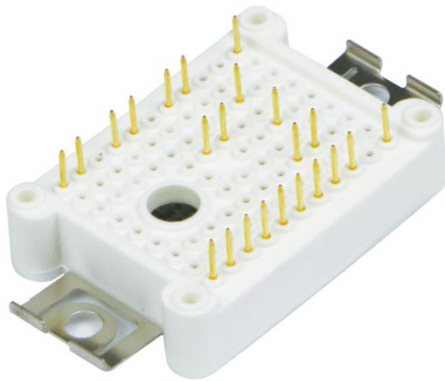


IGBT Modules

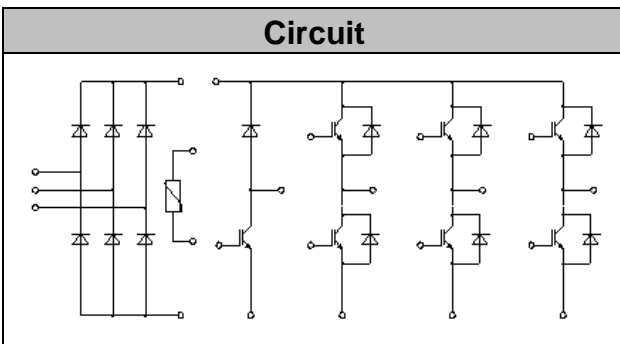


V_{CES} 1
 I_c

Applications

- (OM NM)
- I . N . H OM
- 0+. 0IDOMP OG+ R M P GN

Circuit



Features

- R NR ODB GNN N
- R1 NO R O N OH MPM ADDIO
- I O DBANO NAM QM IO MGG2
- R D P OI N
- BCNC ND MPD = O P N
- N GO C ODFPND O Q GBT
- (SDIPHPI OI OH MPM °C

● IGBT-inverter

Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Value | Unit |
|------------------|--------|----------------------------|-------|------|
| COM HDM GB | 1 | 1 1 H / °C | | 1 |
| IDP FN COM PMIO | | / °C T _{CH} S= °C | | |
| - O + F COM PMIO | - (| O HN | | |
| O HDM GB | 1 | / °C | ± | 1 |
| / OG+ R M DND DI | +00 | / °C / °C S | | 2 |



● **IGBT-inverter**

Characteristic Values

| Parameter | Symbol | Conditions | Value | | | Unit |
|-------------------|---------|-------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| 0 H DM CMNC G# GB | 1 @ 1 1 | H / T=25 °C | | | | |



● Diode-inverter

Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Value | Unit |
|---|----------------|--|-------|------|
| - $I_{RM} + F - Q_{MI} 1 \text{ GB}$ | $1_{-}()$ | $/\text{CE } ^\circ\text{C}$ | | 1 |
| $I_{OP} \text{ PN } \square \text{ NR M PWMIO}$ | \square | | | |
| - $I_{RM} + F \square \text{ NR M PWMIO}$ | $\square - ()$ | 0 HN | | |
| Q_{GB} | 0 | $1. 10 \text{ HN}/\text{CE } ^\circ\text{C}$ | | N |
| | | $1. 10 \text{ HN}/\text{CE } ^\circ\text{C}$ | | |

Characteristic Values

| Parameter | Symbol | Conditions | Value | | | Unit |
|--------------------------------------|----------------|---------------------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| $\square \text{ NR M 1 GB}$ | 1_{\square} | $\square / \text{CE } ^\circ\text{C}$ | | | | 1 |
| | | $\square / \text{CE } ^\circ\text{C}$ | | | | |
| | | $\square / \text{CE } ^\circ\text{C}$ | | | | |
| - $Q_{M} C \text{ NB}$ | $, \text{ MI}$ | \square | | | | P |
| + $F - Q_{MI} - Q_{M} \text{ PWMIO}$ | MI | $1. 1 \text{ D O PN}$ | | | | |
| - $Q_{MI} - Q_{M} \text{ I NB T}$ | M | $/\text{CE } ^\circ\text{C}$ | | | | H |
| - $Q_{M} C \text{ NB}$ | $, \text{ MI}$ | \square | | | | P |
| + $F - Q_{MI} - Q_{M} \text{ PWMIO}$ | MI | $1. 1 \text{ D O PN}$ | | | | |
| - $Q_{MI} - Q_{M} \text{ I NB T}$ | M | $/\text{CE } ^\circ\text{C}$ | | | | H |



● IGBT-brake-chopper

Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Value | Unit |
|--------------------|-------------------|---------------------------------------|------------|------------|
| I_{OHM} / I_{OH} | I_{OH} | $V_{CE} = 100V, T_{CH} = 100^\circ C$ | | A |
| I_{OPN} / I_{OP} | I_{OP} | $T_{CH} = 100^\circ C$ | | A |
| $I_{OH} + I_{OP}$ | $I_{OH} + I_{OP}$ | $T_{CH} = 100^\circ C$ | | A |
| V_{CE} / V_{CEM} | V_{CE} | $I_{OH} = 0, T_{CH} = 100^\circ C$ | $\pm 10\%$ | V |
| T_{CH} / T_{CHM} | T_{CH} | $I_{OH} = 0, I_{OP} = 0$ | | $^\circ C$ |

