

**Features:**

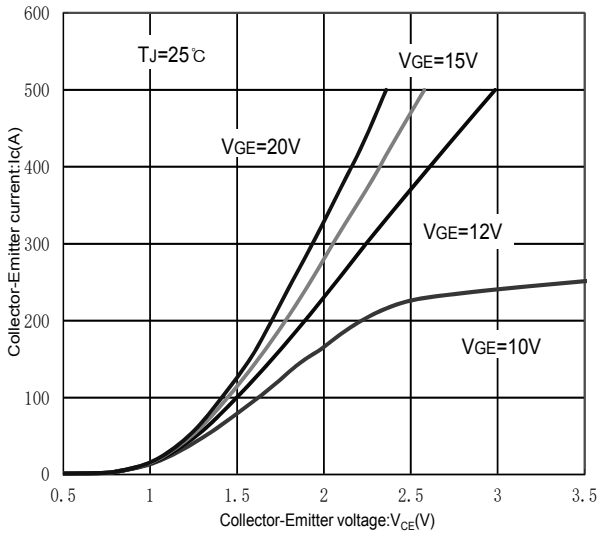
- High speed switching
- Voltage drive
- Low inductance module structure

Typical Applications:

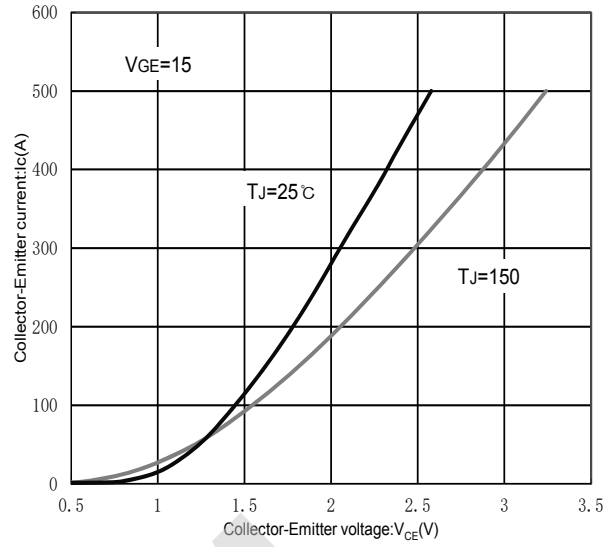
- Inverter for Motor Drive
- Inverter welding machines
- Uninterruptible Power Supply
- Industrial machines

| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | VALUE | | | UNIT |
|---------------|--|---|-------|------|----------|--------------------|
| | | | Min | Type | Max | |
| V_{CES} | Collector-Emitter voltage | $T_j=25^\circ\text{C}$ | | | 1250 | V |
| V_{GES} | Gate-Emitter voltage | $T_j=25^\circ\text{C}$ | | | ± 30 | V |
| I_C | Collector current | Continuous@ $T_C=100^\circ\text{C}$ | | | 300 | A |
| I_{CP} | | $T_P=1\text{ms}$ | | | 600 | A |
| P_C | Collector power dissipation | $T_j=175^\circ\text{C}$, 1 device | | | 1363 | W |
| T_j | Junction temperature | / | | | 175 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | / | -40 | | 125 | $^\circ\text{C}$ |
| V_{iso} | Isolation between terminal and copper base | $T_j=25^\circ\text{C}$, AC: 1minute | 2500 | | | V |
| Screw torque | Mounting(M6) | / | 4.5 | | 6.0 | N·m |
| | Terminals(M6) | / | 4.5 | | 6.0 | N·m |
| I_{CES} | Zero gate voltage collector current | $T_j=25^\circ\text{C}$, $V_{CE}=1200\text{V}$, $V_{GE}=0\text{V}$ | | | 1.0 | mA |
| I_{GES} | Gate-Emitter leakage current | $T_j=25^\circ\text{C}$, $V_{CE}=0\text{V}$, $V_{GE}=\pm 20\text{V}$ | | | ± 2 | μA |
| $V_{GE(th)}$ | Gate-Emitter threshold voltage | $T_j=25^\circ\text{C}$, $V_{CE}=20\text{V}$, $I_C=150\text{mA}$ | 4.5 | | 8.5 | V |
| $V_{CE(sat)}$ | Collector-Emitter saturation voltage | $T_j=25^\circ\text{C}$, $V_{GE}=15\text{V}$, $I_C=300\text{A}$ | | 2.00 | 2.40 | V |
| | | $T_j=125^\circ\text{C}$, $V_{GE}=15\text{V}$, $I_C=300\text{A}$ | | 2.10 | | V |
| | | $T_j=150^\circ\text{C}$, $V_{GE}=15\text{V}$, $I_C=300\text{A}$ | | 2.25 | | V |
| C_{ies} | Input capacitance | $T_j=25^\circ\text{C}$, $V_{CE}=10\text{V}$, $V_{GE}=0\text{V}$, $f=1\text{MHz}$ | | | 25.2 | nF |
| t_{on} | Turn-on time | $T_j=150^\circ\text{C}$, $V_{CC}=600\text{V}$, $I_C=300\text{A}$, $V_{GE}=\pm 15\text{V}$, $R_{gin}=1.8\Omega$, $R_{gext}=1.5\Omega$, Inductive load | | | 150 | ns |
| t_r | | | | | 60 | ns |
| t_{off} | Turn-off time | | | | 680 | ns |
| t_f | | | | | 250 | ns |
| E_{on} | Turn-on energy | | | | 30 | mJ |
| E_{of} | Turn-off energy | | | | 28 | mJ |
| E_{rr} | Reverse recovery energy | | | | 26 | mJ |
| t_{sc} | Short circuit withstand time | $T_j=150^\circ\text{C}$, $V_{CC}=720\text{V}$, $V_{GE}=\pm 15\text{V}$, $R_{gxt}=1.5\Omega$ | 10 | | | μs |
| V_F | Forward on voltage | $T_j=25^\circ\text{C}$, $I_F=300\text{A}$ | | 2.25 | 2.60 | V |
| | | $T_j=125^\circ\text{C}$, $I_F=300\text{A}$ | | 2.20 | | V |
| | | $T_j=150^\circ\text{C}$, $I_F=300\text{A}$ | | 2.10 | | V |
| t_{rr} | Reverse recovery time | $T_j=125^\circ\text{C}$, $I_F=300\text{A}$ | | 150 | | ns |
| | | $T_j=150^\circ\text{C}$, $I_F=300\text{A}$ | | 160 | | ns |
| $R_{th(j-c)}$ | Thermal resistance(per chip) | IGBT | | | 0.11 | $^\circ\text{C/W}$ |
| | | FWD | | | 0.16 | $^\circ\text{C/W}$ |
| $R_{th(c-f)}$ | Contact thermal resistance (per module) | With thermal compound | | 0.01 | | $^\circ\text{C/W}$ |
| W_t | Weight | | | | 310 | g |
| Outline | | 454H3 | | | | |

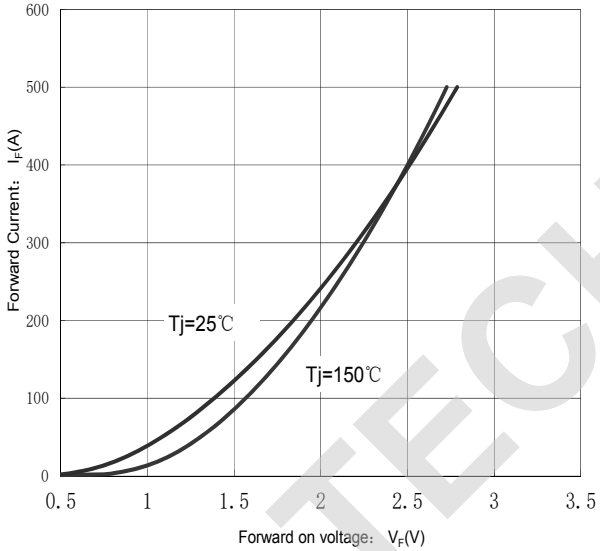
Collector current VS. Collector-Emitter voltage



