## Selection Guide

### TRENCHSTOP™ 5 Selection Guide

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| TRENCHSTOP™ 5 LS | **Best-in-class low V\(_{CE,\text{sat}}\) IGBT**  
   - Low V\(_{CE,\text{sat}}\) – 1.05 V at 25°C  
   - Best trade-off V\(_{CE,\text{sat}}\) versus E\(_t\) for frequencies below 20 kHz  
   - High thermal stability of electrical parameters |  
   - Ultra-low frequency converters  
   - 3-level inverter type I NPC 1 and NPC 2  
   - Modified HERIC inverter  
   - AC output (Aluminum/Magnesium welding) |  |
| TRENCHSTOP™ 5 SS | **Best-in-class ease of use IGBT**  
   - Low V\(_{CE,\text{sat}}\) of 1.35 V at 25°C  
   - Soft current fall characteristic with no tail current, low EMI  
   - Allows to reduce circuit complexity – single R\(_g\), no Zener diode, no gate capacitor, no snubber capacitor |  
   - Medium frequency converters  
   - Multilevel inverter stages  
   - Output stages  
   - PFC |  |
| TRENCHSTOP™ 5 H5/F5 | **Best-in-class high frequency IGBT**  
   - Cross over to SuperJunction MOSFETs  
   - Highest efficiency, especially under light load conditions  
   - Lowest switching losses in low strayinductance environment |  
   - High frequency converters  
   - Multilevel inverter stages  
   - Output stages  
   - PFC and battery charger |  |
| TRENCHSTOP™ 5 WR5 | **Price optimized, application specific IGBT for resonant topologies Zero Current Switching (ZCS)**  
   - Optimized full rated hard switching turn-off typically found in welding  
   - Excellent R\(_g\) controllability  
   - Soft recovery plus low Q\(_rr\) for diode |  
   - Medium frequency converters  
   - Zero current switching  
   - PFC |  |

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Selection tree

1. **5 kHz – 20 kHz low speed**
2. **30 kHz – 120 kHz high speed**
   - Low V\(_{CE\,\text{sat}}\) TRENCHSTOP™ 5 (L5)
   - Corresponding best fit IGBT
     - IGW30N65L5
     - IGW30N65NL5
     - IGW30N65EL5

3. **650 V**
   - **Free Wheeling Diode (FWD)**
   - Corresponding best fit IGBT
     - IKW30N65EL5
     - IKW30N65WR5

4. **> 20 kHz – 60 kHz high speed**
   - Low V\(_{CE\,\text{sat}}\) TRENCHSTOP™ 5 (L5)
   - Corresponding best fit IGBT
     - IKW30N65WR5

5. **10 kHz – 40 kHz high speed**
   - RC TRENCHSTOP™ 5 (WR5)
   - Corresponding best fit IGBT
     - IKW30N65WR5

6. **30 kHz – 100 kHz high speed**
   - TRENCHSTOP™ 5 (F5)
   - Corresponding best fit IGBT
     - IKW30N65WR5

7. **30 kHz – 120 kHz ultra-high speed**
   - TRENCHSTOP™ 5 (F5)
   - Corresponding best fit IGBT
     - IKW30N65WR5

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