Characteristic Values

| Parameter | Symbol | Conditions | Value | | | Unit |
|--------------------------------------|-------------------|---------------------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| V_{CE} / V_{CEM} | V_{CE} | $I_{OH} = 0, T_{CH} = 100^\circ C$ | | | | V |
| I_{OH} / I_{OHM} | I_{OH} | $V_{CE} = 100V, T_{CH} = 100^\circ C$ | | | | A |
| I_{OP} / I_{OPM} | I_{OP} | $T_{CH} = 100^\circ C$ | | | | A |
| $I_{OH} + I_{OP} / I_{OH} + I_{OPM}$ | $I_{OH} + I_{OP}$ | $T_{CH} = 100^\circ C$ | | | | A |
| | | $T_{CH} = 100^\circ C$ | | | | |
| | | $T_{CH} = 100^\circ C$ | | | | |
| V_{CE} / V_{CEM} | V_{CE} | $I_{OH} = 0, T_{CH} = 100^\circ C$ | | | | V |
| I_{OH} / I_{OHM} | I_{OH} | $V_{CE} = 100V, T_{CH} = 100^\circ C$ | | | | A |
| I_{OP} / I_{OPM} | I_{OP} | $T_{CH} = 100^\circ C$ | | | | A |
| $I_{OH} + I_{OP} / I_{OH} + I_{OPM}$ | $I_{OH} + I_{OP}$ | $T_{CH} = 100^\circ C$ | | | | A |
| V_{CE} / V_{CEM} | V_{CE} | $I_{OH} = 0, T_{CH} = 100^\circ C$ | | | | V |
| I_{OH} / I_{OHM} | I_{OH} | $V_{CE} = 100V, T_{CH} = 100^\circ C$ | | | | A |
| I_{OP} / I_{OPM} | I_{OP} | $T_{CH} = 100^\circ C$ | | | | A |
| $I_{OH} + I_{OP} / I_{OH} + I_{OPM}$ | $I_{OH} + I_{OP}$ | $T_{CH} = 100^\circ C$ | | | | A |
| V_{CE} / V_{CEM} | V_{CE} | $I_{OH} = 0, T_{CH} = 100^\circ C$ | | | | V |
| I_{OH} / I_{OHM} | I_{OH} | $V_{CE} = 100V, T_{CH} = 100^\circ C$ | | | | A |
| I_{OP} / I_{OPM} | I_{OP} | $T_{CH} = 100^\circ C$ | | | | A |
| $I_{OH} + I_{OP} / I_{OH} + I_{OPM}$ | $I_{OH} + I_{OP}$ | $T_{CH} = 100^\circ C$ | | | | A |



MG15P12P2

RoHS
COMPLIANT

| | | | | | | |
|------------------|-----|----------|----------|--|--|----|
| /PM I GT/DH | O I | | | | | IN |
| - DI /DH | QI | | | | | IN |
| /PM A GT/DH | O A | 1 | 1 | | | IN |
| Q G DH | Q | 1 | 1 | | | IN |
| I NBT DND DI PNB | I | /CE °C | | | | H |
| /PM I /DH | | | | | | |
| I NBT DND DI PNB | A | /CE °C | | | | H |
| /PM A /DH | | | | | | |
| . O | | O PN1 | 1 /CE °C | | | |
| | | 1 11 (1 | | | | |

● Diode-brake-chopper

Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Value | Unit |
|----------------------|--------|-----------------|-------|------|
| - DI + F- QMI 1 GB | 1--(| /CE °C | | 1 |
| I DP PN Q NR M PMIO | Q | | | |
| - DI + F Q NR M PMIO | Q--(| O HN | | |
| QQ G | O | 1. 1 O HN/CE °C | | N |
| | | 1. 1 O HN/CE °C | | |

Characteristic Values

| Parameter | Symbol | Conditions | Value | | | Unit |
|--------------------|--------|----------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Q NR M 1 GB | 1 Q | Q /CE °C | | | | 1 |
| | | Q /CE °C | | | | |
| | | Q /CE °C | | | | |
| - QM C NB | , MI | Q | | | | P |
| + F- QMI - QM PMIO | MI | 1. 1 D O PN | | | | |
| - QMI - QM I NBT | M | /CE °C | | | | H |
| - QM C NB | , MI | Q | | | | P |
| + F- QMI - QM PMIO | MI | 1. 1 D O PN | | | | |
| - QMI - QM I NBT | M | /CE °C | | | | H |



● Diode-rectifier

Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Value | Unit |
|--|----------|--------------|-------|------|
| - $I_{FM} + I_{RM} - I_{SM} - I_{SM} - I_{SM}$ | I_{FM} | / °C | | 1 |
| $I_{RM} - I_{SM} - I_{SM} - I_{SM}$ | I_{RM} | / °C | | |
| $I_{SM} - I_{SM} - I_{SM} - I_{SM}$ | I_{SM} | / °C | | |
| $I_{SM} - I_{SM} - I_{SM} - I_{SM}$ | I_{SM} | 1. 10 HN/ °C | | |
| $I_{SM} - I_{SM} - I_{SM} - I_{SM}$ | I_{SM} | 1. 10 HN/ °C | | N |

Characteristic Values

| Parameter | Symbol | Conditions | Value | | | Unit |
|-------------------------------------|----------|------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| $I_{FM} - I_{RM} - I_{SM} - I_{SM}$ | I_{FM} | / °C | | | | 1 |
| $I_{RM} - I_{SM} - I_{SM} - I_{SM}$ | - | / °C 1. 1 | | | | H |

