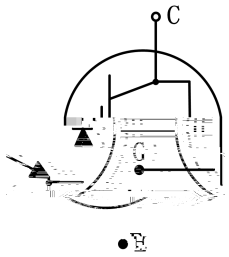
TO-247

G C E




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| Symbol | Parameter | Values | Unit |
|---|---|---|---|
| $V_{CES}$ | Collector-emitter voltage | 650 | V |
| $V_{GES}$ | Gate-emitter voltage | ±20 | V |
| $I_C$ | Continuous collector current ( $_C$=25 ) | 150 | A |
| | Continuous collector current ( $_C$=100 ) | 75 | A |
| $I_{CM}$ | Pulsed collector current, | | |

## Electrical characteristics of IGBT ( vj=25 unless otherwise specified)

### Static characteristics

| Symbol | Parameter | Test condition | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| CES | Collector-emitter breakdown voltage | GE=0V, I C=250μA | 650 | - | - | V |
| CES | Collector-emitter leakage current | CE=650V, GE=0V | - | - | 50 | μA |
| GES | Gate leakage current, forward | GE=20V, CE=0V | - | - | 100 | nA |
| | Gate leakage current, reverse | GE=-20V, CE=0V | - | - | -100 | nA |
| GE(th) | Gate-emitter threshold voltage | GE= CE, C=1mA | 5.0 | 5.4 | 5.6 | V |
| CE(sat) | Collector-emitter saturation voltage | GE=15 V, C=75A | - | 1.8 | - | V |
| | | GE=15V, C=75A, vj =175 | - | 2.3 | - | V |

### Dynamic characteristics

| Symbol | Parameter | Test condition | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| ies | Input capacitance | CE=30V<br>GE=0V<br>=1MHz | - | 4250 | - | pF |
| oes | Output capacitance | | - | 205 | - | pF |
| res | Reverse transfer capacitance | | - | 31 | - | pF |
| g | Total gate charge | CC=520V<br>=15V<br>C=75A | - | 130 | - | nC |

| Symbol | Parameter | Test condition | Values | Un |
|---|---|---|---|---|

## Typical performance characteristics

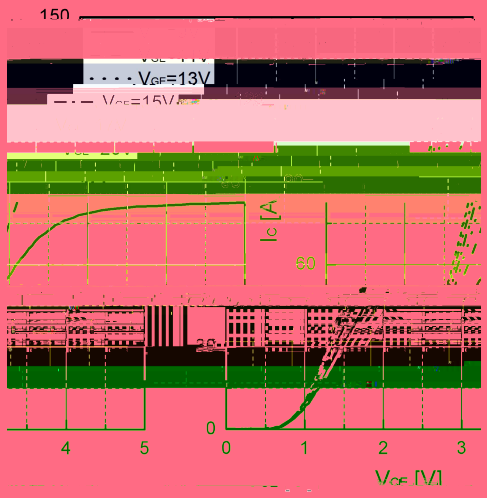



Fig 1. Typical output characteristic ( vj=25 )




Fig 2. Typical output characteristic( vj=175 )

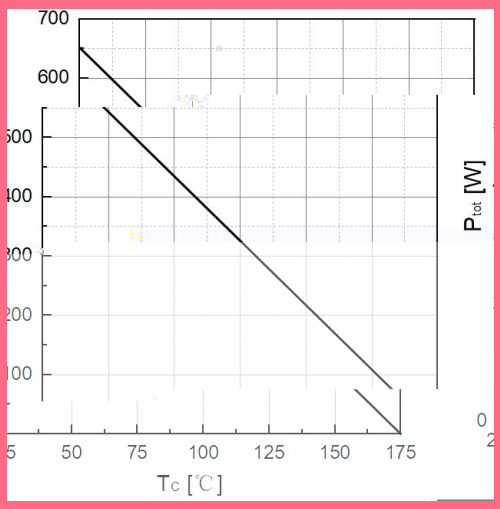
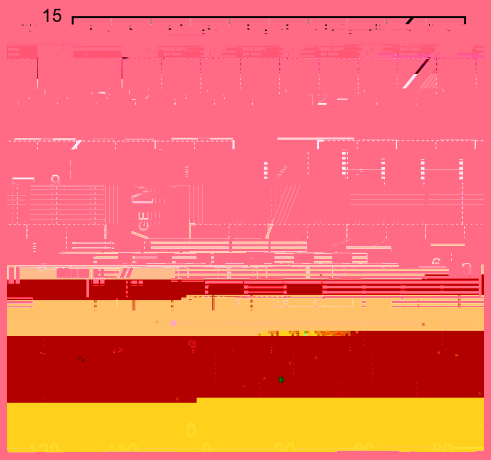



