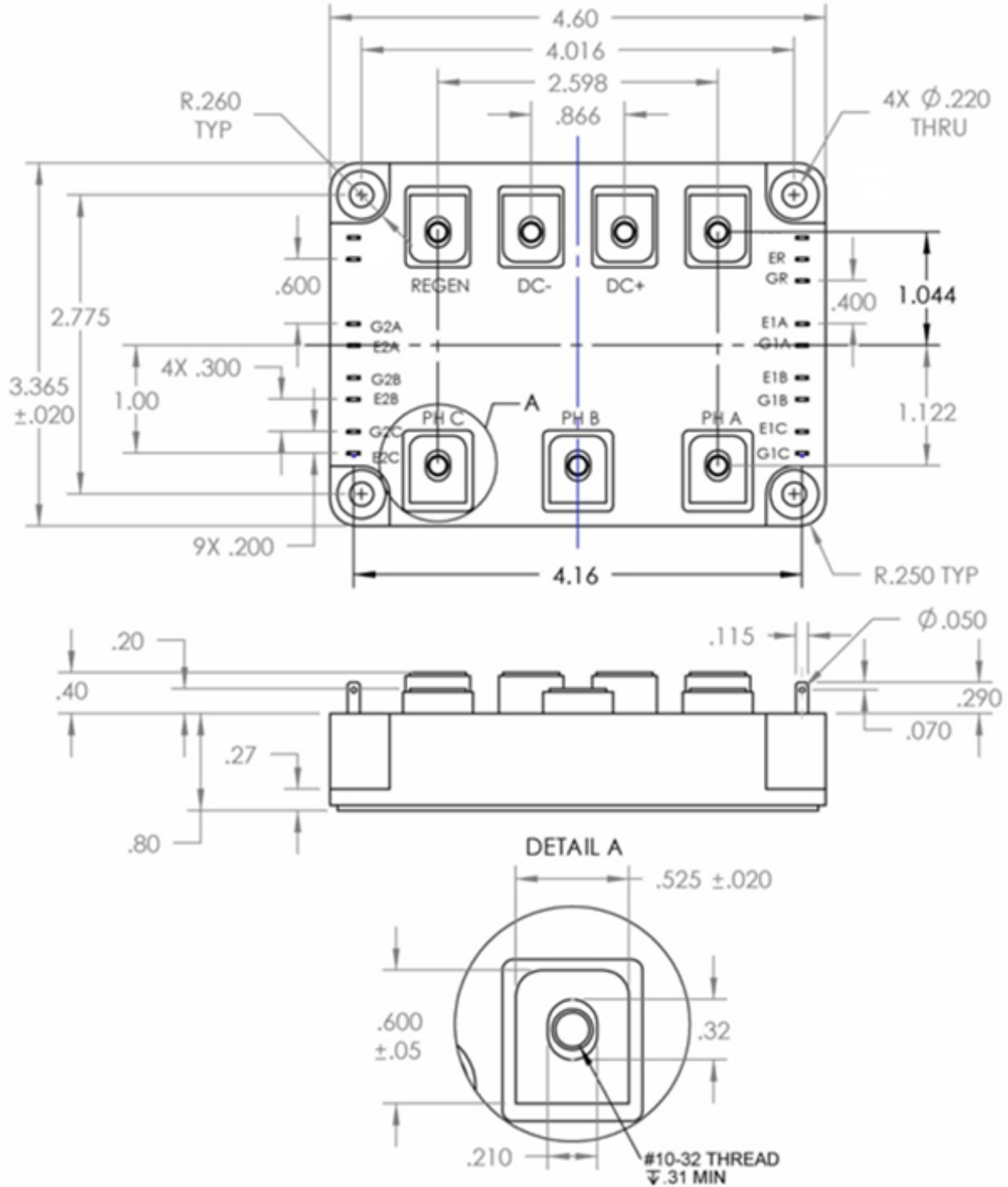
| | | | | | |
|--------------------------------|-------|-----|---|-------|------------------|
| Operating Junction Temperature | T_j | -55 | - | 150 | $^\circ\text{C}$ |
| Storage Ambient Temperature | T_s | -55 | - | 150 | $^\circ\text{C}$ |
| Operating Case Temperature | T_c | -55 | - | 125 | $^\circ\text{C}$ |
| Operating Ambient Temperature | T_A | -40 | - | 100 | $^\circ\text{C}$ |
| Operating Altitude | | - | - | 50000 | ft. |