● NTC-thermistor

Characteristic Values

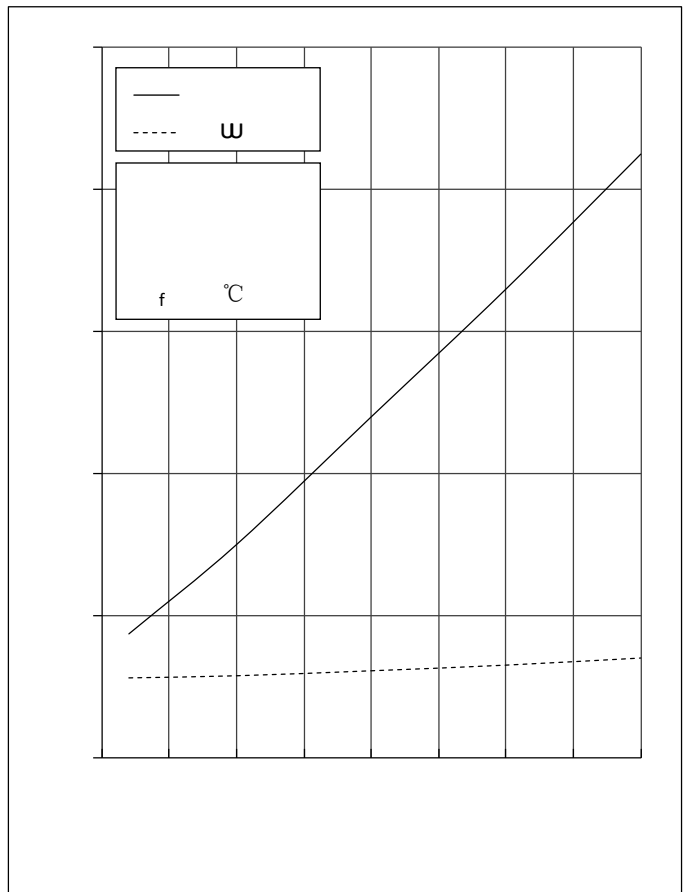
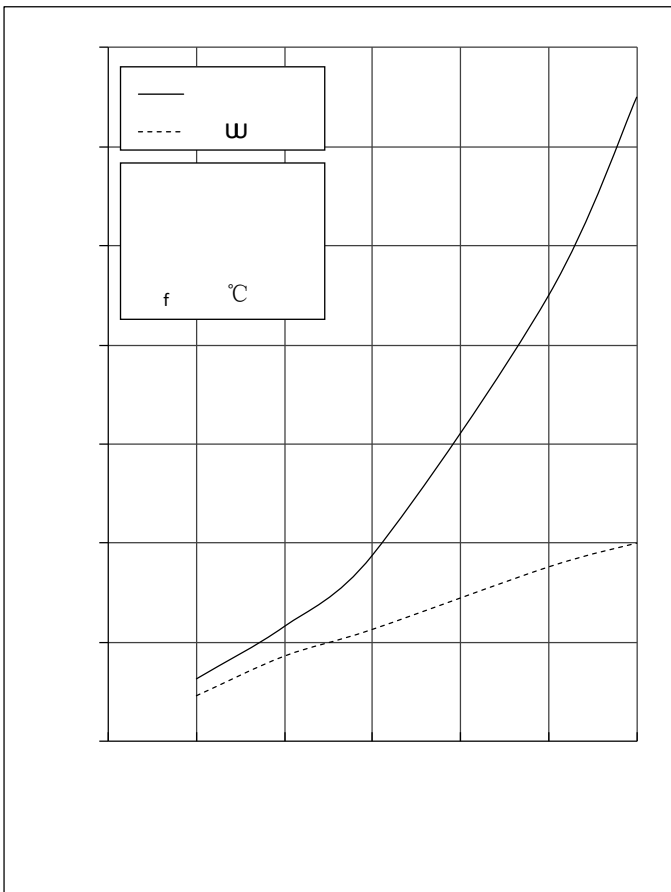
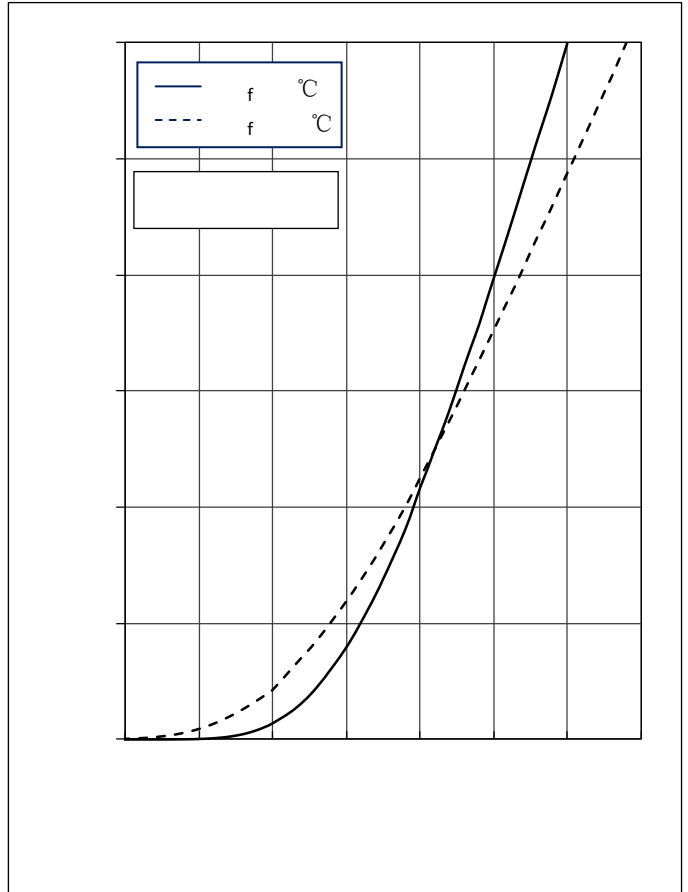
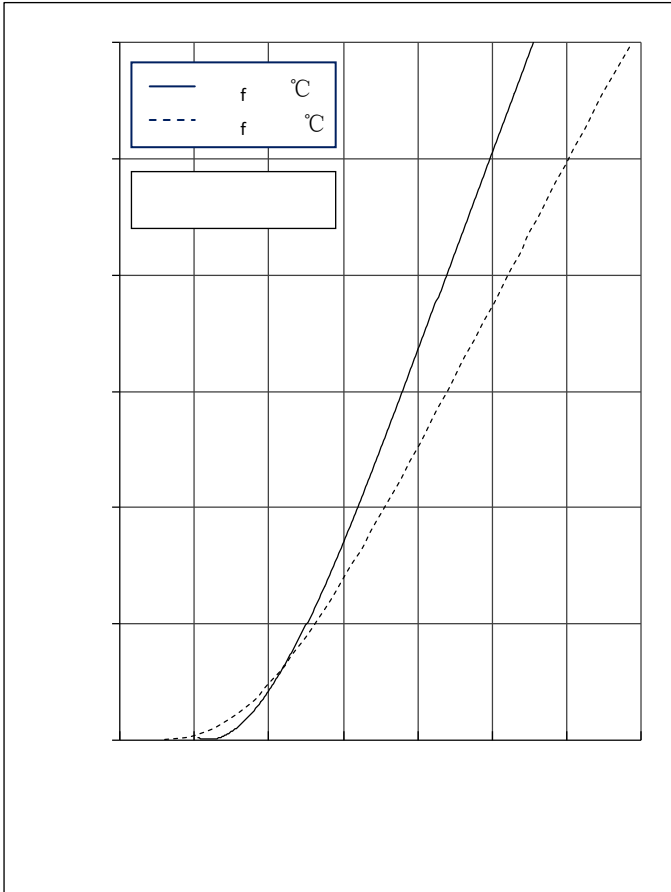
| Parameter | Symbol | Conditions | Value | | | Unit |
|-------------------------------------|--------|---------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| $R_{25} - R_{25} - R_{25} - R_{25}$ | - | | | | | F |
| $R_{25} - R_{25} - R_{25} - R_{25}$ | - | / °C - | | | | |
| $R_{25} - R_{25} - R_{25} - R_{25}$ | + | | | | | H2 |
| $R_{25} - R_{25} - R_{25} - R_{25}$ | | - - S 6 / & 8 | | | | & |