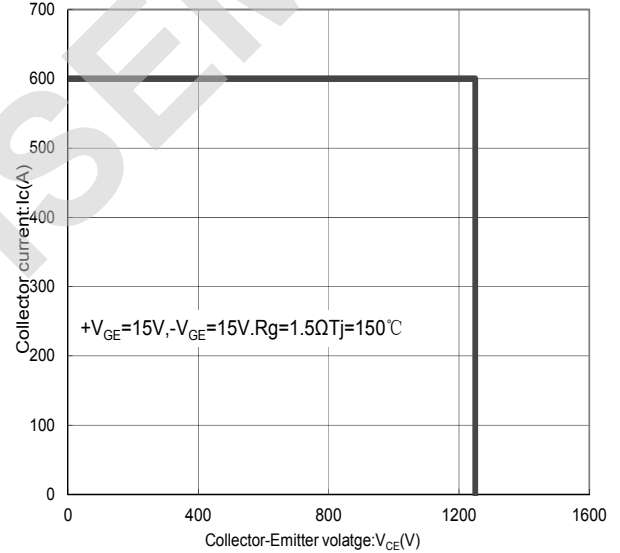
Collector current VS. Collector-Emitter voltage



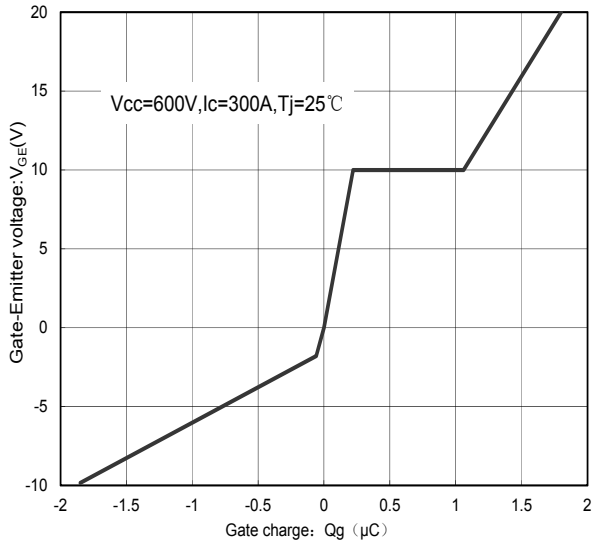
Forward Current VS. Forward Voltage



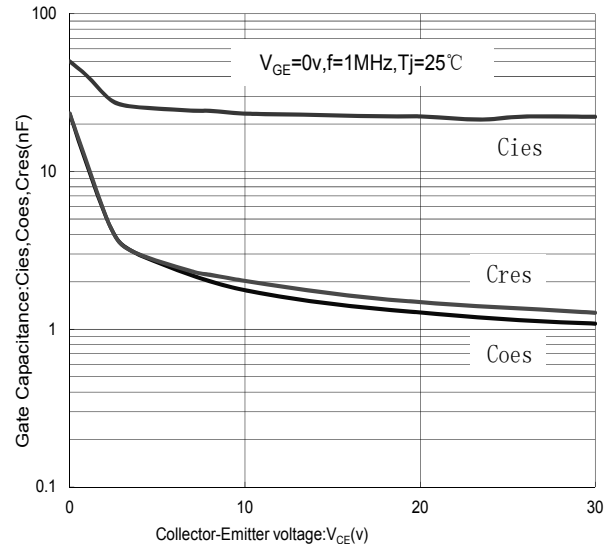