Fig 3. Power dissipation as a function of 7



## Typical performance characteristics

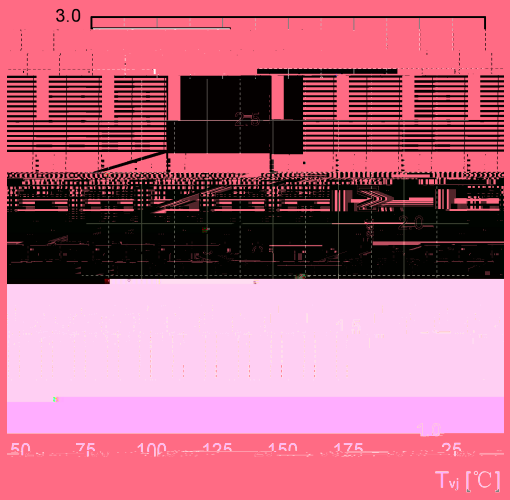



Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

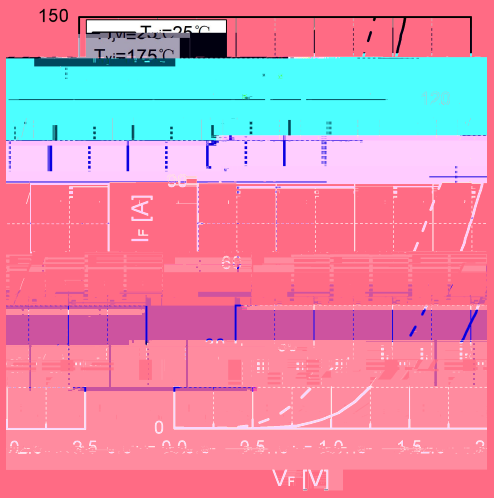



Fig 8. Typical $_{F}$ as a function of $_{F}$

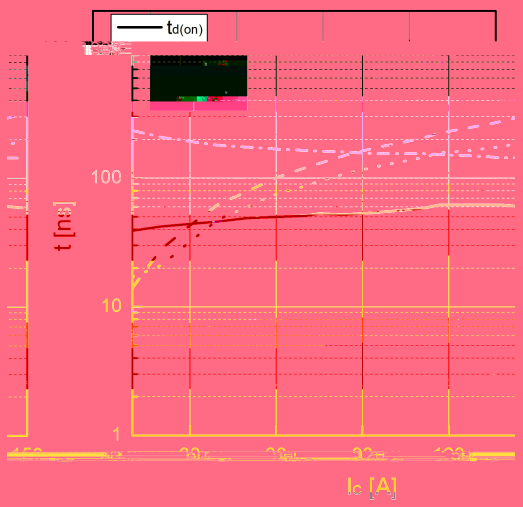



Fig 9. Typical switching time as a function of $_{C}$

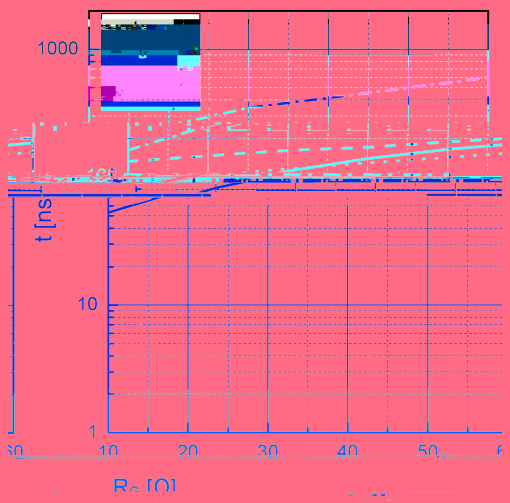



Fig 10. Typical switching times as a function of $_{G}$

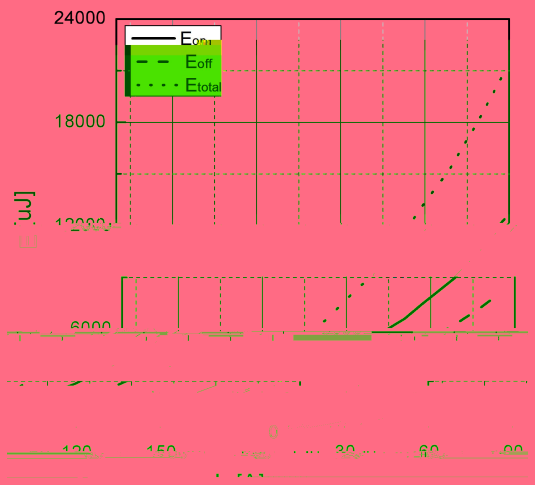



Fig 11. Typical switching energy losses as a function of $_{C}$

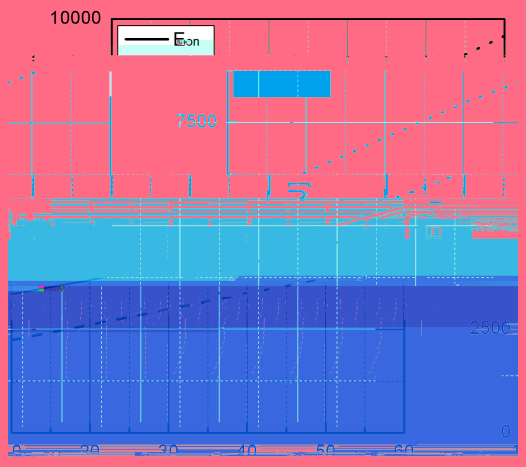


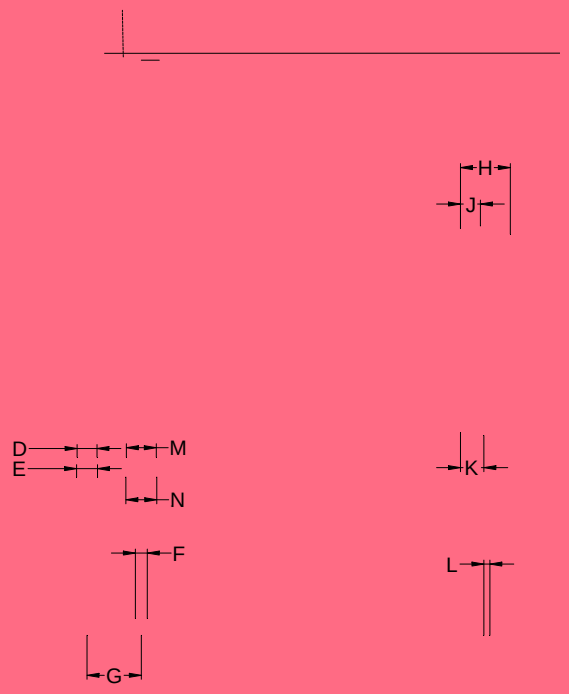

Fig 12. Typical switching energy losses as a function of $_{G}$



A d

## Package dimension

TO-247




| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ.' | Max. | Min. | Typ. | Max. |
| A | 15.50 | 15.80 | 16.10 | 0.610 | 0.622 | 0.634 |