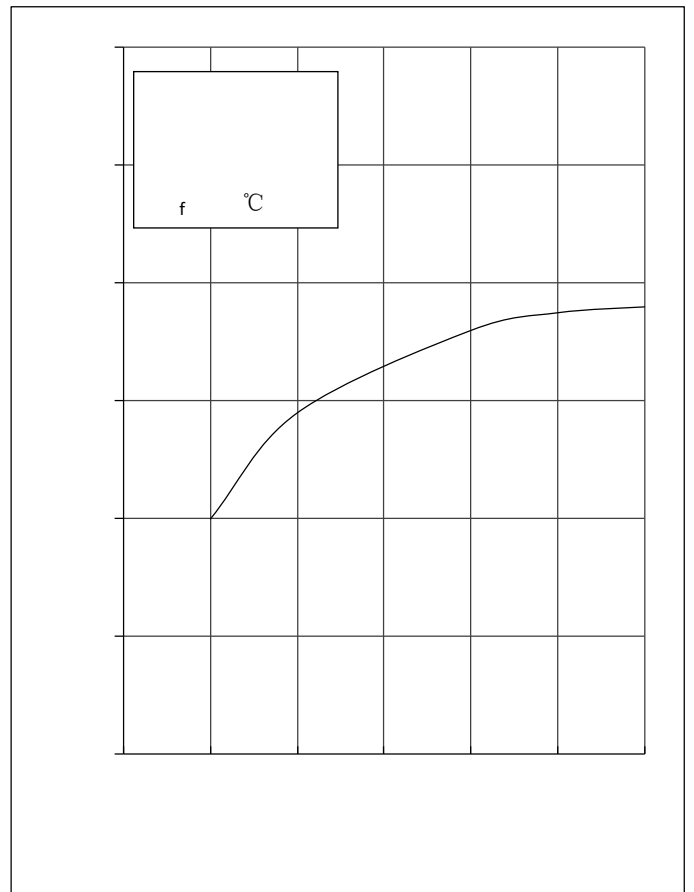
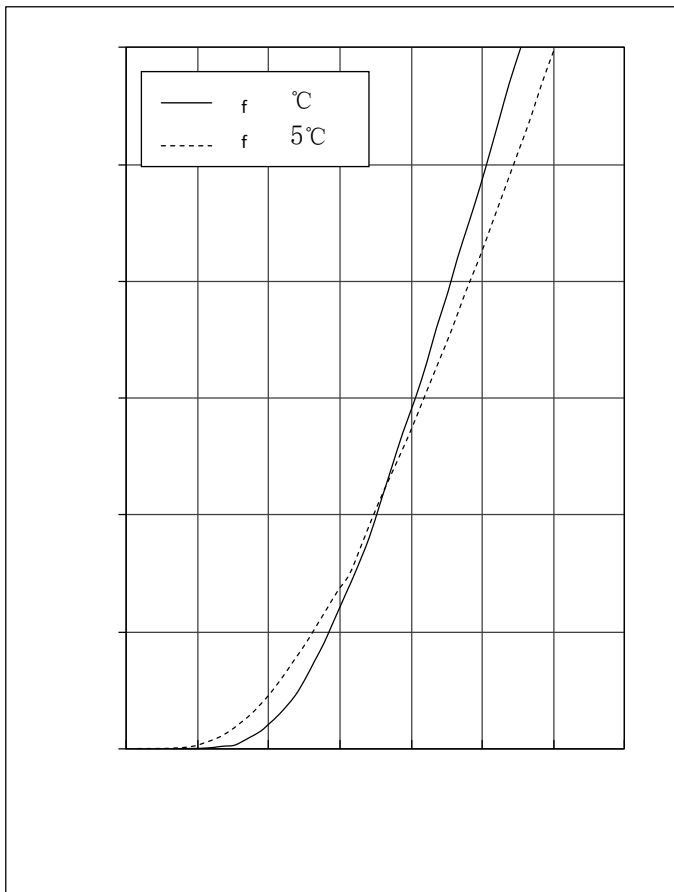
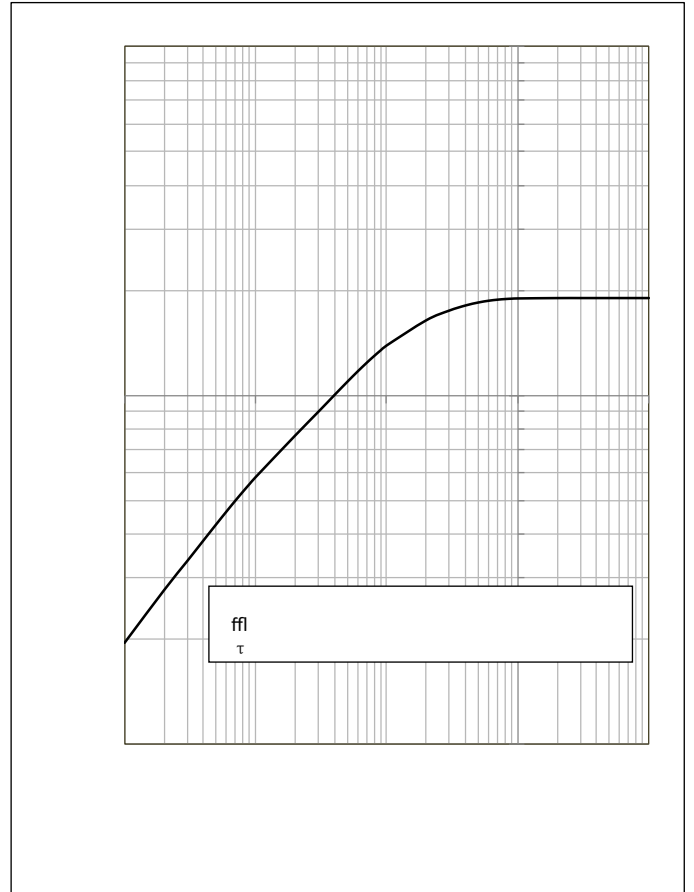
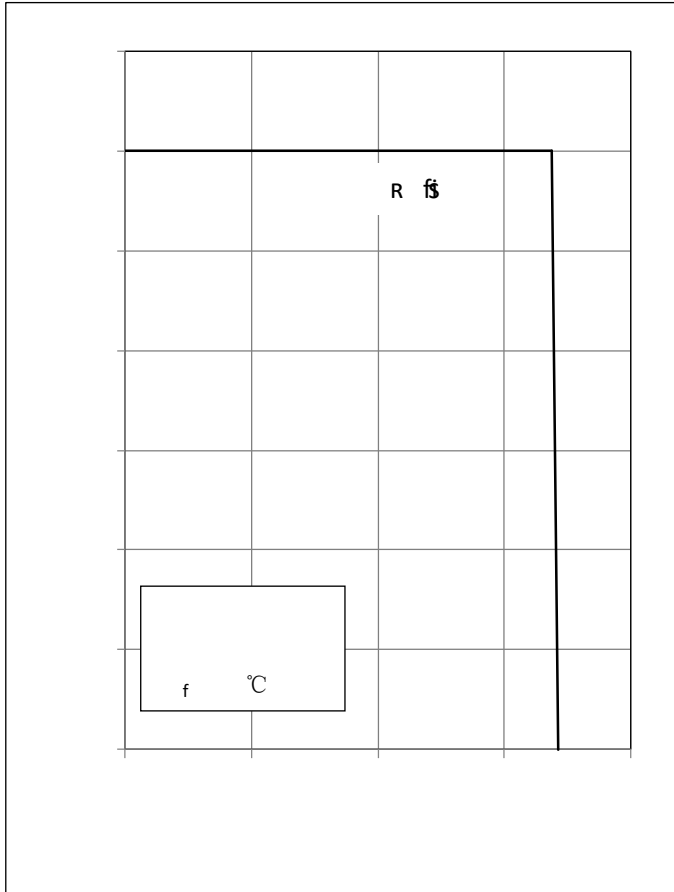