Reverse bias safe operating area

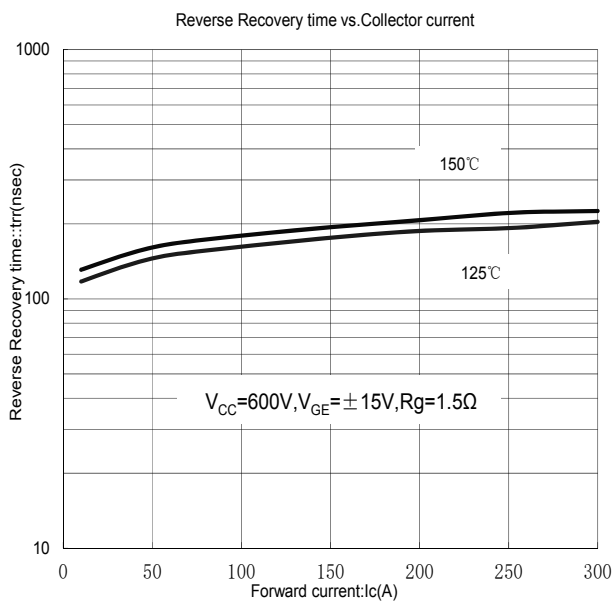
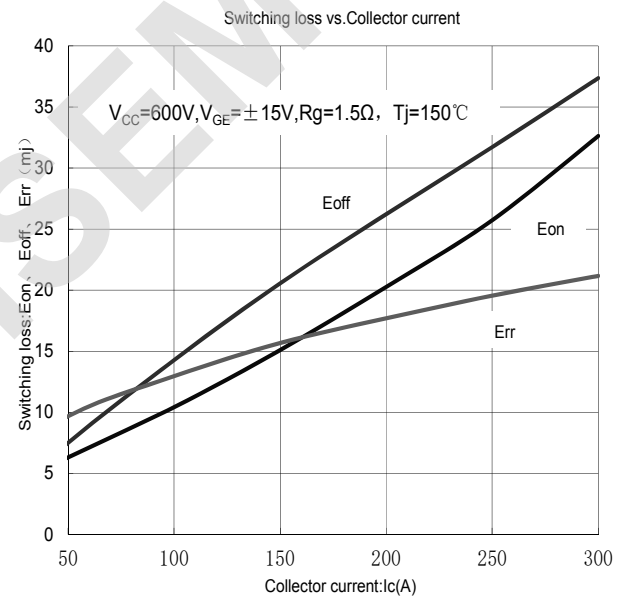
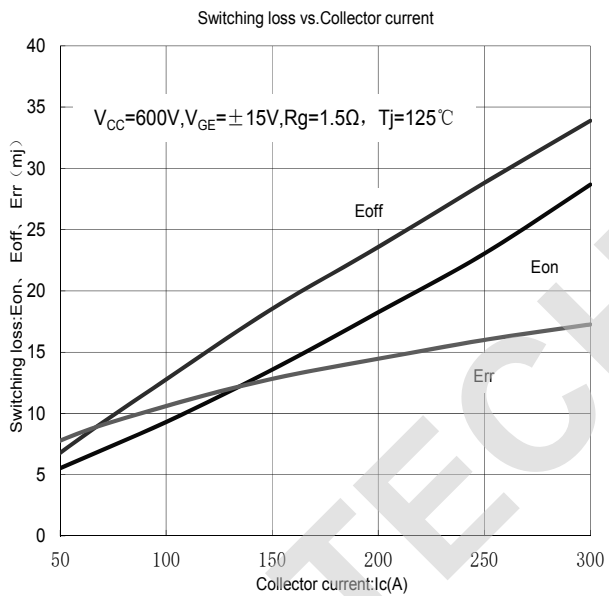
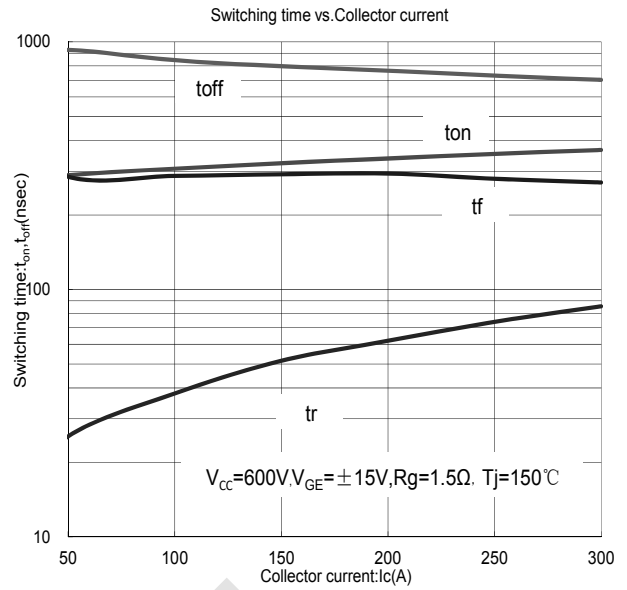
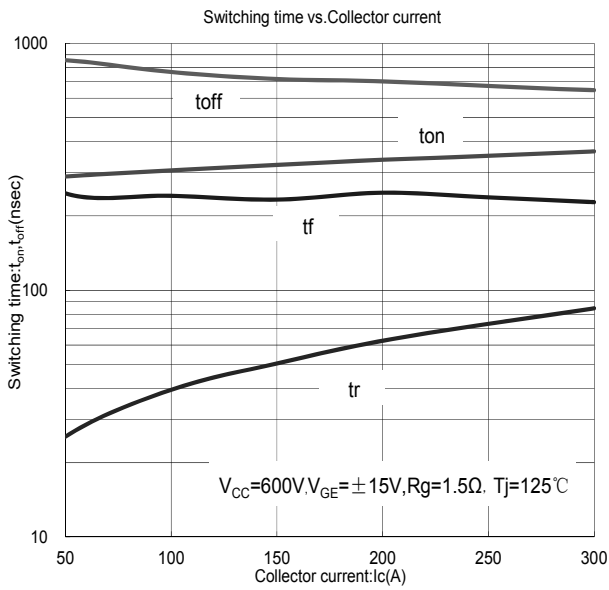


