

LEGM200BH120L2K

IGBT Power Module

Features:

- $V_{CE}=1200V$ $I_C=200A$
- Low $V_{CE(sat)}$
- V_{CEsat} with positive temperature coefficient
- Maximum junction temperature 150°C
- Isolation Type Package

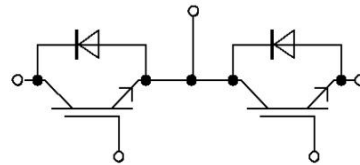
Applications:

- The inverter
- Motor control and drives

Package Type & Internal Circuit



L2



Internal Circuit

Maximum Rated Values (IGBT Inverter)

| Symbol | Parameter | Conditions | Ratings | Unit |
|-----------|------------------------------|---|----------|------|
| V_{CES} | Collector-emitter voltage | $V_{EC}=0V, I_C=1mA, T_{vj}=25^\circ C$ | 1200 | V |
| I_C | Continuous Collector Current | $T_C=100^\circ C$ | 200 | A |
| I_{CRM} | Peak Collector Current | $I_{CRM}=2I_C$ | 400 | A |
| V_{GES} | Gate-Emitter Voltage | $T_{vj}=25^\circ C$ | ± 30 | V |
| P_{tot} | Total Power Dissipation | $T_C=25^\circ C, T_{vjmax}=150^\circ C$ | 950 | W |

Maximum Rated Values (IGBT Inverter)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---------------|--|---|--|------|------|------------------|
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=200\text{ A}, V_{GE}=15\text{ V}, T_{vj}=25\text{ }^\circ\text{C}$ | | 2.10 | | V |
| | | $I_C=200\text{ A}, V_{GE}=15\text{ V}, T_{vj}=125\text{ }^\circ\text{C}$ | | 2.50 | | V |
| $V_{GE(th)}$ | Gate Threshold Voltage | $I_C=5.0\text{ mA}, V_{CE}=V_{GE}, T_{vj}=25\text{ }^\circ\text{C}$ | | 5.8 | | V |
| I_{CES} | Collector-Emitter Cut-off Current | $V_{CE}=1200\text{ V}, V_{GE}=0\text{ V}, T_{vj}=25\text{ }^\circ\text{C}$ | | | 3.0 | mA |
| I_{GES} | Gate-Emitter Leakage Current | $V_{CE}=0\text{ V}, V_{GE}=15\text{ V}, T_{vj}=25\text{ }^\circ\text{C}$ | | | 400 | nA |
| $t_{d(on)}$ | Turn-on Delay Time, Inductive Load | $I_C=200\text{ A}, V_{CE}=600\text{ V}$ $V_{GE}=\pm 15\text{ V}$ $R_{Gon}=2\ \Omega$ $T_{vj}=25\text{ }^\circ\text{C}$ | | 49 | | ns |
| t_r | Rise Time, Inductive Load | | | 72 | | ns |
| $t_{d(off)}$ | Turn-off Delay Time, Inductive Load | | | 339 | | ns |
| t_f | Fall Time, Inductive Load | | | 72 | | ns |
| E_{on} | Turn-on Energy Loss per Pulse | | | 10.4 | | mJ |
| E_{off} | Energy Loss per Pulse | | | 15 | | mJ |
| $t_{d(on)}$ | Turn-on Delay Time, Inductive Load | | $I_C=200\text{ A}, V_{CE}=600\text{ V}$ $V_{GE}=\pm 15\text{ V}$ $R_{Gon}=2\ \Omega$ $T_{vj}=125\text{ }^\circ\text{C}$ | | 50 | |
| t_r | Rise Time, Inductive Load | | | 77 | | ns |
| $t_{d(off)}$ | Turn-off Delay Time, Inductive Load | | | 375 | | ns |
| t_f | Fall Time, Inductive Load | | | 262 | | ns |
| E_{on} | Turn-on Energy Loss per Pulse | | | 11.5 | | mJ |
| E_{off} | Energy Loss per Pulse | | | 21 | | mJ |
| R_{thJC} | Thermal resistance, junction to case | per IGBT | | | | 0.13 |
| $T_{vj\ op}$ | Temperature under switching conditions | | -40 | | 125 | $^\circ\text{C}$ |

