Three Level Inverter IGBTs

Overview
The Three Level Inverter IGBT product line has been designed and packaged for applications requiring high efficiency operation and improved output waveform quality. The Three Level topology uses smaller output voltage steps thereby reducing surge voltages at the load as compared to two level inverter topologies.

The Three Level Inverter IGBTs provide significant benefits where low output noise and small filter components are required. The modules also perform well in applications where long motor leads create voltage surge issues.

Other advantages include:
- Lower output ripple current.
- Lower voltage semiconductors with lower switching losses can be used in place of higher loss, high voltage semiconductors.
- These devices have a lower modulation frequency with the same quality output waveform as compared to conventional inverter designs.

Applications
- Three level inverter topologies
- Solar power inverters
- Wind power inverters
- High efficiency UPS
- Long motor lead applications

Product Advantages
- Simplifies layout
- Easily paralleled
- High efficiency
- Low inductance in all commutation modes

Performance Comparison of CM400ST-24S1 to Competing Inverter Solutions
As shown, the CM400ST-24S1 has significantly lower losses as compared to the competition.

Simulation is for a switching frequency of 10Kz with a 300V DC bus.
Three Level Inverter Packages

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| Package B          |               |       |      |                 |
| CM1400HA-24S       | Single        | 1200  | 1400 | A               |
| CM600HA-34S        | Single        | 1700  | 600  | A               |
| CM800HA-34S        | Single        | 1700  | 800  | A               |
| CM1000HA-34S       | Single        | 1700  | 1000 | A               |
| CM500C2Y-24S       | AC Switch     | 1200  | 500  | B               |
| RM1400HA-24S       | Single Diode  | 1200  | 400  | C               |

Circuit Diagrams

- Circuit Diagram A
- Circuit Diagram B
- Circuit Diagram C
- Circuit Diagram D