

# 600V UFS Series IGBTs

$V_{CE(SAT)}$

Maximum at  $T_J = +25^\circ C$

$I_{CE} = I_{C110}$ , and  $V_{GE} = 15V$

$E_{OFF}$

Typical at  $T_J = +150^\circ C$

$I_{CE} = I_{C110}$ , and  $V_{CE(PK)} = 480V$

| $I_C$ AT<br>110°C | TO-251AA (D-PAK)         |                          |                            |                           | TO-252AA (D-PAK)          |                             |                             |                             |
|-------------------|--------------------------|--------------------------|----------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|
|                   | 600V<br>275ns UFS        | 600V<br>200ns UFS        | 600V<br>RUGGED UFS         | 600V<br>275ns UFS         | 600V<br>200ns UFS         | 600V<br>RUGGED UFS          | 600V<br>275ns UFS           | 600V<br>RUGGED UFS          |
| 3A                | HGTD3N60C3<br>2.0V 245µJ | HGTD3N60B3<br>2.0V 200µJ | HGTD3N60C3R<br>2.3V TBD µJ | HGTD3N60C3S<br>2.0V 245µJ | HGTD3N60B3S<br>2.0V 200µJ | HGTD3N60C3RS<br>2.3V TBD µJ | HGTD3N60C3RS<br>2.3V TBD µJ | HGTD3N60C3RS<br>2.3V TBD µJ |
| 7A                | HGTD7N60C3<br>2.0V 600µJ | HGTD7N60B3<br>2.0V 350µJ | HGTD7N60C3R<br>2.3V TBD µJ | HGTD7N60C3S<br>2.0V 600µJ | HGTD7N60B3S<br>2.0V 350µJ | HGTD7N60C3RS<br>2.3V TBD µJ | HGTD7N60C3RS<br>2.3V TBD µJ | HGTD7N60C3RS<br>2.3V TBD µJ |

| $I_C$ AT<br>110°C | TO-262AA (D <sup>2</sup> -PAK) |                             |                              |                              | TO-263AB (D <sup>2</sup> -PAK) |                               |                               |                               | TO-220AB                      |                               |                               |                               |
|-------------------|--------------------------------|-----------------------------|------------------------------|------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                   | 600V<br>275ns UFS              | 600V<br>200ns UFS           | 600V<br>RUGGED UFS           | 600V<br>275ns UFS            | 600V<br>200ns UFS              | 600V<br>RUGGED UFS            | 600V<br>275ns UFS             | 600V<br>200ns UFS             | 600V<br>RUGGED UFS            | 600V<br>275ns UFS             | 600V<br>200ns UFS             | 600V<br>RUGGED UFS            |
| 3A                | HGT1S3N60C3D<br>2.0V 245µJ     | HGT1S3N60B3D<br>2.0V 200µJ  | HGT1S3N60C3DR<br>2.3V TBD µJ | HGT1S3N60C3DS<br>2.0V 245µJ  | HGT1S3N60B3DS<br>2.0V 200µJ    | HGT1S3N60C3DRS<br>2.3V TBD µJ | HGT1S3N60C3DRS<br>2.3V TBD µJ | HGT1S3N60B3DRS<br>2.3V TBD µJ | HGT1S3N60C3DRS<br>2.3V TBD µJ | HGT1S3N60B3DRS<br>2.3V TBD µJ | HGT1S3N60C3DRS<br>2.3V TBD µJ | HGT1S3N60C3DRS<br>2.3V TBD µJ |
| 7A                | HGT1S7N60C3D<br>2.0V 600µJ     | HGT1S7N60B3D<br>2.0V 350µJ  | HGT1S7N60C3DR<br>2.3V TBD µJ | HGT1S7N60C3DS<br>2.0V 600µJ  | HGT1S7N60B3DS<br>2.0V 350µJ    | HGT1S7N60C3DRS<br>2.3V TBD µJ | HGT1S7N60C3DRS<br>2.3V TBD µJ | HGT1S7N60B3DRS<br>2.3V TBD µJ | HGT1S7N60C3DRS<br>2.3V TBD µJ | HGT1S7N60B3DRS<br>2.3V TBD µJ | HGT1S7N60C3DRS<br>2.3V TBD µJ | HGT1S7N60C3DRS<br>2.3V TBD µJ |
| 12A               | HGT1S12N60C3<br>2.0V 900µJ     | HGT1S12N60B3<br>2.0V 800µJ  | HGT1S12N60C3R<br>2.3V TBD µJ | HGT1S12N60C3S<br>2.0V 900µJ  | HGT1S12N60B3S<br>2.0V 800µJ    | HGT1S12N60C3RS<br>2.3V TBD µJ | HGT1S12N60C3RS<br>2.3V TBD µJ | HGT1S12N60B3RS<br>2.3V TBD µJ | HGT1S12N60C3RS<br>2.3V TBD µJ | HGT1S12N60B3RS<br>2.3V TBD µJ | HGT1S12N60C3RS<br>2.3V TBD µJ | HGT1S12N60C3RS<br>2.3V TBD µJ |
| 20A               | HGT1S20N60C3<br>1.8V 1500µJ    | HGT1S20N60B3<br>2.0V 1050µJ | HGT1S20N60C3R<br>2.3V 3000µJ | HGT1S20N60C3S<br>1.8V 1500µJ | HGT1S20N60B3S<br>2.0V 1050µJ   | HGT1S20N60C3RS<br>2.3V 3000µJ | HGT1S20N60C3RS<br>2.3V 3000µJ | HGT1S20N60B3RS<br>2.3V 3000µJ | HGT1S20N60C3RS<br>2.3V 3000µJ | HGT1S20N60B3RS<br>2.3V 3000µJ | HGT1S20N60C3RS<br>2.3V 3000µJ | HGT1S20N60C3RS<br>2.3V 3000µJ |