Maximum Rated Values (Diode Inverter)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------|---------------------------------|--|------|------|------|----------------------|
| V_{RRM} | Repetitive Peak Reverse Voltage | $T_{vj}=25\text{ }^{\circ}\text{C}$ | | 1200 | | V |
| I_F | Continuous DC Forward Current | $T_C=100\text{ }^{\circ}\text{C}$ | | 200 | | A |
| I_{FRM} | Repetitive Peak Forward Current | $t_p=1\text{ ms}$ | | 400 | | A |
| I^2t | I^2t Value | $V_R=0\text{ V}$, $t_p=10\text{ ms}$, $T_{vj}=125\text{ }^{\circ}\text{C}$ | | 7500 | | A^2s |

Characteristic Values (Diode Inverter)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--------------------|--------------------------------------|---|--------------------------------------|------|------|--------------------|
| V_F | Forward Voltage | $I_F=200\text{ A}$, $V_{CE}=0\text{ V}$, $T_{vj}=25\text{ }^{\circ}\text{C}$ | | 2.15 | | V |
| | | $I_F=200\text{ A}$, $V_{CE}=0\text{ V}$, $T_{vj}=125\text{ }^{\circ}\text{C}$ | | 2.25 | | V |
| t_{rr} | Reverse Recovery time | $I_F=200\text{ A}$, $V_R=600\text{ V}$ $-di/dt=3750\text{ A/us}$ | | 120 | | ns |
| Q_r | Recovered Charge | | | 16.5 | | μC |
| E_{rec} | Reverse Recovery Energy | | $T_{vj}=25\text{ }^{\circ}\text{C}$ | | 9.2 | |
| t_{rr} | Reverse Recovery time | $I_F=200\text{ A}$, $V_R=600\text{ V}$ $-di/dt=3750\text{ A/us}$ | | 291 | | ns |
| Q_r | Recovered Charge | | | 2.75 | | μC |
| E_{rec} | Reverse Recovery Energy | | $T_{vj}=125\text{ }^{\circ}\text{C}$ | | 15.3 | |
| R_{thJC} | Thermal resistance, junction to case | per Diode | | | 0.19 | K/W |
| $T_{vj\text{ op}}$ | Operating Junction Temperature | | -40 | | 125 | $^{\circ}\text{C}$ |

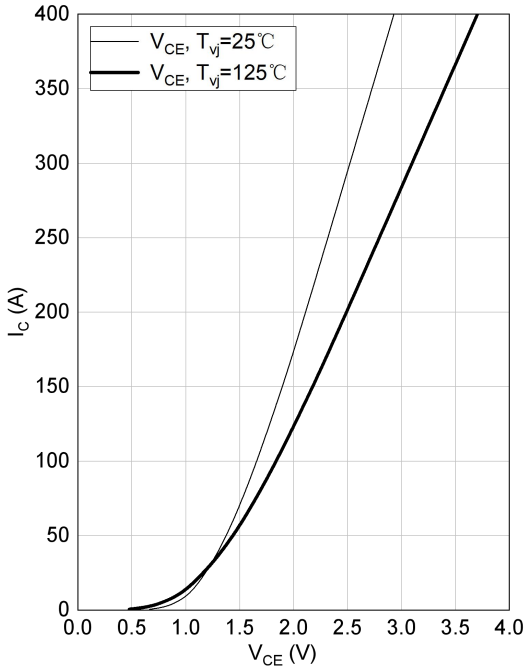
Module Characteristics

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|------------|--------------------------|-------------------------------------|------|------|------|--------------------|
| V_{isol} | Isolation voltage | $t=1\text{ min}$, $f=50\text{ Hz}$ | 2500 | | | V |
| T_{stg} | Storage Temperature | | -40 | | 125 | $^{\circ}\text{C}$ |
| M_t | Module Electrodes Torque | Recommended(M6) | 2.5 | | 5.0 | N·m |
| M_s | Module-to-Sink Torque | Recommended(M6) | 3.0 | | 6.0 | N·m |
| G | Weight of Module | | | 300 | | g |

