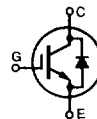
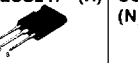
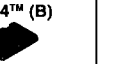


# Discrete IGBT with FAST Diodes

Ultra High Speed  
IGBTs = Suffix C



## High Speed Series

| $V_{CES}$<br>V                      | $I_{C(25)}$<br>A | $V_{CE(SAT)}$<br>max V | $t_{rr}$<br>typ ns | TO-220 (P)<br><br>TO-263 (A)<br> | PLUS247™ (X)<br><br>TO-247 (H)<br> | TO-268 AA TO-204<br>(T) (M)<br><br>ISOPLUS220<br>(C)<br> | ISOPLUS247™(R)<br><br>TO-264 (K)<br> | SOT-227B<br>(N)<br><br>PLUS264™ (B)<br> |
|-------------------------------------|------------------|------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LOW SATURATION VOLTAGE TYPES</b> |                  |                        |                    |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
| 600                                 | 40               | 2.0                    | 200                |                                                                                                                                                                                                    | ➤ IXGH28N60BD1                                                                                                                                                                                       | ➤ IXGT28N60BD1                                                                                                                                                                                                             |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 1.7                    | 400                |                                                                                                                                                                                                    | IXGH31N60D1                                                                                                                                                                                          | IXGT31N60D1                                                                                                                                                                                                                |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 66               | 1.8                    | 200                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | ➤ IXGR39N60BD1                                                                                                                                                                                           |                                                                                                                                                                                                               |
|                                     | 75               | 1.8                    | 200                |                                                                                                                                                                                                    | IXGH39N60BD1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 75               | 1.7                    | 500                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | IXGR60N60U1                                                                                                                                                                                              |                                                                                                                                                                                                               |
| 1000                                | 20               | 3.5                    | 1000               | IXGA12N100U1*<br>IXGP12N100U1*                                                                                                                                                                     | IXGH12N100U1*                                                                                                                                                                                        |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 20               | 3.5                    | 1000               |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 34               | 3.5                    | 750                |                                                                                                                                                                                                    | IXGH17N100U1*                                                                                                                                                                                        |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 50               | 3.5                    | 500                |                                                                                                                                                                                                    | IXGH25N100U1*                                                                                                                                                                                        |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
| <b>HIGH SPEED TYPES</b>             |                  |                        |                    |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
| 600                                 | 14               | 2.0                    | 45                 | IXGA7N60CD1                                                                                                                                                                                        |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 14               | 2.0                    | 45                 | IXGP7N60CD1                                                                                                                                                                                        |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 24               | 2.1                    | 120                |                                                                                                                                                                                                    | IXGH12N60BD1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 24               | 2.7                    | 55                 | IXGA12N60CD1                                                                                                                                                                                       | IXGH12N60CD1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 24               | 2.7                    | 55                 | IXGP12N60CD1                                                                                                                                                                                       |                                                                                                                                                                                                      | ➤ IXGC12N60CD1                                                                                                                                                                                                             |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 40               | 2.0                    | 100                |                                                                                                                                                                                                    | IXGH20N60BD1                                                                                                                                                                                         | IXGT20N60BD1                                                                                                                                                                                                               |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 45               | 2.5                    | 55                 |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | ➤ IXGR32N60CD1                                                                                                                                                                                           |                                                                                                                                                                                                               |
|                                     | 48               | 2.5                    | 55                 |                                                                                                                                                                                                    | IXGH24N60CD1                                                                                                                                                                                         | IXGT24N60CD1                                                                                                                                                                                                               |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 1.8                    | 130                |                                                                                                                                                                                                    | IXGH30N60BU1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 1.8                    | 130                |                                                                                                                                                                                                    | IXGH30N60BD1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 2.5                    | 80                 |                                                                                                                                                                                                    | IXGH32N60BD1                                                                                                                                                                                         | IXGT32N60BD1                                                                                                                                                                                                               |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 2.5                    | 80                 |                                                                                                                                                                                                    | IXGH32N60BU1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 60               | 2.5                    | 55                 |                                                                                                                                                                                                    | IXGH32N60CD1                                                                                                                                                                                         | IXGT32N60CD1                                                                                                                                                                                                               |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 70               | 2.2                    | 120                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | ➤ IXGR40N60BD1                                                                                                                                                                                           |                                                                                                                                                                                                               |
|                                     | 75               | 2.5                    | 75                 |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | ➤ IXGR40N60CD1                                                                                                                                                                                           |                                                                                                                                                                                                               |
|                                     | 75               | 2.2                    | 120                |                                                                                                                                                                                                    | ➤ IXGX40N60BD1                                                                                                                                                                                       |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 75               | 2.5                    | 75                 |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | ➤ IXGR50N60BD1                                                                                                                                                                                           | ➤ IXGN40N60CD1                                                                                                                                                                                                |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | IXGK50N60BD1                                                                                                                                                                                             |                                                                                                                                                                                                               |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    | IXGX50N60BD1                                                                                                                                                                                         |                                                                                                                                                                                                                            |                                                                                                                                                                                                          | IXGN50N60BD2<br>IXGN50N60BD3<br>➤ IXGB75N60BD1                                                                                                                                                                |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | **75             | 2.3                    | 150                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
| 1000                                | 20               | 4.0                    | 500                | IXGA12N100AU1*<br>IXGP12N100AU1*                                                                                                                                                                   | IXGH12N100AU1*                                                                                                                                                                                       |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 20               | 4.0                    | 500                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 34               | 4.0                    | 450                |                                                                                                                                                                                                    | IXGH17N100AU1*                                                                                                                                                                                       |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 50               | 4.0                    | 600                |                                                                                                                                                                                                    | IXGH25N100AU1*                                                                                                                                                                                       |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
| 1200                                | 30               | 3.8                    | 160                |                                                                                                                                                                                                    | IXGH15N120CD1                                                                                                                                                                                        | IXGT15N120CD1                                                                                                                                                                                                              |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 30               | 3.2                    | 250                |                                                                                                                                                                                                    | IXGH15N120BD1                                                                                                                                                                                        | IXGT15N120BD1                                                                                                                                                                                                              |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 50               | 4.0                    | 600                |                                                                                                                                                                                                    | IXGH25N120AU1*                                                                                                                                                                                       |                                                                                                                                                                                                                            |                                                                                                                                                                                                          |                                                                                                                                                                                                               |
|                                     | 70               | 4.4                    | 115                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | IXGK35N120CD1                                                                                                                                                                                            |                                                                                                                                                                                                               |
|                                     | 70               | 3.2                    | 160                |                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                                                                                                                            | IXGK35N120BD1                                                                                                                                                                                            |                                                                                                                                                                                                               |

Notes: \* - not for new design \*\* - Lead terminal current limit. IGBT/Diode circuit connections:

\_U1 & \_D1: Ultrafast FRED or HiPerFRED diode respectively connected anti-parallel to IGBT

\_D2: Ultrafast HiPerFRED Diode anode connected to IGBT collector (Boost configuration)

\_D3: Ultrafast HiPerFRED Diode cathode connected to IGBT emitter (Buck configuration)

Outline drawings on page 91-100.