| $I_C$ AT<br>110°C | TO-247                     |                            |                              |                              | TO-264                       |                              |                              |                              | TO-264                       |                              |                              |                              |
|-------------------|----------------------------|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                   | 600V<br>275ns UFS          | 600V<br>200ns UFS          | 600V<br>RUGGED UFS           | 600V<br>275ns UFS            | 600V<br>200ns UFS            | 600V<br>RUGGED UFS           | 600V<br>275ns UFS            | 600V<br>200ns UFS            | 600V<br>RUGGED UFS           | 600V<br>275ns UFS            | 600V<br>200ns UFS            | 600V<br>RUGGED UFS           |
| 12A               | HGTG12N60C3D<br>2.0V 900µJ | HGTG12N60B3D<br>2.0V 800µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60B3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60B3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ | HGTG12N60B3DR<br>2.3V TBD µJ | HGTG12N60C3DR<br>2.3V TBD µJ |
| 20A               | HGTG20N60C3<br>1.8V 1500µJ | HGTG20N60B3<br>2.0V 1050µJ | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60B3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60B3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  | HGTG20N60B3R<br>2.3V 3000µJ  | HGTG20N60C3R<br>2.3V 3000µJ  |
| 30A               | HGTG30N60C3<br>1.8V 2500µJ | HGTG30N60B3<br>2.2V 1700µJ | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60B3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60B3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  | HGTG30N60B3R<br>2.3V 2000µJ  | HGTG30N60C3R<br>2.3V 2000µJ  |
| 40A               | HGTG40N60C3<br>1.6V 3300µJ | HGTG40N60B3<br>2.0V 2500µJ | HGTG40N60C3R<br>2.3V TBD µJ  | HGTG40N60C3R<br>2.3V 3300µJ  | HGTG40N60B3R<br>2.0V 2500µJ  | HGTG40N60C3DR<br>1.6V 3300µJ | HGTG40N60C3DR<br>1.6V 3300µJ | HGTG40N60B3DR<br>2.0V 2500µJ | HGTG40N60C3DR<br>1.6V 3300µJ | HGTG40N60C3DR<br>1.6V 3300µJ | HGTG40N60B3DR<br>2.0V 2500µJ | HGTG40N60C3DR<br>1.6V 3300µJ |

## PART NOMENCLATURE

HGT - G - 12 - N - 60 - C - 3 - D

### OPTIONS

- L: Logic Level Gate
- D: Integral Reverse Diode
- S: Surface Mount
- C: Current Sense
- V: Voltage Clamping
- R: Rugged IGBT
- 1: First Generation
- 2: Second Generation
- 3: Third Generation

MAX FALL TIME AT

- TJ = +150°C
- A: 100ns
- B: 200ns
- C: 500ns
- D: 750ns
- E: ≤1µs
- F: ≤2µs
- G: ≤5µs