Output characteristic of IGBT, Inverter (typical)

$$I_c = f(V_{CE})$$

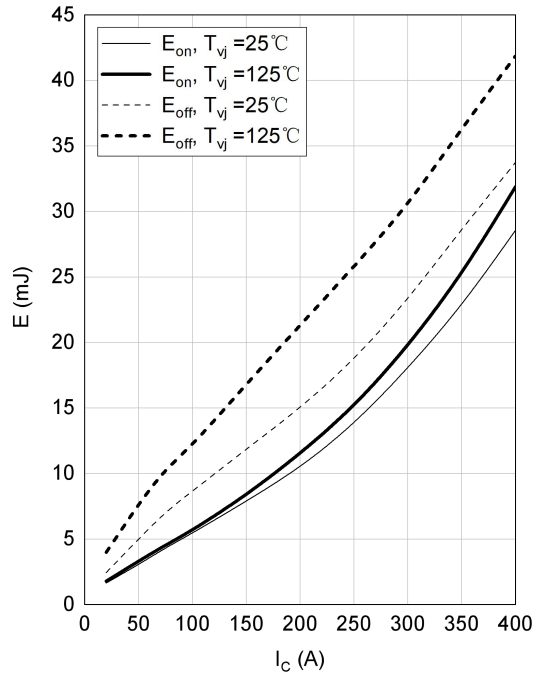
$$V_{GE} = 15V$$



Switching time of IGBT, Inverter (typical)

$$E_{on} = f(I_c), E_{off} = f(I_c)$$

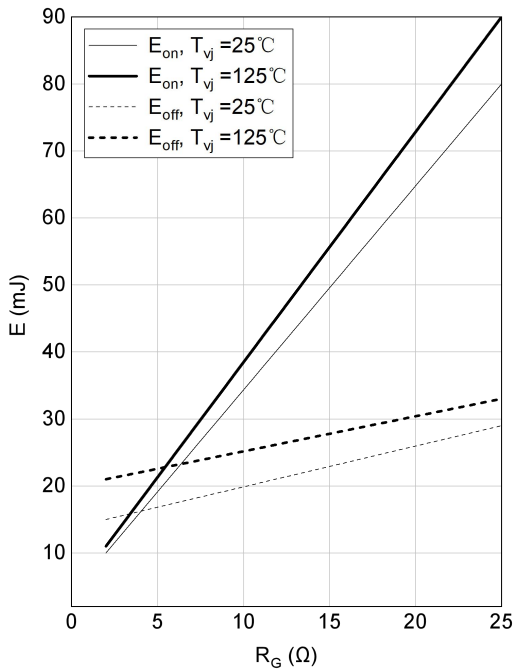
$$V_{GE} = \pm 15V, R_G = 2\Omega, V_{CE} = 600V$$



Switching losses of IGBT, Inverter (typical)

$$E_{on} = f(R_G), E_{off} = f(R_G)$$

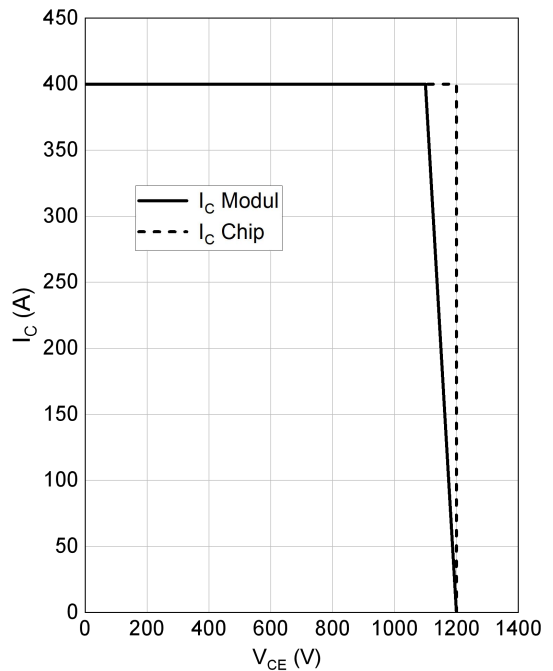
$$V_{GE} = \pm 15V, I_c = 200A, V_{CE} = 600V$$



RBSOA IGBT, Inverter (typical)

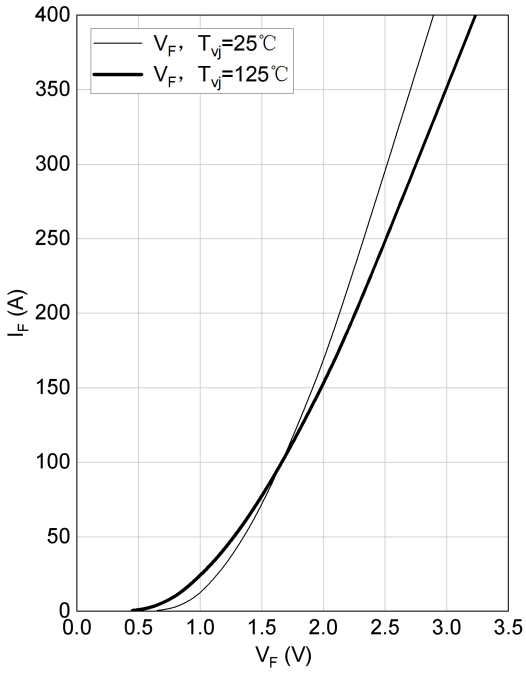
$$I_c = f(V_{CE})$$

$$V_{GE} = \pm 15V, R_{Goff} = 2\Omega, T_{vj} = 125^\circ C$$



Forward characteristic of Diode, Inverter (typical)