| B | 20.80 | 21.00 | 21.20 | 0.819 | 0.827 | 0.835 |
| C | 19.70 | 20.00 | 20.30 | 0.776 | 0.787 | 0.799 |
| D | 1.80 | 2.00 | 2.20 | 0.071 | 0.079 | 0.087 |
| E | 1.90 | 2.10 | 2.30 | 0.075 | 0.083 | 0.091 |
| F | 1.00 | 1.20 | 1.40 | 0.039 | 0.047 | 0.055 |
| G | 5.25 | - | 5.65 | 0.207 | - | 0.222 |
| H | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| J | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| K | 2.20 | 2.35 | 2.50 | 0.087 | 0.093 | 0.098 |
| L | 0.41 | 0.60 | 0.79 | 0.016 | 0.024 | 0.031 |
| M | 2.80 | 3.00 | 3.20 | 0.110 | 0.118 | 0.126 |
| N | 2.90 | 3.10 | 3.30 | 0.114 | 0.122 | 0.130 |

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| Date | Revision | Changes |
|---|---|---|
| 2024-03-06 | Rev 1.1 | Update |
| 2024-03-20 | Rev 1.2 | Update |
| 2024-05-17 | Rev 2.0 | Update |
| 2026-06-25 | Rev 2.1 | Update thermal |

## Disclaimer

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