### CONTINUOUS CURRENT

Rating at  $T_C = +110^\circ C$

### POLARITY

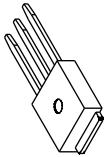
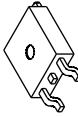
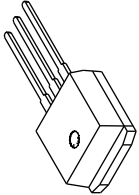
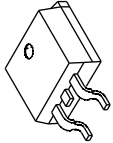
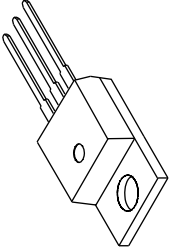
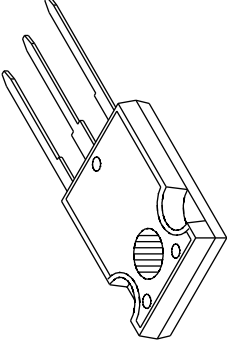
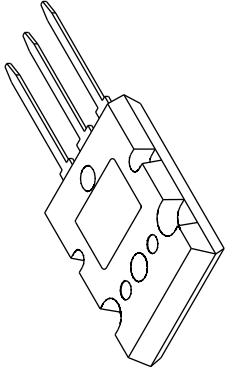
N-Channel or P-Channel

### VOLTAGE BREAKDOWN/V10

i.e. (60, 120)

# 1200V UFS Series IGBTs

$V_{CE(SAT)}$   $E_{OFF}$   
 Maximum at  $T_J = +25^\circ C$  Typical at  $T_J = +150^\circ C$   
 $I_{CE} = I_{C110}$  and  $V_{GE} = 15V$   $I_{CE} = I_{C110}$  and  $V_{GE(PK)} = 960V$

|                     |  |  |  |  |  |  |  |
|---------------------|---|---|---|---|--|---|---|
|                     | TO-251AA (D-PAK)  | TO-252AA (D-PAK)  | TO-262AA (D²-PAK)   | TO-263AB (D²-PAK)   | TO-220AB   | TO-247  | TO-264  |
| $I_{C,AT}$<br>110°C | 1200V<br>400ns UFS  | 1200V<br>400ns UFS  | 1200V<br>400ns UFS  | 1200V<br>400ns UFS  | 1200V<br>400ns UFS   | 1200V<br>400ns UFS  | 1200V<br>400ns UFS  |
| 3A                  | HGTD3N120C3<br>3.0V<br>TBD $\mu J$  | HGTD3N120C3S<br>3.0V<br>TBD $\mu J$   | HGT1S3N120C3D<br>3.0V<br>TBD $\mu J$  | HGT1S3N120C3DS<br>3.0V<br>TBD $\mu J$   | HGTP3N120C3D<br>3.0V<br>TBD $\mu J$  |   |   |
| 5A                  | HGTD5N120C3<br>3.0V<br>TBD $\mu J$  | HGTD5N120C3S<br>3.0V<br>TBD $\mu J$   | HGT1S5N120C3D<br>3.0V<br>TBD $\mu J$  | HGT1S5N120C3DS<br>3.0V<br>TBD $\mu J$   | HGTP5N120C3D<br>3.0V<br>TBD $\mu J$  |   |   |
| 10A                 |   |   | HGT1S10N120C3<br>HGT1S10N120C3D<br>3.0V<br>3200 $\mu J$                             | HGT1S10N120C3S<br>HGT1S10N120C3SD<br>3.0V<br>3200 $\mu J$                           | HGTP10N120C3<br>HGTP10N120C3D<br>3.0V<br>3200 $\mu J$                              | HGTG10N120C3D<br>3.0V<br>3200 $\mu J$   |   |
| 15A                 |   |   | HGT1S15N120C3<br>3.0V<br>4700 $\mu J$   | HGT1S15N120C3S<br>3.0V<br>4700 $\mu J$  | HGTP15N120C3<br>3.0V<br>4700 $\mu J$   | HGTG15N120C3, HGTG15N120C3D<br>3.0V<br>4700 $\mu J$                               |   |
| 20A                 |   |   |   |   |  | HGTG20N120C3, HGTG20N120C3D<br>3.0V<br>6300 $\mu J$                               |   |
| 30A                 |   |   |   |   |  | HGTG30N120C3<br>3.0V<br>9400 $\mu J$  | HGT1Y30N120C3D<br>3.0V<br>9400 $\mu J$  |

1200V 300ns UFS and Rugged UFS products to be offered in the future.

*ITALICS = Future Product Offerings*