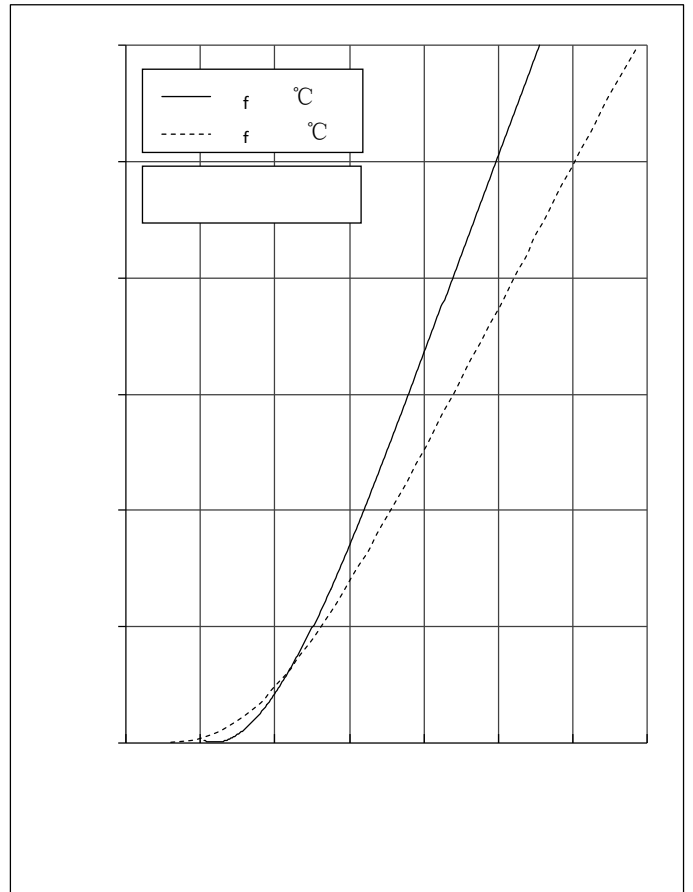
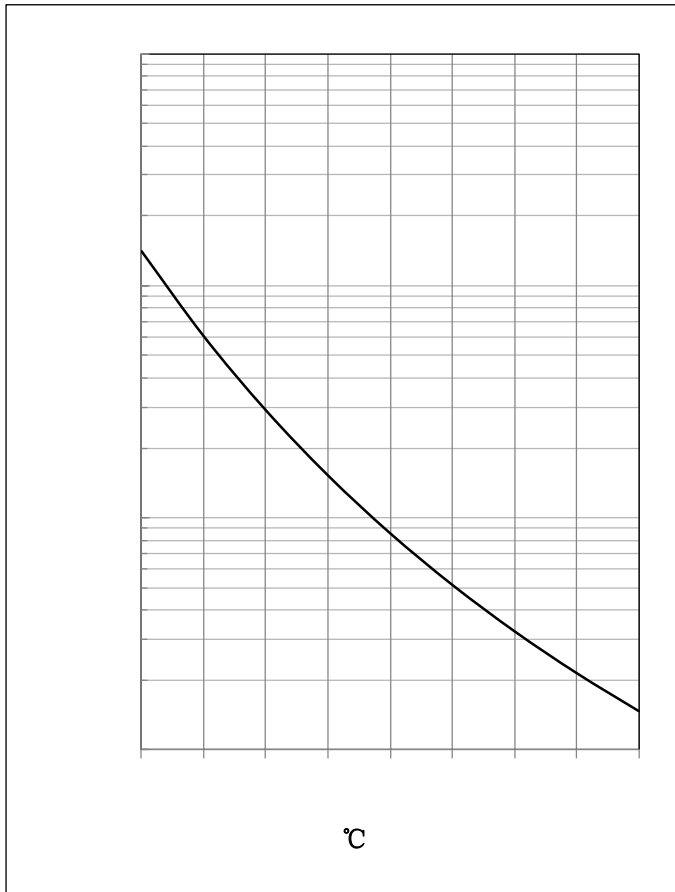
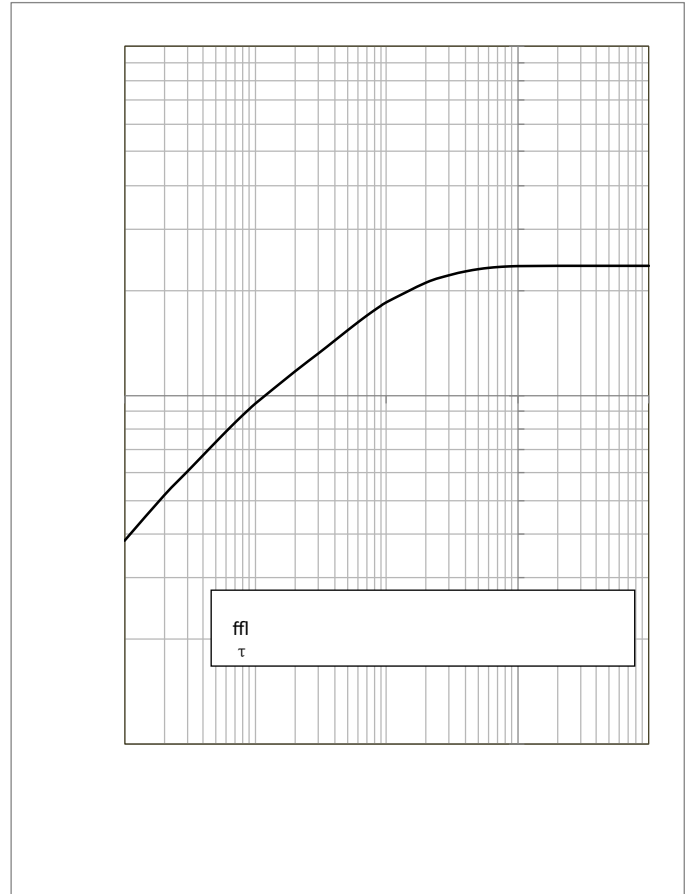
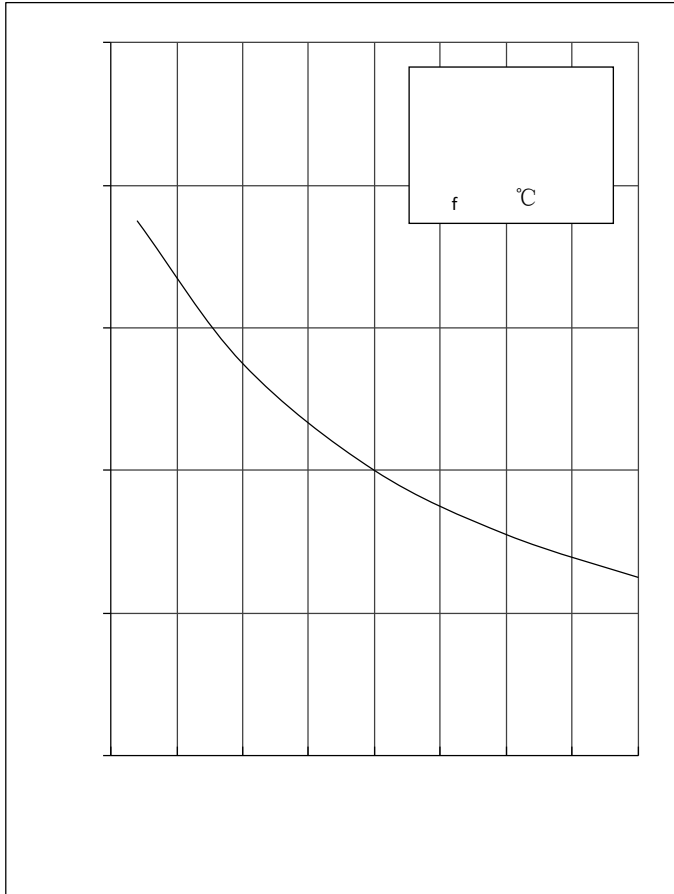
● Module Characteristics