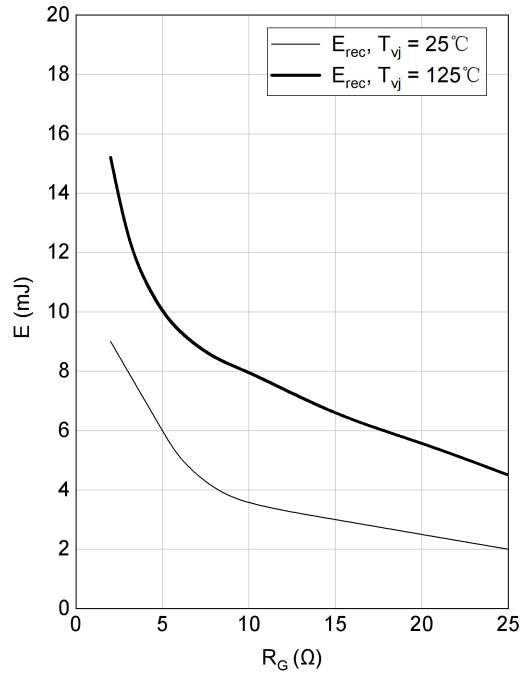
$$I_F = f(V_F)$$



Switching losses of Diode, Inverter (typical)

$$E_{rec} = f(R_G)$$

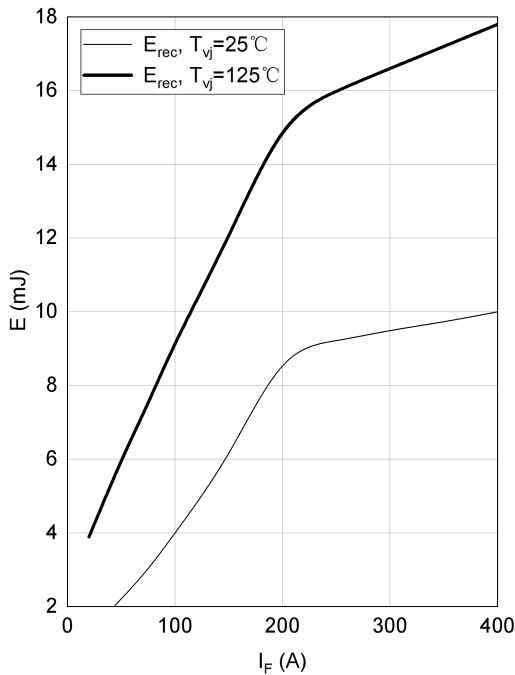
$$I_F = 200A, V_{CE} = 600V$$



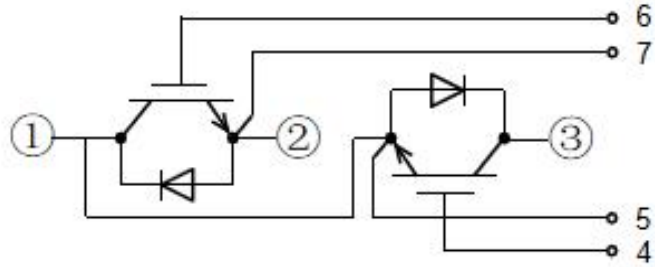
Switching losses of Diode, Inverter (typical)