MODULE ISOLATION

| | | | | | |
|-----------------------------------|---|------|---|---|-----|
| All pins to baseplate (sea level) | - | 2500 | - | - | VDC |
|-----------------------------------|---|------|---|---|-----|

TECHNICAL DATA
DATASHEET 5280, Rev. -

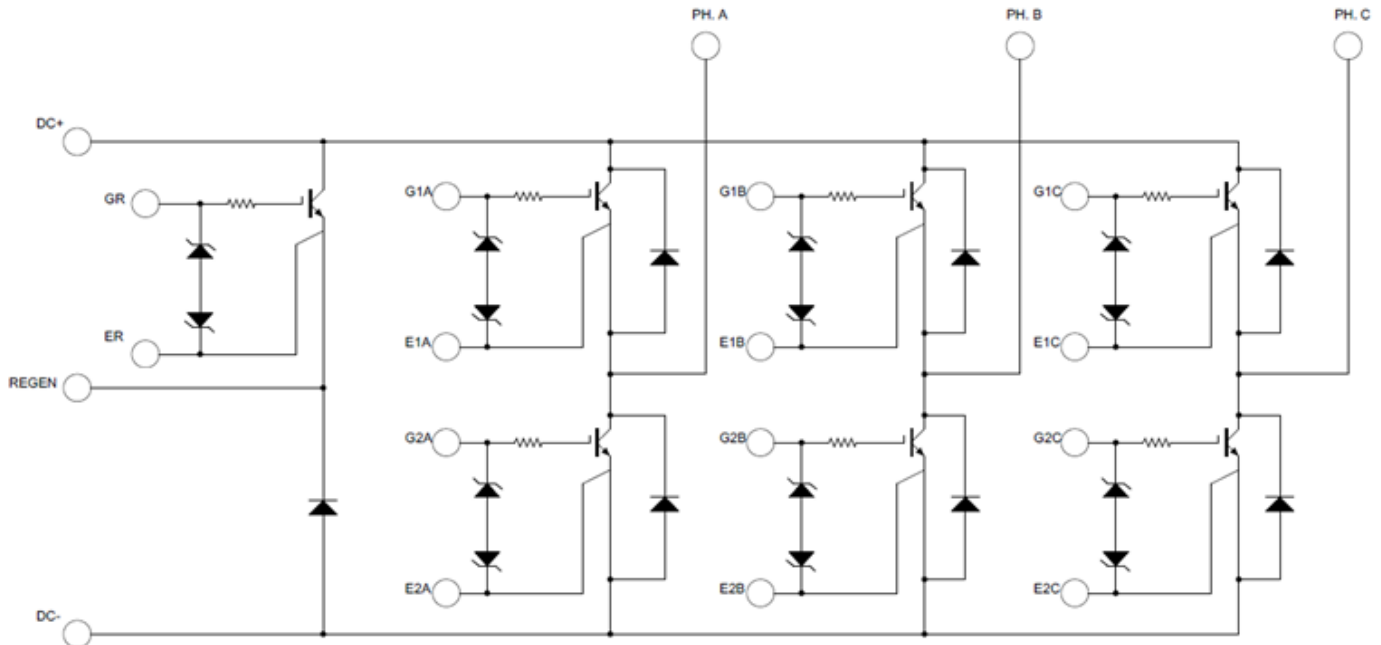
MECHANICAL OUTLINE



TOLERANCE UNLESS OTHERWISE NOTED:
.XX ±.02
.XXX ±.010

TECHNICAL DATA
DATASHEET 5280, Rev. -

SCHEMATIC



All zener diodes are 18V.

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