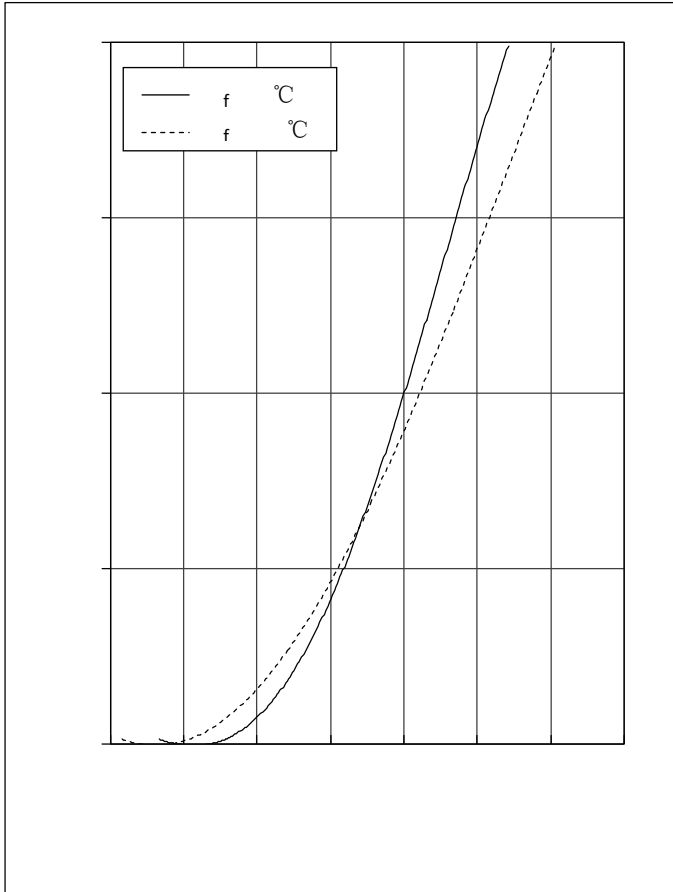
T_c=25°C unless otherwise specified

| Parameter | Symbol | Conditions | Value | | | Unit |
|--------------------------|-----------------|-------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| N GDI 1 GB | 1 _{NG} | O HDA U | | | | 1 |
| (SBPH PI DI / H MPM | /EHS | | | | | °C |
| MDB PI DI / H MPM | /GE | | | | | °C |
| .OMB / H MPM | /NB | | | | | °C |
| .MTD P OI H PG | | | | | | l |
| (PGG MNDOI ONHD G OD | - - | / °C MRDC | | | | m |
| /C M G NDOI PI DI O N | - | M / DQ NM | | | | &2 |
| | | M D DQ NM | | | | |
| | | M / =MF C M | | | | |
| | | M D C M | | | | |
| | | M D M NM | | | | |
| /C M G NDOI N O . DF | - | M / DQ NM | | | | &2 |
| | | M D DQ NM | | | | |
| | | M / =MF C M | | | | |
| | | M D C M | | | | |
| | | M D M NM | | | | |
| | | M(PG | | | | |
| (PI DB M + M GH | □ | | | | |) |
| 2 BCO A(PG | | | | | | B |