$$E_{rec} = f(I_F)$$

$$R_{Gon} = 2\Omega, V_{CE} = 600V$$

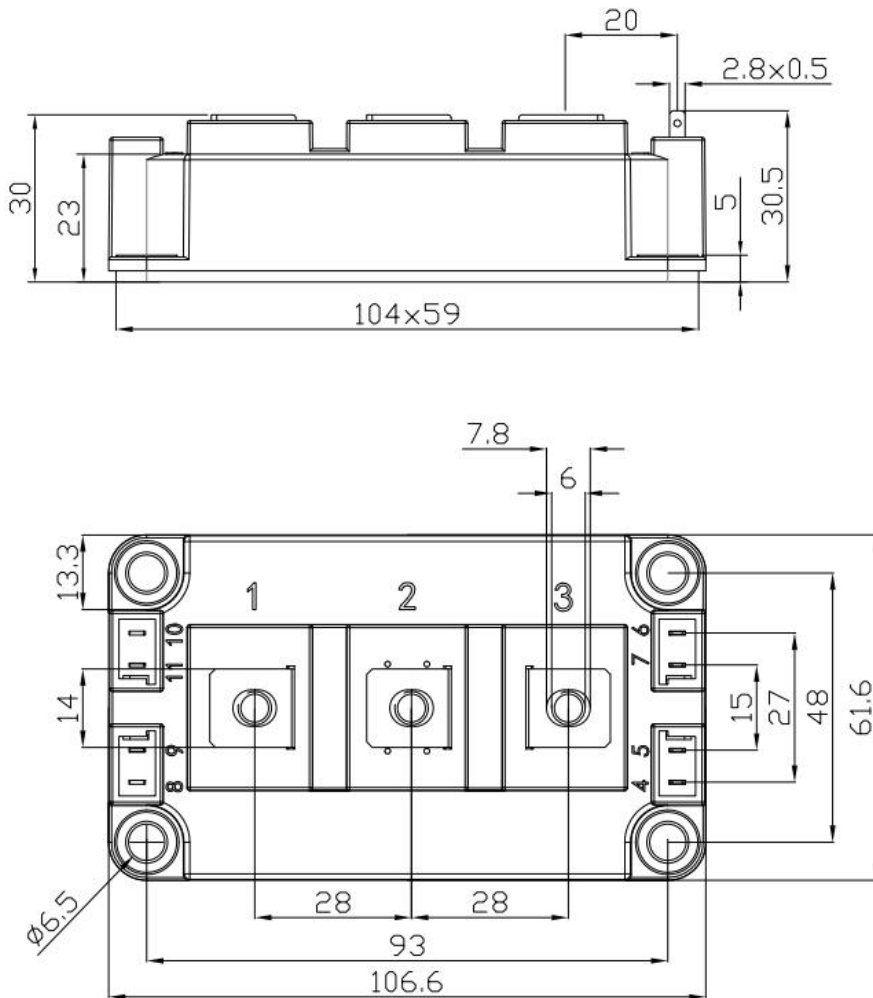


Circuit Diagram



Package Dimensions

(Dimensions in Millimeters)



DISCLAIMER

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [IGBT Transistors](#) category:

Click to view products by [Leading Energy](#) manufacturer:

Other Similar products are found below :

[IRG4PC30W](#) [APT20GT60BRDQ1G](#) [STGWA25H120DF2](#) [APT30GS60BRDQ2G](#) [TIG058E8-TL-H](#) [IDW40E65D2](#) [STGB40V60F](#)
[STGWA25H120F2](#) [NGTB75N65FL2WAG](#) [2MBI150VA-060-50](#) [NTE3320](#) [FGD3040G2-F085](#) [FGD3440G2-F085](#) [STGW80H65DFB-4](#)
[AFGY160T65SPD-B4](#) [IGW30N60TP](#) [IGW40N60TP](#) [IGW50N60TP](#) [IHW30N65R5](#) [IKFW40N60DH3E](#) [IKP15N65H5](#) [IKQ100N60T](#)
[IKQ120N60T](#) [IKW30N65WR5](#) [IKW75N60H3](#) [IKZ50N65NH5](#) [IKZ75N65NH5](#) [FGD3040G2-F085C](#) [FGH4L50T65SQD](#) [FGHL40T65MQDT](#)
[FGHL50T65MQD](#) [FGHL50T65MQDTL4](#) [FGHL75T65LQDT](#) [FGHL75T65MQD](#) [FGHL75T65MQDT](#) [FGHL75T65MQDTL4](#)
[FGY75T120SWD](#) [EL3120S1\(TA\)\(SAS\)-V](#) [IHW15N120E1](#) [IKQ75N120CS6](#) [IKW50N65WR5](#) [SL15T65FK](#) [KGF50N65KDF-U/H](#)
[IHF40N65R5S](#) [IKW08N120CS7XKSA1](#) [IKQ75N120CH3](#) [IHW30N160R5](#) [SGM100HF12A1TFD](#) [CRG50T60AK3SD](#) [CRG40T60AN3S](#)