Dynamic Gate Charge(type)

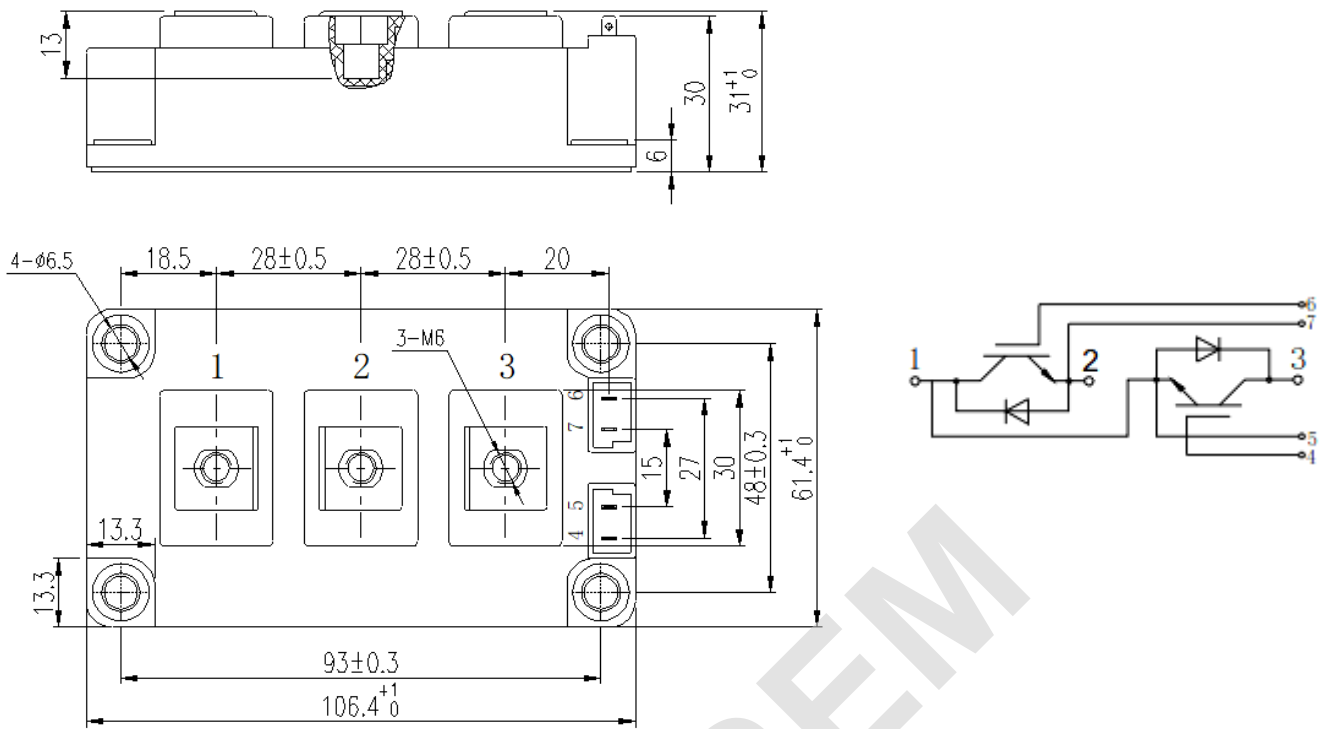


Gate Capacitance vs. Collector-Emitter Voltage





Outline & Circuit Diagram



Unmarked dimensional tolerance: ±0.5mm

TECHSEM reserves the right to change specifications without notice.