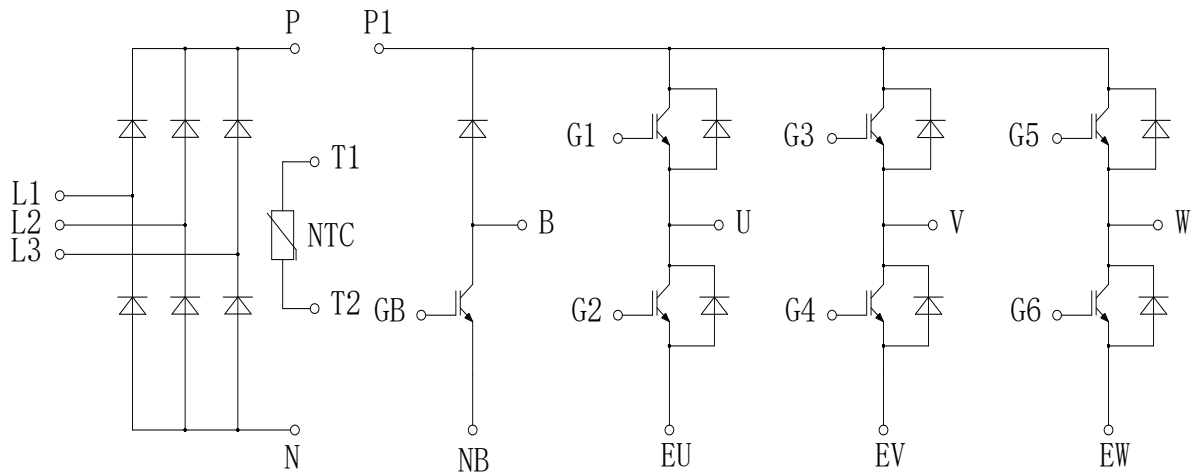




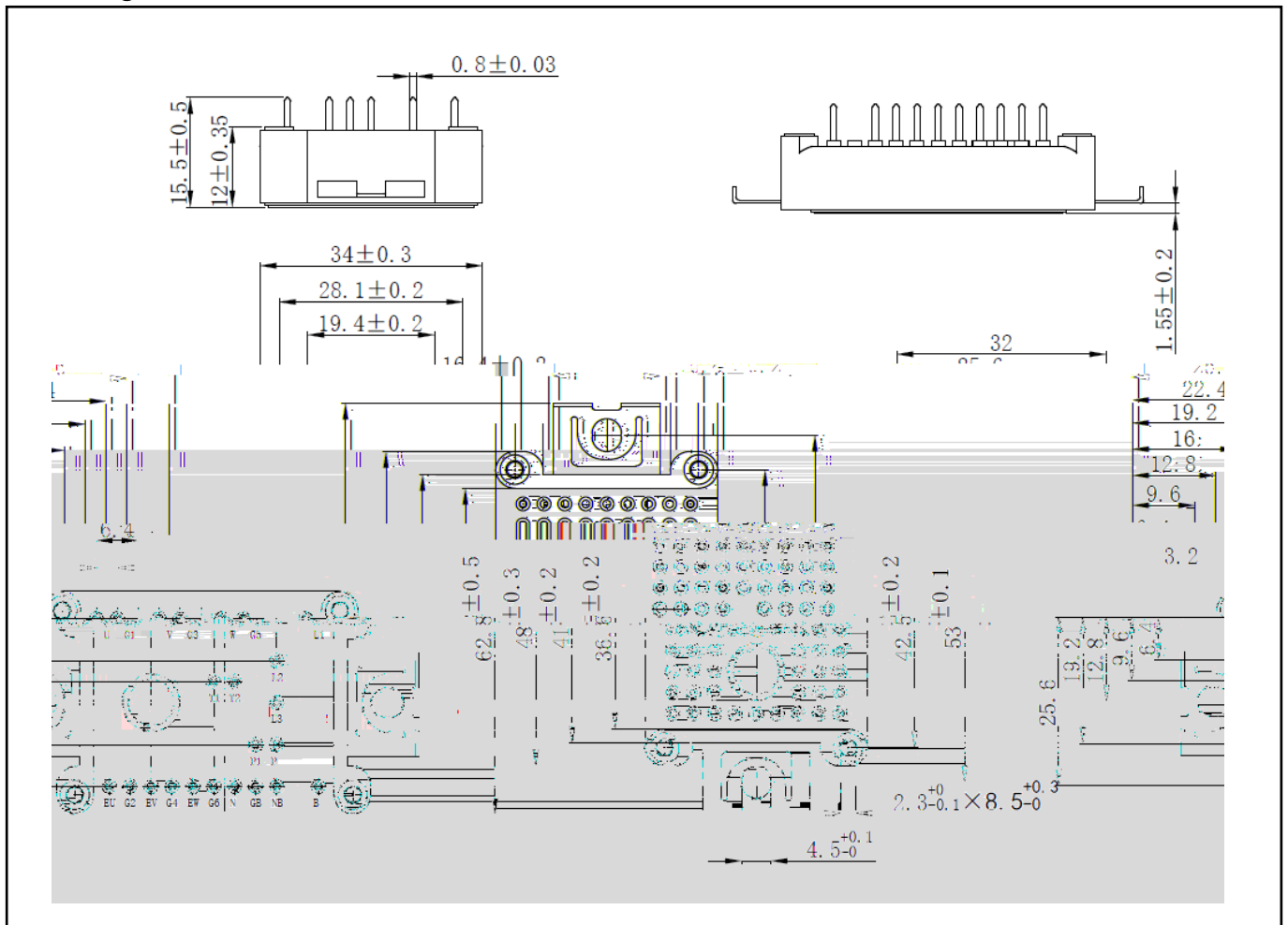




Circuit Diagram



● Package Dimensions





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